

The Neolithic pottery of the Isle of Man and its

~~relationship with the Continent~~

The Neolithic pottery of the Isle of Man and its relationship to that of surrounding areas: a study in production, decoration, and use

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Abstract

This research project focuses on the Neolithic pottery of the Isle of Man and its relationship to that used in neighbouring parts of England, Ireland, Scotland and Wales (the Irish Sea province).

The Manx pottery has not been studied as a complete corpus since the early 1930s, since which time the quantity and diversity of material available has increased dramatically. This project therefore served the initial function of cataloguing, recording and illustrating the available material. In addition, since the Manx pottery was last studied, the aims and methodologies of ceramic analysis have changed significantly, with many more approaches to the data being available to the analyst. This study was therefore able to explore the Manx data from a variety of perspectives so as to produce a biographical view of the pottery used during the Middle, Late, and final phases of the Manx Neolithic from production through to discard.

The stages in the life history of the vessels which were analysed were: choice of materials, resource procurement, vessel building, decoration, use and discard. At each of these stages the approach adopted to ceramics by Manx potters and pottery users were compared with practises current in other parts of the Irish Sea province. This comparison indicated that the nature of the relationship between Manx and non-Manx pottery altered throughout the Neolithic. In the Early Neolithic the Manx did not adopt pottery, despite it being a common place in the rest of the Irish Sea province. In the Middle Neolithic, Manx pottery compared closely with that of surrounding areas, albeit with evidence for an individual approach to decoration. This contrasts greatly with the situation in the Late Neolithic when the Isle of Man adopted a unique ceramic repertoire which differed greatly in terms of form, decoration, and the roles which it served, from that current elsewhere. By the end of the Neolithic, the Isle of Man had, however, abandoned these innovative practises and adopted instead the more widely accepted Beaker pottery style. Throughout this study the reasons behind these changing relationships were explored within a broader social context.

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Acknowledgements

This research project was funded by a major research grant from the British Academy, with additional support from Manx National Heritage in the form of computer equipment and software. In the course of this research, Rupert Housley and Paul Pettitt at the Radiocarbon Accelerator Unit at the Oxford University Research Laboratory for Archaeology and the History of Art also produced 20 accelerator dates through a NERC research grant. The benefit of all this support is gratefully acknowledged.

A very large number of individuals have also helped in the production of this thesis through casual conversations, offers of advice and more material assistance. Apologies are due to any who have been inadvertently excluded from the list below.

At Bournemouth University, much support has been received from many members of staff in the School of Conservation Sciences, most notably from my supervisors Professor Tim Darvill, Dr John Beavis, and Mark Maltby who have provided a stimulating environment in which to work. The help of the technicians George MacLeod, Carol Madden, and Louse Geall was also much appreciated throughout the scientific analyses detailed in this study, as was the assistance of Jenny Yates in producing the illustrations of the Manx slate plaques (Figure 5.5). Dr Kevin Andrews also read and commented on early drafts of the scientific analyses. The assistance of Sarah Redding and Vince May in assisting with preparations for the oral examination is also gratefully recognised.

On the Isle of Man, help was received from a variety of sources. At the Manx Museum, Wendy Horn provided the initial impetus to begin this project, whilst continued support was offered by Andrew Johnson (in accessing the Manx SMR), and Hazel Simmons (in providing access to the museum's stores). A particular debt is also owed to Larch Garrad who allowed me to tap her considerable knowledge of

Manx archaeology whenever questions arose. The Centre for Manx Studies also provided considerable assistance throughout this research project, both in offering a place to stay on the Island, as well as space in which to analyse material. The benefit of discussions with the Director, Peter Davey, was also a great assistance in getting to know Manx archaeology. The advice of Alan Skillan, as well as access to his collection of Neolithic pottery was also extremely useful in this respect.

Outside of the Isle of Man, a number of museums and other organisations were also visited in the search for comparative material the following curators are therefore to be thanked: Colleen Batey, Kelvingrove Art Gallery and Museum, Glasgow; Clive Bowd and Fiona Gorman, Arran Heritage Museum (who also introduced me to Arran's archaeology); Delyth Enticott, Lancaster City Museum; Lynn Fade, Kendall Museum; Christine Howard-Davis, Lancaster University Archaeology Unit; Euan Mackie, Hunterian Museum and Art Gallery, Glasgow; John Pickin, Stranraer District Museum; Siobhan Ratchford, Dumfries Museum; Colin Richardson, Tullie House Museum, Carlisle; Dan Robinson, Grovesnor Museum, Chester; Anne Speirs, Bute Museum; David Tull, Docks Museum, Barrow-in-Furness; Gillian Varndell, British Museum. In particular thanks goes to Alison Sheridan, National Museum of Scotland, and Sinaed McCartan, Belfast Museum, for both allowing access to their collections, and also providing me with unpublished data from their own studies on several occasions.

As a part of this research, a number of experimental firings were also carried out which required help from a number of sources. In particular, Jonathon Garrett of Hare Lane Pottery, and Jake Keen of the Cranborne Ancient Technology Centre offered advice and materials, whilst Keith Jarvis of Poole Museum provided fuel and an excellent setting in the form of the reconstruction Roman farm, Upton Country Park.

In the course of producing this study many individuals not noted above also provided unpublished notes from their own research with which to compare the Manx data and their assistance is once again acknowledged: Malachy Conway,

Queen's University, Belfast; Trevor Cowie, National Museum of Scotland; Alex Gibson, Clwyd-Powys Archaeological Trust; T Manby, East Riding Archaeological Society; and Jenny Woodcock, Liverpool University.

On a more personal note, a number of people have offered considerable support throughout the production of this thesis. First, my father who provided a sounding board for many ideas and maintained an interest even to the point of reading the thesis. Next, Pete Sommer, Christine Sheard and David Leith for their morale boosting, and most importantly Deborah Warriner without whose support, encouragement and understanding the completion of this work might still be awaited.

1. Introduction

This study considers the Neolithic pottery of the Isle of Man and the manner in which it relates to that of surrounding areas. The Manx Neolithic was selected for study since it occupies a pivotal position between Britain and Ireland and is therefore useful in indicating the manner in which the two areas were linked throughout the Neolithic period. It was decided to focus in particular upon the pottery of the island since it displays great variety throughout the Neolithic and therefore offered the possibility of examining change in ceramic usage within a localised geographical area.

The last time that Manx Neolithic pottery was summarised as a whole was in 1935, when Graham Clark published an article describing the prehistoric archaeology of the Isle of Man in the first volume of the *Proceedings of the Prehistoric Society*. Since this time there have been considerable advances, both in the quantity and diversity of material known, as well as in the methodologies available for its study. The available methodologies now allow the ceramics to be studied from more varied perspectives, including: technological, stylistic, morphological, and functional. In order to present as holistic a view of the ceramics as possible this study examines the pottery from all of the perspectives listed previously, housing them within a biographical framework which examines the development of the vessel from the choice of materials to its final discard. At each stage in the study, the Manx practices revealed are compared with what is known of ceramic practices employed elsewhere within the Irish Sea area. The study is arranged as follows:

Part I: Outlines the methodologies used in the study

Chapter 2: The study area is introduced and a review is made of approaches to Neolithic pottery study.

Chapter 3: The manner in which the pottery is to be studied within this work is detailed.

Part II: Describes the archaeological context within which Neolithic ceramics were situated

Chapter 4: The archaeology of the Irish Sea province is introduced in order to establish the social and historical context in which ceramics were used.

Chapter 5: The archaeology of the Isle of Man is discussed in detail in order to examine the extent to which the Island presented a unique environment for ceramic use during the various phases of the Neolithic.

Part III: The Neolithic pottery of the Isle of Man is characterised and the major stages in the Manx vessel's life history are considered consecutively along with comparative evidence for ceramic practices elsewhere in the Irish Sea province

Chapter 6: The Manx Neolithic pottery is characterised to provide defined biographical subjects for subsequent analyses.

Chapter 7: The choice of ceramic raw materials, particularly on the Isle of Man is considered, and evidence for preferences discussed¹.

Chapter 8: The manner in which ceramic raw materials were collected is considered.

Chapter 9: The possible methodology used in designing the range of Manx Late Neolithic ceramics is considered².

Chapter 10: The decoration on Neolithic pots is examined.

Chapter 11: The evidence for the role of Neolithic pottery is discussed from a variety of perspectives.

Part IV: Conclusions

Chapter 12: The value of the biographical approach to the study of pottery is discussed, and the biography which has resulted from this study is summarised.

¹ Since the choice of raw materials is very much location specific there seemed little value in a comparison of those used on the Isle of Man with those used elsewhere, for this reason comparison is limited.

² The analysis of building techniques is limited to Manx Late Neolithic pottery since the body of evidence is of a particularly high quality for this period, and the range of forms produced within the tradition were also large.

Additional data in support of this research is presented in 12 appendices the conclusions from which are integrated into the body of the thesis where appropriate.

Part I:

Introduction to the concepts and methodology of the study

Prior to the analysis of Manx ceramics and any attempt to compare them with the pottery of surrounding areas it was necessary to consider what methodological framework was best suited to the study of the pottery, and over what geographical area comparisons should be sought. These are the two areas covered in this part of the thesis, in preparation for an introduction to the archaeology itself.

2. Background to the study

2.1 Definition of the study area

Throughout history the Isle of Man's unique location within the Irish Sea area has made it of key strategic importance. During the 9th century Viking raiders used it as an over-winter stop during their expeditions against both Britain and Ireland (Freke 1990, 112). Between the 12th and 14th centuries the Island was contested by Norway, Scotland, England and the native inhabitants (Freke 1990). In more recent times the Island's status has rested as a dependency to the British crown (Quayle 1990). This varied history provides some indication of the considerable area that is potentially of relevance if one is to accurately record the foreign influences on Manx life during the Neolithic period.

Within the context of this thesis it was decided to define a study area based on a two-tiered structure. At the first level a geographical zone encompassing the Irish Sea basin, was defined with the Isle of Man at its centre. This core study area was considered intensively, since the proximity of these coastal lands suggested that it would be in this zone that there would be the greatest chance of finding evidence for interaction with Man. Throughout this thesis this area is termed the Irish Sea province³.

Secondly, a wider review of the Neolithic evidence throughout the British Isles was undertaken in case there was evidence for links further afield. Particular attention was paid to the possibility of a linear zone of contact extending to the north up the west coast of Scotland. This area had formed the extent of the 12th century kingdom of Man and the Isles indicating that it formed a viable route along which Man may have interacted in prehistory.

³ This term has been used previously by Moore (1970), although in this instance it was used to cover a broader area including the length of the west and east coasts of Britain and Ireland respectively.

The extent to which the core study area extended inland into Britain and Ireland was decided using the pragmatic expedient of modern county boundaries rather than clear topographical frontiers. This decision was taken since modern archaeological records such as Royal Commission Inventories and Inventories by the Irish Office of Public Works tend to be organised on a county basis, making these the most convenient units of study. It will also be noted that any decision to define a study area is likely to be unrelated to concepts of landscape and territory employed during the Neolithic period.

The counties included within the study area, in addition to the Isle of Man, were as follows:

Britain

England

- Cheshire, Cumbria, Greater Merseyside, Lancashire, Merseyside

Scotland

- Dumfries and Galloway, Strathclyde

Wales

- Clwyd, Gwynedd

Ireland

Irish republic

- Counties Carlow, Dublin, Kildare, Kilkenny, Louth, Meath, Monaghan, Wexford, and Wicklow

Northern Ireland

- Counties Armagh, Antrim, Derry, and Down.

The area covered by these counties is shown on Figure 2.1 and effectively forms a box around the Isle of Man extending inland for at least 20km. The Isle of Man forms a relatively small part of the study area, its 571 square km occupying a mere 1.4% of the total land surface covered by this research. Due to the large size of the Scottish Strathclyde region, this was broken down to the pre-1974 boundaries of

Argyllshire, Ayrshire, and Bute. The latter district contains both the Isle of Bute and Arran. Within Wales, it was also decided to maintain Anglesey as distinct from the rest of Gwynedd since the archaeology of this area is generally recognised as distinctive (see Lynch 1991).

The geography and topography of the Irish Sea province is not considered in detail since it does not form a significant element in a study of the ceramics. Nonetheless, specific elements of topography are introduced into this thesis where necessary. An understanding of the Manx topography is, however, of great importance in setting the scene for a biographical study of the pottery. This is discussed in Chapter 5, at which point the historical and social context of the Manx pots is also considered in detail.

The definition of a study area which cuts across Britain and Ireland is rather unusual in the current climate of prehistoric studies. Increasingly academic archaeology, supported by the works of national archaeological bodies such as the Royal Commissions and the Office of Public Works, have focused on localised areas. These have rarely included both sides of the Irish Sea, eg, Powell *et al* (1969), Herity and Eogan (1977), Bradley (1978, 1984), Darvill (1987), O'Kelly (1989), and Cooney and Grogan (1994). The effects of this trend has been both to exclude the Isle of Man from study since it does not fall comfortably into either British or Irish studies, and to polarise the paths of archaeological research adopted by its neighbours.

In consequence the present study is something of an anomaly in that it focuses upon the Isle of Man and attempts to draw together the rather distinctive fields of British and Irish study. This has necessarily involved some reassessment of the evidence, specifically to produce a consistent terminology for this research. This terminology is introduced in Chapter 4 and detailed in Appendix 1.

2.2 Introduction to Neolithic ceramic research

The study of pottery has often been seen as a discrete specialism within research into the Neolithic period. Indeed, this thesis is just one in a long list of PhD studies which has pottery as its primary subject (Smith 1956; Gibson 1982; Sheridan 1985; MacSween 1990; Wardle 1992; Boast 1995). A number of reasons can be proposed for why pottery has so often been separated in this manner. In part it can be noted that the considerable diversity of terminology within the subject frequently requires an in-depth knowledge in order to disentangle existing pottery reports and thereby place new finds in context (see the discussion of the terms for Carinated pottery in Appendix 1). The developing structure of professional archaeology within Britain has also institutionalised the position of pot analysis as a specialist concern through its recognition of finds' analysis as a discrete area of expertise (*cf.* Institute of Field Archaeologists 1996, 12). A final reason is the nature of the questions being asked of Neolithic pottery; it could be argued that these are often peripheral to the examination of society as a whole during the period. This latter point is explored below through a review of the historical development of research into Neolithic pottery.

2.2.1 The analytical objectives of Neolithic ceramic analysis

The history of Neolithic pottery studies can be effectively dated from the publication of Abercromby's research into the Beaker pottery of the British Isles (1912). This made Beaker pottery one of the most systematically described prehistoric pottery types, as well as one of the earliest widely recognised; although pottery predating Beakers had been known for some time previous to this (see Bryce 1910; Smith 1910). Large scale syntheses of the data did not, however, appear until the 1920s and 30s when Callander examined the evidence from Scotland (1929), and Piggott looked at the pottery from the British Isles generally (1931). These initial works appear to have set the tone of much subsequent Neolithic ceramic analysis towards classification and description. Initially this may be seen to have been the concern of all aspects of Neolithic study, in order to

delineate and structure a formless dataset. Within pottery studies, it might, however, be noted that classification seems to have taken on a life of its own.

2.2.1.1 *Pots and chronologies*

For the most part the attention of the early syntheses centred on the chronological sequence of the dataset (eg, Smith 1910; Abercromby 1912; Piggott 1931). The study of Neolithic ceramic chronology was clearly of primary importance in order to date sites at this time, and agreement appears to have been quickly reached around a tripartite division of Early : Late : Beaker (Bronze Age). As a result it became possible to date those sites at which these three main types of ceramics occurred, although it must be noted that with such an approach the danger was present of a circular argument in which pots dated sites which in turn dated pots.

The goal of chronological precision has subsequently led to many attempts to further sub-divide this tripartite scheme. Prior to the mid-1960s these were based on presumed typological sequences of primitive to developed, or vice versa (eg, Smith 1956; Scott 1964). The advent of radiocarbon dating provided a further means of refining these schemes (eg, Case 1961; Smith 1974; Sheridan 1985; Kinnes *et al* 1991)⁴. Despite this considerable effort it might be noted that the majority of attempts to subdivide the initial tripartite scheme have not retained their validity in the light of fresh data (eg, Beaker chronologies proposed by Clarke 1970, Lanting and van der Waals 1972, Case 1977; or Peterborough chronologies proposed by Smith 1956). Nonetheless, the development of detailed typological schemes still seems to be one of the primary aims of Neolithic pottery analysis (eg, Brindley and Lanting 1990; Sheridan 1995).

⁴ The perceived value of such radiocarbon based schemes does not appear to have been decreased by debate as to sampling procedure (Waterbolk 1971), or the inconsistent quality of early dates (with the exception of work by Kinnes *et al* 1991, and Sheridan 1995).

2.2.1.2 Pots and spatial analysis

A parallel concern of Neolithic ceramic analysts which can be dated to the beginnings of the study is that of spatial distribution. The credit for introducing the distribution map into Neolithic studies has gone to O G S Crawford (1912) for his study of Early Bronze Age 'settlements'. Piggott (1931) introduced this approach into Neolithic pottery studies with his maps of Neolithic A and B pottery. With these he firmly equated ceramic type with cultural group. The aim of the distribution map could thereby be equated with the search for Neolithic social groups. As with chronological studies, this approach has also continued to be a major concern for ceramic analysts (eg, Piggott 1954; Case 1961; Clarke 1970).

Since the 1950s and the advent of 'New Archaeology' the simple equation of pot type with cultural group has been increasingly called into question, as ethnographic, and technological studies have shown that different groups can make use of the same material culture and vice versa (eg, Peacock 1969; Binford 1972; Hodder 1977). Indeed, within British, Irish and North American archaeology, the use of distribution patterns to infer the extent of social groups has been almost completely abandoned. Nevertheless, within Neolithic pottery studies the analysis of ceramic distributions continues (eg, Case 1993).

2.2.1.3 Social and technological analyses of Neolithic pottery

Despite a continued interest in the analysis of spatial and temporal distributions there has, however, been an increase in the variety of analytical approaches to the study of Neolithic pottery since the 1960s. This might be seen as a consequence of the marginalisation of the traditional aims of pottery analysis described above, whilst the increased availability of scientific analytical techniques has also made alternative research goals more easily accessible. Three major areas of research can be identified.

First, the analysis of the techniques of production. Although there has been some work done on the processes involved in the building of Neolithic pottery (eg, Van

der Leeuw 1976; Woods 1986), the majority of effort has been directed towards an examination of the firing technology likely to have been used (eg, Woods 1983; 1989; Gibson 1981). These studies have helped to resituate Neolithic pottery as the product of craftsmanship, rather than as an archaeological means to the reconstitution of Neolithic society.

The second area of study has received more widespread attention: the examination of exchange processes during the Neolithic. Building on the work of Thomas (1932) and Cornwall and Hodges (1964), Peacock (1969) noted the presence of a highly diagnostic ceramic type derived from Cornwall and yet found throughout Dorset, Hampshire and Wiltshire. Since this time, there have been numerous studies attempting to find similar evidence for exchange elsewhere in the British Isles (eg, Peacock 1969; MacSween 1990; Sheridan 1985).

The third, if poorly developed, strand of study has been the question of vessel use. This area, has been explored chiefly by Howard (1981) in her re-analysis of the pottery from Windmill Hill, and Cleal (1993) in her assemblage level analysis of Early Neolithic pottery. Nonetheless, there is a growing interest in the examination of the function of prehistoric pottery as is shown within the Prehistoric Ceramics Research Group (1995).

These new perspectives on Neolithic pottery have done much to broaden our appreciation of the material. They are also important in that they approach pottery as objects for use rather than reflections of social structures or peoples (*cf.* Boast 1995). Nonetheless, the majority of studies have focused on either single assemblages (eg, MacSween 1990; Howard 1981), or discrete geographical areas (Peacock 1969; Cleal 1993).

In large part the Irish Sea province has fallen outside the study areas in which these more innovative approaches to Neolithic pottery have been applied. A notable exception to this is the work of Sheridan (1985) whose PhD work considered the evidence for exchange within Neolithic Ireland; whilst the work of Darvill (1984)

must also be cited in the context of research into ceramic exchange in Wales. No comparable works are available for southwest Scotland, northern England, or the Isle of Man, and no part of the Irish Sea province has been studied with a view to the examination of the role of the pots themselves.

2.2.1.4 Integrated approaches to Neolithic ceramic analysis

Despite the increased variety of analyses apparent within Neolithic ceramic studies, it is noticeable that another trend has emerged since the early 1980s in which researchers not normally considered to be pottery specialists have utilised pottery in the development of a broader argument. For example, Richards and Thomas (1984) studied the deposition of pottery as a means by which to examine the ritualised nature of buildings at Durrington Walls. Bradley (1984) explored the correlation between Grooved ware and exotic artefacts as reflecting differential access to particular materials in Neolithic society. Whittle (1981) examined the apparent spread of Beaker pottery to different site types as a consequence of emulation.

These studies can be contrasted with the more particularist interests described in previous sections and represent valuable attempts to consider the role of pottery as a tool within daily life rather than as isolated objects. Unfortunately, the majority of these studies have focused upon the Neolithic of Southern England and the approach they typify has not yet been attempted within the context of the pottery of the study area. Nonetheless the approaches adopted in these papers provide fresh directions for ceramic research, as well as informing us more generally about the role of material culture in Neolithic society.

2.2.2 Conclusion

The current state of Neolithic ceramic research presents a great variety of possible approaches to the subject, from traditional typological aims through to more pioneering approaches exploring the question of vessel function.

On the Isle of Man research has lagged behind in the application of these diverse approaches, despite a very large dataset compared to much of the Irish Sea province, see Figure 2.2. The framework within which Neolithic pottery is currently interpreted was laid down in 1935 when Clark first introduced Manx prehistory to a wide audience. This framework focuses primarily on the morphological characteristics of vessel rims, and its interpretative value has not been explored subsequent to its introduction. More recent work on Manx pottery has been primarily comparative, with new finds being referred back to similar examples (eg, Bruce *et al* 1947; Moffatt 1978). The present research project offered the opportunity to apply a number of these approaches on the same dataset thereby offering a more holistic view of the subject.

Prior to this work, a theoretical platform needed to be established from which to situate this varied analytical approach. The framework adopted for analysis is developed more fully in the following chapter.

3. A biographical approach to ceramic studies

3.1 Introduction

Woodward (1996, 9) observes that the study of ‘the biography or life history of the individual vessel’ is one of the key new themes of prehistoric ceramic analysis. The development of this theme is a corollary of the profusion of new approaches and methodologies available for the study of prehistoric pottery, as described in Chapter 2.

The manner in which these archaeological techniques are applicable to a study of vessel biography are considered in Section 3.2. For the moment it is necessary to explore further what is meant by a vessel biography.

To write a biography it is necessary to have a predefined subject and to have subdivided that subject’s life into meaningful stages (chapters) from ‘birth’ to ‘death’. Both the definition of the subject and the choice of stages are points at which the analyst imposes an artificial order onto the dataset, and are likely to vary according to the needs/interests of the researcher. In the case of the present study of Neolithic pottery the synchronic biography of the pot is divided into the following discrete stages (see also Figure 3.1):

- Production, consisting of:
 1. Raw material procurement
 2. Building
 3. Decoration
 4. Firing
- Exchange
- Use
- Discard

These main stages provide a coherent framework whilst maintaining the ceramics as the centre of analysis. Furthermore, since at each of these stages the vessel is situated within a different context it will be possible to explore more fully the varied roles and meanings of a vessel in society throughout this study (*cf.* Boast 1995). For example, at the production stage a vessel's meaning to the potter is situated in its future potential, and as such is in a state of flux dependent on the choice of design the craftsman imposes. This meaning is likely to alter as the vessel's potential is actualised through the craft process (see Shanks 1992). Assuming a stage of exchange within the vessel's life history, its meaning is once again its potential, this time to attract and realise a profitable exchange. In use a vessel derives its meaning from the role which its owner assigns to it, but this too may be subject to change throughout a vessel's life history, upto and including its final role of discarded object. Even today the vessel derives meaning from its status as archaeological artefact, although outside of the archaeological community its meaning may be interpreted more generally as antique, or relic.

In order to understand a ceramic it is therefore necessary to have described its archaeological context, as is done in Chapters 4 and 5. That meaning is derived from context is a theme which has been explored more generally by Hodder (1982a, 1986, 1987a, 1987b) in what he termed contextual archaeology. Aside from Hodder's work it can be noted that such contextualism is inherent in many prehistoric studies produced subsequent to the middle 1980s. For example, Bradley and Edmonds (1993) attempt to place stone axes within the context of Neolithic society and power relations. Barrett (1994) situates the appreciation of monuments during the Neolithic within the context of pre-existing practices at each site.

With respect to ceramics the contextual perspective has been pioneered by Miller (1985) in his ethnographic study of an Indian village. In this work Miller approached ceramics at a variety of stages in their life cycle, with the aim of discerning the categories which structure the role of ceramics in Indian society. The result of Miller's analysis is a multi-faceted account which situates the ceramics

firmly within the context of the community, as objects of design, daily use, power relations, and commerce.

Turning to the present study, the archaeological dataset naturally sets limits on the extent to which the episodes within a vessel's biography can be reconstituted. For example, much of the dynamic surrounding the active uses of a vessel are lost when the pot is placed within the static stage of discarded object. In many cases also, detailed analysis of individual objects must be seen as representative of broader categories to which the vessel belongs. These are, however, not fundamentally different problems from those presented in ethnographic accounts of ceramics (eg, Longacre 1981; Miller 1985). In all instances of such study, a token sample analysed over a limited duration must be seen as representative of a larger reality. Indeed, given that the Isle of Man forms a small and discrete geographical locale and the dataset is comparatively large, it might be said that the present study offers an ideal opportunity to attempt a multi-faceted biography detailing the social context of Neolithic pottery from production through to deposition.

Nonetheless, before this can be described a more detailed consideration needs to be given to the extent to which the various stages in a vessel's biography can be examined within an archaeological analysis.

3.2 Archaeological analysis of vessel biography

The major stages in a vessel's life history which can be defined as relevant to an archaeological biography have been described above and are illustrated in Figure 3.1. This represents a diachronic view of the major stages a vessel is likely to pass through during its life history. Nonetheless, the current array of archaeological techniques and methodologies does not allow all of these biographical stages to be studied with equal attention, and indeed the results of some analyses might be seen as relevant to a number of stages.

This is reflected in Figure 3.2, and the following discussion, which considers the stages through which a vessel passes *en route* to the archaeological record, as well as the manner in which these stages can be addressed from an archaeological perspective.

3.2.1 The definition of a biographical subject

Prior to a biographical analysis, whether archaeological or otherwise, it is necessary to have a pre-defined subject. The manner in which biographical subjects were chosen for use in this study is detailed in Appendix 1, and discussed further in Chapter 4. As the discussion in this appendix aims to show, the most useful categories for archaeological analysis are those which emphasise the greatest degree of difference between classes (Miller 1985). For this reason the categories from which this project's biographical subjects were derived were taken from traditional typological schemes since these tend to emphasise distinctions in both form, decoration, chronology, and context among pot types, rather than focusing upon a single characteristic. The Manx biographical subjects of this study are described in Chapter 6.

3.2.2 Resource procurement (and ceramic exchange)

It will be noted that in Figure 3.2 although resource procurement is shown, ceramic exchange has been excluded from the model. This is due to a weakness in the available techniques for analysing and provenancing raw materials and the results of analyses within this study, discussed below.

A variety of methodologies are available for the characterisation of the clay and temper which go to make up pottery, eg, chemical and thin section analysis. Studies in the procurement patterns used during prehistory typically involve the characterisation of these resources and the identification of their geological source (eg, Finch 1971; Sheridan 1985; Nicholson 1989; Wardle 1992). From this it is possible to consider such questions as whether there were preferred materials, and to what lengths the potter would go to obtain them.

The success with which clay and temper can be sourced depends to a great extent on the distinctiveness of the materials involved within the geological spectrum of the study area. For example, a temper such as common quartz sand might be derived from any one of a number of deposits making it poorly suited to provenancing work; whereas, an igneous temper might only be derived from one suitable rock outcrop within an area. In addition to the necessity for geologically distinctive materials if sourcing is to be possible, it is also important that those materials only outcrop in an area of limited extent. For example, if the single igneous rock outcrop within a study area occupies the majority of that locale then the source used in prehistory has still not been effectively located.

Following the characterisation of raw materials and their attribution to source deposits, the next stage in the majority of analyses is a consideration of the mechanism of transportation from source to findspot. The variety of mechanisms can generally be characterised as either involving natural processes such as water-borne or glacial transport, or anthropogenic causes. From an archaeological perspective the latter is clearly a more interesting prospect, however it is at this point in the analysis that the study of resource procurement and ceramic exchange overlap.

In essence, the only way of establishing that it is the resources which have been transported rather than the finished pot, is if material from two geographically distinct locales have been incorporated into the same vessel. For example, Peacock (1969) identified quartz within the fabric of pots made of the gabbroic clay from the Lizard Point, Cornwall, in sherds at Carn Brae; neither material could have been derived from the same source. In consequence, one or both resources must have been transported before the pots were made.

Other than examples relating to the gabbroic pottery of Cornwall, the author is not aware of any other instances where such a situation has been identified (*cf.* Wardle 1992). Furthermore, within the Irish Sea province, despite a considerable number

of studies, discussed in Chapter 8, very little evidence of the movement of raw materials during the Neolithic has been identified whether in raw or finished form. The evidence derived from studies presented in this research project provide similar evidence for local provenance rather than exchange, hence provenancing is considered under the heading of resource procurement (see Chapter 8 for the study).

3.2.3 Building the vessel

The next stage in the archaeological reconstruction of a vessel's life history is the building of the pot (see Figure 3.2). Compared to the considerable effort expended in the analysis of resource procurement patterns, the processes by which a specific form of pot emerges from the clay have rarely been studied. In essence, this may be because what archaeological analysis of sherd material has been carried out has revealed a high degree of uniformity in the basic techniques of vessel forming throughout the British Isles (see Gibson 1986a, 10; Woods 1986), thereby making the subject of little academic interest.

Nonetheless, experimental work has been carried out by researchers attempting to replicate Neolithic pottery, most notably by van der Leeuw (1976). His work focused upon the forming techniques used in producing Danish Beaker pottery. Van der Leeuw's study does not, however, seem to have led to the development of similar works in British Neolithic studies. This may be because of the difficulties involved in carrying out the necessary experimental work, or because of the broad uniformity of the British ceramic forms. Nonetheless, within the Isle of Man it is clear that a variety of forms were produced by the same potters, and the possibility was therefore present to explore the solutions the potters may have adopted in confronting these problems (see Chapter 9).

3.2.4 Decoration

Decoration is generally applied as the last stage of production before firing (see Figure 3.2). The study of decoration is a difficult area for analysis since it is tied closely to an appreciation of style which involves a significant degree of room for subjective comment (*cf.* Davies 1990). Nonetheless, from an archaeological perspective, the study of decoration has provided a fertile area for research. Much of this study has focused on the role of decoration within the social use of the pot. For example, research into the decoration present on Grooved ware has emphasised the preference for sherds with complex motifs in certain depositional contexts (see Richards and Thomas 1984; Pollard 1992). Similarly, in the study of Beaker ceramics, decoration has been seen as an attempt by the vessel users to signal a social identity (Clarke 1970). Whilst this is doubtless a valuable approach in discerning the social value of vessels, an alternative but more often neglected aspect of decoration is its role as a facet of the production process. There have been a number of ethnographic studies produced which have addressed the question of decoration from this perspective (eg, Lathrap 1983; Miller 1985; DeBoer 1990). In such studies the aim has been to analyse the methodology of design which underlay the finished decoration. This perspective is adopted in the study of the production of Manx decoration and, more generally, in the study of decorative design elsewhere in the study area (see Chapter 10).

3.2.5 Firing

The firing of Neolithic pottery is a subject which has received as little attention as the building of the pots themselves. The available evidence has been reviewed by Wardle (1992) who concludes that what little information is present points to the uniform approach of bonfiring. Archaeologically, there have been no unequivocal finds of Neolithic pot firing sites (Wardle 1992, chap 6), and the bulk of the evidence therefore rests upon the wide variety of oxidisation patterns within the sherds which argue against more systematic firing processes. A considerable quantity of experimental work has also been carried out which has shown that the varied forms of Neolithic pottery could all have been produced using simple

bonfiring (eg, Gibson 1981; Woods 1983; 1989). Vessel firing is not considered in detail in this thesis, although a number of experimental firings were carried out in order to familiarise myself with the rudiments of bonfiring pottery, and firing traits, where present, were noted during data collection.

3.2.6 Use and discard

The position of ceramic exchange within the current thesis has already been considered in Section 3.2.2, such that the next stage in the model is the function of the vessel. As the title of this section indicates, both use and discard practices are considered under the same heading in this thesis. This clearly compounds two logically separate stages in a vessel's life history; two main defences can be proposed for this stance. First, current practices in archaeological interpretation support the case that discard was often deliberately controlled such that sherds were deposited with an intention. This clearly implies that even in discard, pottery was being 'used' (see Cleal 1991; Pollard 1992; Richards and Thomas 1984). Second, the techniques by which archaeologists can analyse use and discard often overlap so that it is unclear to which stage in the life history of the pot a particular piece of evidence relates. This is not, however, to suggest that the stages of use and discard cannot be disentangled in all cases, as the following discussion sets out to show.

Figure 3.2 indicates how ceramic use and discard are conceptualised within this study. As this model shows a single vessel passes through a number of use stages before it is discarded. The first stage in its entry into a use cycle can be characterised as 'intended usage': meaning the role for which the potter designed the vessel, or for which a style of vessel was originally conceived by potters first producing that design. This is not necessarily the role to which a vessel might then be put by its owner as the 'daily use' box illustrates. It is also not necessary for a vessel to retain the same 'daily use' throughout its life, hence the presence of a cyclic route within the use assemblage section of Figure 3.2. The most obvious reason for a change of function is as a result of damage, whether as a result of firing

or an accident during daily use⁵. If the damage is superficial, a repair might be effected in order that the vessel might retain its role as a pot, albeit with a change in its function. For example, a cracked vessel might not be used to hold water, or to heat contents over a fire. Evidence for repairs are common on Neolithic vessels (see Cleal 1988), with several pots in the study area having holes on both sides of a crack in order, presumably, for them to be sealed using twine. For example, at Glenvoidean, Isle of Bute (Marshall and Taylor 1977), Ballintaggart, Co Armagh (Ulster Museum *unpub. illus.*), and Ballykeel, Co Armagh (Collins 1965)⁶.

In addition to those active uses for a vessel during daily life, a further type of function can also be identified which effectively causes the vessel to leave the use cycle: deliberate deposition. This differs from casual loss or discard as rubbish in that burying the pot imparts to it a continued functional role. A clear example of deliberate (or structured) burial is the use of a vessel as a grave good, in which case it is ascribed a symbolic function relating to the dead. Other examples of structured burial have been studied by Richards and Thomas (1984), Barrett *et al* (1991), Pollard (1992; 1995) who all consider the role that decorated sherds had in highlighting specific depositional contexts. From the perspective of vessel function these situations differ significantly from chance loss or discard at which point a vessel has no active value within society.

From an archaeological perspective deliberate deposition is also of great importance in that it significantly enhances the possibility that a pot will enter the archaeological record. Pottery discarded on the surface, whether by loss or design, will quickly erode and be destroyed unless buried by chance. It is also important to

⁵ Rice (1987, tab 9.3) discusses ethnographic instance where broken pots are reused as lids, manufacturing tools, troughs, or plates.

⁶ The life span of a vessel, and the number of times which it circulates through repair and changing uses is culturally and contextually specific. Figures have been compiled by Arnold (1985) and Rice (1987) from the work of previous ethnographic researchers which show that the number of vessels present in a house may vary from 7 - c60 examples. In addition, the life expectancy of those vessels in their primary uses varied from c4 months to 13 years, according to the function of the vessel, ie, cooking vessels in daily use are more likely to be broken than storage vessels in use a few times a year. Although these figures may bear little relationship to those appropriate in the Neolithic they illustrate the wide variety of ways in which ceramics may be used by different societies, and provide a benchmark against which this study can proceed.

distinguish chance from deliberate loss since the range of material in a deliberately buried assemblage is more likely to have been culturally filtered and therefore cannot be seen as representative of the variety of Neolithic pottery used by a community. Appendix 11 details the manner in which deliberate and chance burials are identified in this thesis.

The above discussion is intended to illustrate that three main areas can be identified in the analysis of vessel use:

- Intended function
- Daily function
- Depositional function.

Each of these three areas can be accessed via different archaeological methodologies. For example, intended function can be studied by analysing the morphological attributes of a vessel since the attributes a potter chooses for a pot are likely to be relevant to the use they anticipate a vessel will be put. This approach has been adopted by Thomas (1991) and Case (1995) who both consider vessel function as a factor of volume, whilst Howard (1981) uses shape as an indicator of function. Hally (1986) also studied vessel thickness and surface characteristics as relevant to a vessel's intended function. Daily function can be examined by studying surface wear patterns, and also by analysis of residues present on a vessel's surface (see Rice 1987), or indeed by the contextual analysis of assemblages sealed during active use, eg, Pompeii, or in the case of shipwrecks. Depositional function is, unfortunately, only accessible using the same methodologies as daily function, ie, surface residue/wear resulting from the final ritual of deposition, and the context of deposition. In order to discern to which phase of use a particular line of evidence belongs a detailed study is necessary in each case.

On balance it is daily use which is most difficult to analyse since the available methodologies are least robust in this situation. The possibility of a context being

sealed in the act of use is very slight, and no such instances are known within the study area; the majority of ceramics have therefore been moved to a deposition context. Furthermore, in the case of wear and residues, the evidence present might relate to more than one episode of distinctive use resulting in a palimpsest of information which it is difficult to disentangle. In consequence study of vessel function within this thesis has focused on intended and depositional function, with a consideration of daily use only occurring in specific instances where the evidence seems to make it applicable.

These methodologies are considered in more detail in Chapter 11, and Appendix 1.

3.2.7 Conclusion

The model outlined in this chapter simplifies the many complex mechanisms between the first selection of raw material to the excavation of the vessel's remains, and presents them in a form suited to archaeological study. It also highlights those areas, most notably in resource procurement, where the available methodologies are rarely sensitive enough to distinguish between different stages in the vessel's biography. The model has also shown that there are some stages in the vessel's biography which are of limited archaeological interest, for example, the uniform, albeit slight, evidence for vessel building and firing. These factors have naturally influenced the avenues pursued in this thesis.

Before these vessel biographies can be described in these terms, it is necessary to first introduce the ceramic subjects and also to situate them within a historical and social context. This is undertaken in Part II, before the study of Manx ceramics in the context of the wider study area in Part III.

Part II:

The archaeological context of ceramic practice in the Irish Sea province

As Chapter 2 has shown, the study of ceramics is often seen as a specialism discrete from other branches of Neolithic research. The aim of this part of the thesis is to move away from this trend by describing the archaeology of both the Irish Sea province in general and the Isle of Man in particular, and thereby situating the subsequent discussion of the ceramics themselves within a historical and social framework.

4. The Neolithic archaeology of the Irish Sea province

In this chapter, the distribution of sites and ceramics throughout the Irish Sea province is considered in order to gain a broad understanding of the nature of the societies which were current during the Neolithic, and therefore the contexts in which ceramics were produced and used. The extent to which there is evidence of interactions extending across the Irish Sea is also explored since this is relevant to a discussion of potential influences for Manx potters. Within this discussion, the Isle of Man is, by way of introduction, treated as one part of the Irish Sea province. Its archaeology is considered in more detail in Chapter 5.

4.1 Introduction

The initial problem in organising the dataset of such a wide geographical area covering such an extensive timescale was the production of a consistent terminology with which to categorise the varied sites and ceramics encountered. The terminology used throughout this thesis is presented in Appendix 1. In essence the choice of site and ceramic types adopted has been designed to reflect the diversity of Neolithic archaeology throughout the Irish Sea province, whilst presenting clearly defined subjects for analysis. As is the case with works covering such a wide geographical area and broad timespan, the terminology operates at the expense of local variation and there are many individual sites and ceramics which fit uncomfortably within the scheme. These are included and described in the sections of the thesis to which they are specifically relevant. To summarise Appendix 1, the major site and ceramic types used in this thesis are as follows:

Site types

- Cist
- Court tomb
- Crematorium
- Earthfast jar
- Henge
- Pit cluster
- Portal dolmen
- Rectangular timber building
- Stone Circle
- Stray find

- Linkardstown cist
- Occupation site
- Passage tomb
- Pit circle
- Timber circle
- Unclassified burial site
- Unclassified tomb
- Wedge tomb

Ceramic types

- Achnacree bowl
- Beaker
- Carinated bowl
- Drimnagh bowl
- Grooved ware
- Peterborough ware
- Ronaldsway pottery
- Sandhills ware
- Shouldered pottery

Only some of these ceramic types occur on the Isle of Man, and it is these which form the focus of the ceramic biographies. Information relating to the other ceramic types is introduced on a comparative basis.

A consistent chronological scheme was also necessary in order to structure the evidence and ensure that only contemporary site and ceramic types were compared. The rationale behind the chronological scheme used in this thesis is presented in Appendix 2. To summarise, there is at present insufficient evidence upon which to securely date all of the site and ceramic types noted in Appendix 1. Those which can be dated indicate that the Neolithic period can be divided into four phases with the commencement of each phase being defined by the appearance of new monument and ceramic types rather than the immediate disappearance of pre-existing ones.

Sites and ceramic types included in these four periods are as follows:

Early Neolithic

Site types: Crematoria, Rectangular timber buildings

Ceramic types: Carinated pottery

Middle Neolithic

Site types: Court tombs, Passage tombs, Linkardstown cists, Timber circles

Ceramic types: Achnacree ware, Drimnagh bowls, Peterborough ware, Sandhills pottery, Shouldered bowls.

Late Neolithic

Site types: Henges, Stone circles

Ceramic types: Grooved ware, Ronaldsway pottery.

Latest Neolithic

Site types: Cists, Wedge tombs

Ceramic types: Beaker pottery.

This information is also summarised in Figure 4.1.

4.2 The methodology of the current study

Before considering the archaeological evidence within the Irish Sea province it is necessary initially to make a number of assumptions regarding the completeness of the dataset and the implications this has on our understanding of Neolithic society.

The archaeological evidence for the British Neolithic is at present biased towards investigation of areas of known archaeology, and despite the increasing integration of archaeology in the planning process it will be many years before the archaeology of Cumbria for example, is as well understood as that of the Boyne Valley. It cannot therefore be assumed that an absence of Neolithic monuments and pottery from an area represents an absence of Neolithic peoples. In the context of this study it is felt to be more parsimonious to assume that Neolithic communities occupied most parts, if not all, of the British Isles.

One is then left with the problem of explaining how geographically isolated pockets of similar monuments came into being, eg, in the case of the rectangular

timber buildings at Lismore Fields in Derbyshire (see Figure 4.3). In order to explain this it is necessary to assume that the territory occupied by an intervening community did not represent a barrier to the transmission of knowledge between separate areas. Indeed, given the two thousand year duration of the Neolithic it would seem likely that most communities were aware of the major approaches to material culture practice current throughout the study area, whether through direct contact or down-the-line exchange of information⁷.

It is therefore necessary to imagine the current archaeological picture as a static result of a network of communication which extended across the British Isles in many directions, linking many different communities whether directly, or via an intermediary. It is also likely that different segments of the same societies maintained links with different geographical areas, at differing levels of complexity⁸.

In consequence of this complexity of interaction and the palimpsest which has resulted there seems little value in considering the origins of site or ceramic types except at the most general regional levels, and this is all that has been attempted within this study. Nonetheless, an area of study of particular interest in the context of this thesis is the question of which communities were most open to the adoption of material culture practices from varying areas, and which were the most closed (on current evidence) (*cf.* Childe 1969, 159; Hodder 1990, 181-2). This will not tell us which communities were the most active in communication with outside areas, but it will indicate something of the social stance they adopted in capitalising on that communication. This is particularly of interest during the Middle Neolithic

⁷ A corollary of this is that some communities had access to the concepts of particular material culture practises, but that they did not utilise them.

⁸ This is a theme which has been developed within the context of prehistoric Britain by Bradley (1984), and Bradley and Chapman (1986). In these studies of peer polity interaction (*cf.* Renfrew 1986) it has been suggested that specific 'core' areas of the British Isles competed with one another in the production of ostentatious sites. Although a useful model at the level of the British Isles, this approach cannot be mapped directly onto the present study since there are so few core areas in the Irish Sea province, such that what is actually being compared is the material culture of peripheral zones.

when a large number of material culture forms were used throughout the Irish Sea province.

4.2.1 Conventions used in the distribution maps

A series of distribution maps were produced for each major class of site and ceramic type current throughout the study area. The upper part of the distribution maps (eg, Figure 4.2) show the distribution of sites and artefacts throughout the whole of the British Isles and therefore illustrate the full extent of areas interacting in the utilisation of those sites and artefacts. At this scale, sites are depicted in terms of broad regional trends.

The lower part of each distribution map shows a detail of the Irish Sea province and focuses upon the areas utilising particular sites and artefacts within this zone. The poor spatial definition of the dataset discussed in Section 4.2 meant that it seemed most appropriate to depict distribution patterns according to the presence of a site or ceramic type within a county, rather than as individual occurrences.

The distribution maps are arranged by period: Early, Middle, Late, and Latest Neolithic, and by alphabetical site and then artefact types. A discussion considering the inter-relationship of sites and artefact types, and the evidence they present for regional trends, follows the presentation of the evidence in each period.

4.3 Interaction in the Early Neolithic

The distribution of Early Neolithic sites and artefacts throughout the Irish Sea province is particularly patchy and argues that not all areas adopted Neolithic practices such as monumental building, agriculture, and pottery when they first became available.

4.3.1 Crematoria

As Figure 4.2 (Upper) shows, crematoria form a discontinuous band running across the British Isles from Humberside to Co Antrim, taking in North Yorkshire, Cumbria, Dumfries and Galloway, and the Isle of Man.

Within the study area (Figure 4.2 Lower) crematoria are found at coastal regions on the Solway Firth, the Isle of Man, and Co Antrim. The validity of this interaction across the Irish Sea is reinforced by the close similarity of form of Ballymacaldrack, Co Antrim (Evans 1938b; Collins 1976), and Lochill, Dumfries and Galloway (Masters 1973). This supports the view that interaction took place between Britain and Ireland, rather than indigenous innovation.

In this instance it is apparent that a community on the Isle of Man was interacting with localised communities on both sides of the Irish Sea. The possibility that it represented the go-between in these interactions is a tempting one.

4.3.2 Rectangular timber buildings

Figure 4.3 (Upper) shows the scattered distribution of rectangular buildings, with most concentrations being composed of single sites where one or more buildings were discovered.

Within the study area (Figure 4.3 Lower), and with the exception of Llandegai, Gwynedd, the distribution is confined to the east coast of Ireland with the sites of Ballygalley, Co Antrim (Simpson 1994), and Newton, Co Meath (Halpin 1994). At present it therefore appears that discrete parts of the Irish coast were linked by interactions which manifested themselves in the adoption of this building type. The absence of rectangular buildings from the majority of the British coast, despite their presence in the east of Britain suggests that these Irish communities were interacting by sea with communities outside of the study area. However, this hypothesis will doubtless need closer examination as the spread of this site type becomes better known.

4.3.3 Carinated bowls

The wide spread and early date of this ceramic type has been noted by a number of authors (Sheridan 1985; Herne 1988; Cowie 1993, and see Appendix 2). Figure 4.4 (Upper) illustrates this broad distribution.

Turning to the study area (Figure 4.4 Lower), the absence of Carinated pottery from the Isle of Man is one of the most notable features, especially since there has been a strong history of archaeological research in most parts of the Island since the last century (see Appendix 3). In the absence of evidence to the contrary it is therefore cautiously proposed that the apparent lack of Carinated pottery on the Isle of Man is a real one.

4.3.4 Patterns in the Early Neolithic

The distribution of Early Neolithic site and ceramic forms throughout the study area is presented in Figure 4.5. This shows the partial distribution of material from this period. It is possible that those areas of the map in which Neolithic cultural elements are not in evidence represent communities which were unwilling to incorporate the symbolic associations of these material cultural practices into their own social systems. This cannot, however, be stressed too much since those areas in which Early Neolithic culture does not seem to be in evidence could also be characterised as areas where insufficient fieldwork has been carried out.

It is interesting to note that Co Antrim is the only area which appears to have accepted all three facets of Neolithic culture available at this time (see Figure 4.5). This would seem to indicate a society more receptive to material culture influences than the rest of the Irish Sea province. Two areas adopted both pottery and one other element of the Neolithic cultural repertoire: Dumfries and Galloway, and Co Meath.

No consistent explanation can be put forward as to why these particular areas were more susceptible to innovative cultural concepts than others, and it is likely that a different set of circumstance applies in each case. Certainly there is no evidence to suggest that any areas either on one side, or across, the Irish Sea basin adopted the same array of Neolithic culture. This in itself suggests the existence of societies defined at a local level which, although certainly engaged in interactions throughout the study area, were not obliged to adopt the trends of neighbouring areas.

Neolithic building and burial techniques in particular appear to have been adopted on a localised basis, whilst Carinated pottery seems to be the most widespread element of the Early Neolithic cultural 'package'. Possibly this is a reflection of the considerable variety of utilitarian functions to which pottery can be put, as well as its many advantages over organic containers (see Rice 1987 for discussion).

Given these advantages it is surprising that the Isle of Man did not adopt the use of pottery, despite their acceptance of a Neolithic cremation tradition. At first glance this appears to be a more dramatically disturbing innovation than the adoption of ceramics since it carries with it implications for burial practice and associated ritual and belief. It should, however, be noted that the use of crematoria, whilst beginning in the Early Neolithic, continued during the transitional period of the Middle Neolithic. It may therefore be the case that the site of Ballafayle, Isle of Man (Kermode 1927), actually belongs to this latter period by which time Manx communities appear to have fully endorsed Neolithic material culture (see Chapter 5). This would certainly accord with the absence of other Early Neolithic material culture on the island, and the evidence for the continued use of Mesolithic lithic technology (see Section 5.4.2.1). Nonetheless, the possibility that at least one community on the Isle of Man adopted the rite of cremation and prominent burial during the Early Neolithic must be borne in mind⁹.

⁹ Beneath the Court tomb at Cashtal yn Ard (Fleure and Neely 1936) a burnt mound was also found, although the detail of its structure and stratigraphy are unclear. The possibility is present, however, that this is also the remains of a Crematorium.

4.4 Interaction in the Middle Neolithic

The Middle Neolithic is characterised by a very different material culture phenomenon than the preceding period. As well as the continuation of the three dateable site and artefact types there is a profusion of new forms, with 4 dateable site types, and 5 ceramic types. Hodder (1979) has suggested that in times of social stress communities use material culture to signal their unity and difference from outsiders. In the case of this present study, although there is a profusion of artefactual types, these cross-cut parts of the British Isles. This seems to argue for a high degree of interaction within the Irish Sea province rather than the isolationism of specific areas at this time.

The long distance transportation of stone axes probably also dates to this period, although since Appendix 2 shows that it continued into the Late Neolithic it seemed more prudent to consider the implications in Section 4.6.

4.4.1 Court tombs

Court tombs represent one manifestation of a tradition of building trapezoidal stone tombs which is found in discrete pockets throughout the British Isles (see Figure 4.6 Upper).

Within the Irish Sea province (Figure 4.6 Lower) there are several pockets of Court tombs and allied structures. The spread in Ireland, Scotland and the Isle of Man represent those most traditionally seen as belonging to the Court tomb tradition. The Welsh groups are less normally characterised in this way, although they clearly form part of this general group. The major areas which excluded themselves from the use of Court tombs are northern England, and the south east coast of Ireland.

The distribution shows possible lines of interaction across the whole of the remainder of the study area, linking all islands, and also suggesting sea links to the

north and south. That other intervening communities were aware of the practice of trapezoidal stone tomb construction but did not utilise it is shown by the presence of isolated pockets in southern Ireland and central England.

4.4.2 Linkardstown cists

In contrast to the Court tomb building tradition, Linkardstown cists represent a very localised phenomenon, only occurring in southern Ireland (see Figure 4.7 Upper).

As Figure 4.7 (Lower) shows, if the use of this artefactual tradition was supported by sea-borne interaction it could easily have been achieved by short coastal hops.

The burial rite in Linkardstown cists was strikingly different from that of the Court tomb tradition. In Linkardstown cists individuals were buried and then sealed to prevent further access, in contrast to the communal role of Court tombs which allowed the possibility of re-entering the tomb. It is interesting therefore to note that the distribution of these two site types is currently fairly exclusive, with the exception of isolated Court tombs found in southern Ireland.

It is not, however, possible to suggest that southern Ireland endorsed individual burial in contrast to the rest of Ireland, as the distribution of Passage tombs illustrates.

4.4.3 Passage tombs

Passage tombs are another widespread tomb type throughout the British Isles, being found in northern and southern Scotland, north and south Wales, across Ireland, and the Isle of Man (see Figure 4.8 Upper).

Within the study area their distribution is slightly more widespread than that of Court tombs (see Figure 4.8 Lower). The Boyne valley Passage tombs (Co Meath) also deserve special attention within this category since their large size and number

clearly indicates that they are a unique articulation of the tradition (Eogan 1984; O'Kelly 1984).

Further evidence for long distance interactions involving this site type, and stretching up the western seaboard of Europe have been suggested by many other authors (eg, Childe 1940; Bradley 1989).

4.4.4 Timber circles

Timber circles remain the most enigmatic of monument types in use during the Middle Neolithic, their function being far less clear, and probably far more disparate, than that of the tombs discussed previously (see Gibson 1994 for a recent summary of the evidence).

Figure 4.9 shows a distribution which differs markedly from that of those Middle Neolithic tombs discussed above, in that it incorporates large parts of lowland England. With the exception of a spread in Wales, the distribution of Timber circles in the uplands of Britain and Ireland is more localised. It seems likely that this distribution will be extended by future investigations, since unlike stone tombs, timber circles are rarely visible on the ground except by aerial photographs taken at ideal times of the year.

Looking at the study area in more detail (Figure 4.9 Lower), the participation of the north of England in an interaction within the Irish Sea area is notable, and argues against the evidence of isolationism in this area shown in analysis of previous monument types. The interaction of Argyllshire and Arran, with other parts of the Irish Sea basin is also interesting, since it is a pattern which reoccurs when studying pottery of this period.

The Isle of Man is absent from interactions involving the use of Timber circles, but in this respect it is similar to much of southern Scotland, Anglesey, south Wales and southern Ireland.

4.4.5 Achnacree ware

The distribution of Achnacree ware as presently identified is very localised, being confined to Argyll, Arran, Co Down, and the Western Isles (see Figure 4.10 Upper and Lower). This suggests an interaction involving the western face of Scotland, with a southerly extension into the Irish Sea basin. This latter feature is one of the most interesting found in the study area during the Middle Neolithic.

The absence of large areas incorporating this ceramic type in their material culture repertoire could be taken to mean either that its cultural connotations were unacceptable to surrounding communities, or that these vessels represented a practice carefully controlled by the communities involved.

4.4.6 Drimnagh bowls

The importance of communities in Argyll and Arran in Irish Sea interactions is further illustrated by the evidence from the distribution of Drimnagh bowls. Figure 4.11 (Upper) shows once again that this ceramic type is limited to the Irish Sea area, being found throughout northern and eastern Ireland, and southwest Scotland.

In contrast to the evidence for Achnacree ware, the distribution of Drimnagh bowls (see Figure 4.11 Lower) shows that Argyll, Arran and Bute were involved in an interaction which covers the whole of the Irish Sea coast of Ireland. This example serves to illustrate that a single area might be linked to many others at more than one cultural level.

4.4.7 Peterborough ware

The widespread distribution of Peterborough ware throughout England, and its diffuse extension into southern Scotland is well known, as is its exclusion from

Ireland (see Figure 4.12 Upper). As discussed in Appendix 1, it is likely that Peterborough pottery is part of a broader 'Impressed ware' trend, of which Sandhills is the Irish expression. Within the Irish Sea province (Figure 4.12 Lower) if the sea was used at all the distribution could well have been produced by interactions consisting of short coastal hops. The absence of Peterborough ware from the Isle of Man supports this view, although this seems likely to have been due to cultural exclusion rather than a direct lack of awareness of the pottery.

4.4.8 Sandhills ware

Figure 4.13 (Upper) clearly shows the Irish focus of the distribution of Sandhills ware within the Irish Sea province, thereby supporting the view that Sandhills and Peterborough ware are related.

As with the evidence from Achnacree and Drimnagh bowls, the special role of communities in Argyll and Bute are shown by the similarity of ceramics used here with those of eastern Ireland. The tentative identification of Sandhills ware in the Isle of Man links these communities with those of Eastern Ireland and Argyll. However, if it is actually the case that classic Peterborough and classic Sandhills ware are two extreme ends of the same phenomenon, then the Manx evidence places the Isle of Man within a loose interaction that covers the whole of the study area.

4.4.9 Shouldered ware

The chronological role of Shouldered pottery as the successor of Carinated ware has been commented upon in Appendix 1. As Figure 4.14 (Upper) shows, this distribution is very similar to that of Carinated pottery, although the latter is a little more extensive in central England. Perhaps this could be taken to mean that the cultural connotations of this ceramic type had not altered significantly.

The regional distribution for the study area suggests widespread interactions involving this pottery type throughout the whole of the Irish Sea area (with the single exception of Argyll).

When considering the Isle of Man, it would appear that the adoption of Shouldered pottery was the only interaction involving ceramics that local communities fully endorsed.

4.4.10 Patterns in the Middle Neolithic

The previous discussion of individual sites and artefact types has served to illustrate the difficulty involved in defining discrete cultural zones, since virtually every part of the study area is inter-linked with all others by the use of one artefact or another.

Figure 4.15 shows the number of different Middle Neolithic traits adopted by communities in each part of the study area. This presents a stark contrast to the patchy distributions of the Early Neolithic. It appears that by this time all areas had adopted some form of Neolithic culture with the exception of Merseyside, although lack of fieldwork could be argued here.

In terms of diversity, at a general level it would seem that Irish communities were able to assimilate a greater variety of material culture forms, and presumably practices, than Britain. They also seem to have developed their own site types, eg, Linkardstown cists. Nonetheless, there is ample evidence for communication between Britain and Ireland at this time, as is shown by the spread of Passage and Court tombs, and also of ceramics such as Shouldered vessels, and the Peterborough / Sandhills complex.

Within Ireland the assimilation of varied material culture forms seems to have been at its greatest in the northeast, particularly in County Down. This continues the trend begun in the Early Neolithic. Co Meath, also seems to have had a high level

of diversity, presumably as a consequence of the considerable social interaction which must have centred around the Boyne Valley monuments (discussed below).

Communities in Britain appear to have been more tentative in the assimilation of Middle Neolithic material culture. Chambered burial monuments in particular are confined to Scotland and Wales, although the possibility that such sites as Samson's Bratfull and Cow Green in Cumbria are chambered cannot be discounted (Kinnes 1992). In terms of the range of ceramic types in use in each area much of Britain is also impoverished when compared to Ireland at this period. Western Scotland, including Argyll, Arran, and Bute, form an exception to this rule since together they employ all the material culture forms current in northeast Ireland. Further, and more direct, evidence for contact between these areas comes from the presence of Arran pitchstone at sites such as Ballygalley, Co Antrim (Simpson 1992), and the importation of Antrim flint to Scotland (Saville and Sheridan 1990). The similar approach to material culture between these two areas is doubtless attributable to their geographical proximity; this alone does not, however, explain the diversity of site and ceramic types used in these areas. One possible explanation for this may come from the location of these areas at a constriction of the sea passage between Britain and Ireland. This may have involved communities in the cultural traffic between northern and southern Britain, and thereby exposed them to a greater degree of inter-regional contact.

In the rest of Britain only parts of Wales show a diversity of material culture forms which might be taken to indicate a society with wide ranging links. The evidence for regional linkage between parts of the study area is presented in diagrammatic form in Table 4.1 and Figure 4.16. In the first instance Table 4.1 illustrates in detail the nature of the links between northeast Ireland and western Scotland, as well as the spread of site and ceramic types used in different parts of the Irish Sea province.

Figure 4.16 shows that much of the diversity in the use of material culture in northeast Ireland, and western Scotland comes from the use of varied ceramic rather than site types. They also illustrate the range of other site and ceramic types

used in combination throughout the study area. The picture to be derived from these figures is one of considerable variety. Outside of northern Ireland, and western Scotland, it would still seem that communities in local areas decided for themselves which aspects of Neolithic material culture they would adopt. In this respect, throughout much of the Irish Sea province, it could be argued that there were no large centralising cultural influences. Furthermore, in considering the size and complexity of monument types in this period there seems no reason to believe that they were produced by any but small social groups. This view can be supported in the case of Court tombs by the large number which are present within the Irish Sea area. Once again this can be taken as an indication that local areas managed their own ritual practices. This situation does not, however, seem to have held in the Boyne Valley area of Ireland. Here the large scale and considerable ostentation of the monuments seem to indicate production by a more centralised authority, which could manipulate large quantities of man power. This is a trend which develops throughout the study area in the Late Neolithic.

The people of the Isle of Man at this time seem to have formed a well-integrated part of the material culture practices of the day. In terms of the detailed selection of site types, the choice on the Isle of Man is the same as that in much of northern Ireland, southwest Scotland, and parts of north Wales, although the detailed manner in which megalithic practices were articulated on the Island did differ as Chapter 5 will show. The range of ceramics used on the Isle of Man seems to be confined to Shouldered pottery with a possible identification of Peterborough / Sandhills ware. These pottery types had a very broad distribution in the Irish Sea province, and the Island was not unusual in failing to make use of other ceramic types.

4.5 Interaction in the Late Neolithic

There is no doubt that in the Late Neolithic there was a decline in the use of megalithic tombs as burial places. This renders more difficult the dating of Late Neolithic material culture, since with the decline of tomb use, there is an absence of

securely dateable contexts. This limitation has meant that only one Late Neolithic monument and two pottery types have been dated to this period.

4.5.1 Henge monuments

Henges represent one of the most enigmatic of Neolithic monument types, with very little progress having been made in the elucidation of their function. Nonetheless, the distinctive form of circular earthwork with bank external to ditch is found in many parts of the British Isles, from Orkney to Cornwall (see Figure 4.17 Upper), albeit with considerable variations in scale.

Within the study area (Figure 4.17 Lower) the distribution is more limited, with very few Henge complexes being known. In eastern Ireland, the distribution is limited to a concentration in Co Down, and Counties Meath and Louth (Cooney and Grogan 1994). Henges in the latter area focus, once again, on the Boyne Valley, indicating a continuing importance for this area throughout this later phase of the Neolithic. In Scotland, there is a single positively identified example in Argyllshire, at Ballymeanoch, and further small examples at Broadlea, and Pict's Knowe in Dumfries and Galloway (Harding and Lee 1987; Thomas 1995). Within the English portion of the study area, the only major Henge complex is King Arthur's Round Table, Cumbria (Collingwood 1938; Bersu 1940). In north Wales, the distribution of Henges are confined to the complex at Llandegai (Houlder 1976), and smaller examples on Anglesey.

The limited number of Henges in the study area provides an interesting contrast with the wide spread distribution of Middle Neolithic site types. The possibility that the high labour investment involved in the construction of Henges may have deterred some communities, or led to a focusing of a region's effort on particular sites must be entertained (see Renfrew 1973). So also must the possibility that a social elite in each area was involved in the construction of these monuments and used them in a process of competitive emulation (see Bradley and Chapman 1986).

If the distribution is accurate, it would certainly seem that Henges were designed to service a wider area than were Middle Neolithic monument type.

The absence of Henge complexes on the Isle of Man is a subject which is explored in more detail in Chapter 5.

4.5.2 Grooved ware

The wide distribution of Grooved ware was noted early on in its study with an alternative name of Rinyo-Clacton ware being proposed to illustrate the spread of this ceramic from Orkney to Essex. In recent years it has also been identified in Ireland (see Sheridan 1995 for discussion). In the rest of the British Isles (see Figure 4.18 Upper), the distribution is now total from Cornwall to southern Scotland. In northern Scotland further pockets are noted in the Western Isles, Caithness, and Orkney.

Within the Irish Sea province communities right along the British coastline, and in parts of Ireland were involved in interactions involving Grooved ware. That Grooved ware is the only ceramic form which is widespread throughout the study area is also a contrast with the diversity of ceramic forms current in the Middle Neolithic. As with the evidence for Henges, this might be taken to suggest that social groups were organised at a larger scale resulting in the use of similar material culture forms over a wide area.

There is no area where the incorporation of Grooved ware is more surprising than in the Isle of Man where there is considerable evidence for ceramic innovation in the Late Neolithic.

4.5.3 Ronaldsway pottery

Figure 4.19 makes clear the extremely localised distribution of Ronaldsway ceramics. At present there are no certain identifications anywhere outside of the Isle of Man¹⁰.

It would therefore seem that Manx communities maintained a sufficient degree of cultural isolation during the Late Neolithic to develop and widely adopt a distinctive form of material culture. As was stated in Section 4.4.10 it is generally difficult to cite particular areas of the British Isles as being culturally distinct since the distribution of most site and artefacts criss-cross one another. Nonetheless, the significant level of innovation evidenced by this pottery suggests that the Isle of Man in the Late Neolithic achieved a level of cultural independence which it has rarely achieved since.

Possible reasons for the development of this unique ceramic tradition, and of other unique material culture patterns developed on the Isle of Man at this time are explored in Chapter 5.

4.5.4 Patterns in the Late Neolithic

During the Middle Neolithic, two parts of Ireland were identified as having developed individual material culture patterns; northeast Ireland, which seems to have adopted a very broad range of site and ceramic types, and the Boyne Valley which had developed Passage tombs to an extremely elaborate degree. In the Late Neolithic these two areas both contain Henges, in contrast to the rest of eastern Ireland where none are found. In the case of the Boyne valley this would suggest that the centralising society which had functioned during the Middle Neolithic incorporated the Henge as an updated version of Passage tombs, thereby perpetuating their traditional social structure at a time of change elsewhere in the Irish Sea province. Within northeast Ireland, it may be that the receptiveness of the

¹⁰ Body sherds with a strongly Ronaldsway form and fabric have been identified by the author at Ehenside Tarn, however, no decoration or rim form was present to confirm this.

area to different material culture practices during the Middle Neolithic, had increased the region's prosperity to the point where a more centralised authority could be supported.

Within Britain, Henge clusters appear without evidence for Middle Neolithic wealth or complex power structures. The presence of Henge complexes in Cumbria and Gwynedd may be seen as supporting the same sort of large scale centralising social structure as has been advocated for Ireland at this time.

The distribution of Grooved ware also illustrates a far higher degree of uniformity in ceramic traditions than was the case in the Middle Neolithic. This suggests a weakening of localised material patterning, and the integration of each locale into a broader regional trend. This need not be taken as indicating that all Middle Neolithic site and ceramic types went out of use with the arrival of these Late Neolithic forms. It is likely that there was an overlap of several hundred years in some areas. What is important is the evidence that the social structure of the study area was able to incorporate these new, material culture forms which apparently contradicted the ethos of the Middle Neolithic.

The distribution of Ronaldsway pottery perhaps represents the antithesis of this inter-regional model of material culture practice. In this instance, the Isle of Man appears to have held itself entirely separate from surrounding areas, although still participating in other social interactions. This is a subject which is explored in Chapter 5.

4.6 Middle to Late Neolithic stone axe distributions

The stone axes probably represent the single most useful Neolithic artefacts for the study of interaction between regions since many can be sourced to a specific outcrop. However, they are difficult to date precisely due to the lack of secure finds (see Appendix 2). In consequence, a general middle to late Neolithic date has been

assigned to these artefacts, hence their treatment in a section separate from site and other artefact types.

Despite the ambiguity as to their age, the distribution of stone axes far from known sources provide the most direct and best known evidence for interaction within the British Isles¹¹. They have therefore attracted a considerable quantity of research in order to assess the extent of axe distributions (see Clough and Cummins 1988), and to examine the mechanisms involved in those interactions (eg, Cummins 1979). The extent of progress in this latter area of research has recently been summarised by Bradley and Edmonds (1993, chap 1). They note the development of models in the 1970s which attempted to explain the process which had led to the current distribution pattern of artefacts (eg, Hodder and Orton 1976; Renfrew 1977; Chappell 1986). This phase of model development was followed by disillusionment as it became increasingly apparent that different processes could result in the same archaeological pattern (Hodder and Orton 1976, 239; Sheridan 1986a; *cf.* Bradley and Edmonds 1993, 8).

In recent years stone axe studies have moved away from the increasingly fraught area of distribution process, and have instead focused in more detail on the nature of the patterning (Darvill 1989), the production and consumption patterns involved (Bradley *et al* 1992; Bradley and Edmonds 1993), and a return to the collection of further distribution data (Cooney and Mandal 1995).

The difficulties in discerning exchange patterns from distributional data has in part prompted a cautious approach to the interpretation of interaction evidence within this thesis. For this reason very general distribution maps are shown rather than detailed studies of fall-off patterns and supply / contact zones.

Thirty four known sources for stone axe production have been identified within the British Isles (Clough and Cummins 1988). These are found from the tip of

¹¹ An opposing view that stone axes were not distributed widely, but were produced from glacial erratics at some distance from their original source has been proposed by Briggs (1976) but has not received widespread support.

Cornwall to Orkney and northern Ireland, and their products appear in the archaeological record in varying quantities, and at varying distances from source.

Some of these axe sources appear to have had more currency in the Bronze Age than the Neolithic, and therefore fall outside of this study (eg, Group XII, XIII, XIV, and XVIII - see Smith 1979; and Group XV- see Shotton 1959). Other sources had a very limited distribution (eg, Group IVa and XXII - see Clough and Cummins 1988, map 5 and 19). Others still are only distributed on the edge of the study area (eg, Group VIII - see Clough and Cummins 1988, map 8). For these reasons it was decided to consider only the major axe types which were both sourced and widely distributed within the study area. These axe types appeared most likely to provide information on interactions within the Irish Sea basin. The known location of their source gives the discussion of distribution patterns an increased depth since the broad direction of distribution is known as extending out from this point.

4.6.1 Group VI: Great Langdale

Within the area of Great Langdale 566 axe production sites have been located through excavation and survey. To date two axe sources have been located, Group VI, XI, along with a possible third, Group XX (see Claris and Quatermaine 1989). Group VI axes are found over the widest area, extending throughout virtually the whole of the British Isles (see Figure 4.20). The importance of the Langdale area as a distributional source must therefore have been considerable and seems likely to have been widely known. Indeed, by the end of the Neolithic, interactions involving this axe type had probably taken place across most parts of the Irish Sea basin, certainly including the Isle of Man.

4.6.2 Group VII: Graig Llwyd

The Graig Llwyd source is located at Penmaenmawr in north Wales and was examined by Warren (1922), and subsequently by David Jenkins (lecture 1995).

The distribution of this axe type is less widespread than that of Group VI, it is also confined to the midlands and central southern England¹² (see Figure 4.20). This contrasts with the picture already detailed for Welsh involvement in Middle Neolithic interactions involving site types. In these cases north Wales also appears to be involved in interactions with communities in Scotland and Ireland. When considering the level of interaction involving north Wales with other artefact types, it is perhaps relevant to note that it is only involved with two ceramic types: Shouldered pottery which has a distribution across the British Isles; and Peterborough ware whose distribution is limited to Britain. Perhaps we are seeing some bias in the openness of North Wales to cultural influence, with a trend towards favouring British rather than Irish practice when dealing with portable artefacts.

4.6.3 Group IX: Tievebulliagh and Rathlin Island

Two stone sources are known for the porcellanite axes of Group IX, both are in northeast Ireland, and both have been investigated to reveal working areas (Cooney and Mandal 1995; Conway *pers. comm.* 1995). Their distribution is currently being studied as part of the Irish Stone Axe Project (Cooney and Mandal 1995). At present they consist of 53.8% of the 13,658 axes known in Ireland, and are found in all but two counties. Looking at the whole of the British Isles (Figure 4.20) it can be seen that they are also found in many parts of Britain. It is, however, notable that few coastal areas within the Irish Sea basin have revealed finds of Group IX axes, and that there are several isolated inland areas where Group IX axes have been found. This suggests three possibilities:

- The currently known distribution is not an accurate reflection on past practice.
- Coastal communities transported axes inland but did not utilise them themselves.
- Inland communities had access to the coast and collected axes themselves.

¹² Sheridan *et al* (1992) note that previous identifications of Group VII rock at Lyles Hill and Squires Hill, Co Antrim, have both been convincingly disputed.

At present the first possibility seems the most likely, although the absence of axes in coastal parts of the Irish Sea basin is notable.

Although no Group IX axes have been thin sectioned on the Isle of Man their presence there on the basis of macroscopic examination seems certain (see Sheridan *et al* 1992).

4.6.4 Group XXV: Ballapaddag

The Group XXV axe source was identified by Coope and Garrad (1978) at Ballapaddag (see Figure 4.20 and 5.6) and currently shows a distribution limited to the Isle of Man, although unverified claims have also been made for examples found in England and Scotland (see Section 5.5.2.3). It is also noteworthy that Group XXV axes were also designed differently from those produced elsewhere, since they often have a roughened and truncated butt end (Bruce *et al* 1947). This further illustrates the unique cultural trajectory that the Isle of Man was following at this time.

4.6.5 Discussion of stone axe distribution patterns

The four major stone axe sources utilised during the Neolithic show very different distribution patterns. Group VI and Group IX axes are found on both sides of the Irish Sea basin further reinforcing the available evidence for interaction in the Middle to Late Neolithic. This contrasts somewhat with the relative isolation displayed by the north of England when considering interaction in ceramic types, and further reinforces the impression of the semi-permeable nature of Neolithic communities to different types of material culture interaction.

The pattern of Group VII distribution has been commented on as hinting at a generally eastward influence in the lives of Welsh communities, however, axes from south Wales and Cornwall have been found in Ireland. This argues for the

importance of the Atlantic Sea route in transactions and argue against dogmatic statements regarding an absence of westerly interactions in north Wales. The presence of Group VII within the Isle of Man is notable in this context.

The Isle of Man seems to have a notable position within the distribution networks of stone axes. It clearly imported axes from a variety of sources in both Britain and Ireland, whilst simultaneously manufacturing its own axes in a distinctive style. This approach is closely related to that which the Manx appear to have adopted with regard to Late Neolithic ceramics. In this case, they employed foreign Grooved ware whilst simultaneously producing their own innovative ceramic style for local usage.

4.7 Interactions at the end of the Neolithic

The transition to the Bronze Age is a field extending beyond the limits of this study, but as was noted in Appendix 2, it is clear that some monument and artefact types current in the Early Bronze Age had their origins at the end of the Neolithic. It is therefore intended in this section to consider these example of Latest Neolithic material culture practice, as well as to introduce other monument types of the Bronze Age with which they were subsequently contemporary.

4.7.1 Wedge tombs

Wedge tombs represent something of an anomaly in material culture practice at the end of the Neolithic, since they so closely resemble the Court tombs current in the Middle Neolithic and which had not been built for four to five hundred years (radiocarbon years).

Interestingly, they are only found in Ireland (see Figure 4.21), possibly due to the widespread occurrence of derelict Court tombs which are to be found in that country and which appear to have provided inspiration for the form of Wedge tombs (see Figure 4.22). This is an interesting deviation from the material culture

practice current in the rest of the British Isles where monumental burials were not in use and the most ostentatious burial practice was in cists.

4.7.2 Cists

Burials in cists are more normally identified as being an Early Bronze Age burial form, and it is only those cists which have yielded a clearly Neolithic ceramic form, ie, Beakers, which have been included in this study. The burial practice associated with cists was normally single inhumation, accompanied by a Beaker and, more rarely, a variety of personal effects, such as buttons or arrowheads. The distribution of such Beaker yielding cist burials within the study area is limited to Britain (see Figure 4.22 Lower), and therefore forms a contrast with the communal form of burial described in Section 4.7.1. It is, however, important to remember that many Irish cists may belong to the Latest Neolithic, but that without a Beaker or clear radiocarbon dates, they would be impossible to identify as such.

4.7.3 Beaker pottery

Beaker pottery has long been recognised as one of the clearest examples of the adoption of a continental practice in the British Isles (see Brodie 1994, chap 3). The nature of this interaction has proved as elusive as the processes involved in stone axe interactions. The difficulties involved in determining whether the spread of this pottery is a result of invasion or diffusion are considerable (see contrasting views in Clarke 1970; Burgess and Shennan 1976; Barrett 1994), and the only conclusion to be drawn from this debate appears to be that archaeological material is inherently bad at distinguishing between the two processes.

Looking at the pattern which resulted from the distribution of Beaker pottery it can be seen that they have been found in nearly the whole of Britain, but less widely in Ireland (see Figure 4.23 Upper). Beakers represented a material culture which achieved widespread acceptance. This might seem surprising given the innovative

material culture practices with which it was associated, eg, alternative production methods, and consistent individual burial.

The adoption of Beaker pottery on the Isle of Man is interesting in this respect since the use of this nation-wide ceramic type conflicts with the insularity of the Island during the preceding period.

4.7.4 Discussion of Latest Neolithic monument and artefact types

It is not possible to clearly discern the extent to which cists, Beakers and Wedge tombs were in use across the study area at the start of the Bronze Age. In consequence much of the distributional patterning discussed above may be considered the result of Bronze Age material culture practices.

The evidence would seem to suggest a further change in social structure with the start of this period. In the Late Neolithic it seems that monument forms were dominated by isolated groups of Henges, and probably Stone circles, which can be taken to suggest that society in Britain and Ireland at this time was more centralised. In the Latest Neolithic, burial types such as Wedge tombs and Beaker cists are once again widespread, suggesting that the large scale Late Neolithic social structures no longer functioned to the exclusion of localised material culture practice. Within Britain cist burials have also been taken as evidence of a revitalised role for the individual within society which may have run contrary to the communising ethos surrounding the Henge monuments (Whittle 1981). Alternatively, in Ireland, the reaction against the Late Neolithic social structures as shown by the communal Wedge tombs might be interpreted as a return to the local level practices of the Middle Neolithic, rather than the rise of individual values.

The type of material culture practice utilised during the Latest Neolithic appears to have been more acceptable to the Isle of Man than that of its neighbours during the preceding period, and both Beakers and cist burials have been found there. The

processes which may have underlay this transition on the Isle of Man are considered in Chapter 5.

4.8 Conclusion

This chapter considered the distribution of the major monument and ceramic types which had a widespread currency throughout the study area during the Neolithic period, and has examined the nature of the societies which produced them.

The study has shown that in all phases of the Neolithic the study area was interlocked by the use of similar monument and ceramic types which provide ample evidence for the level of interaction which occurred both across and around the Irish Sea area. Within each phase, there is also evidence for localised interpretations of material culture practices which add detail to this scheme. During the Early Neolithic it seems that the acceptance of Neolithic forms was partial, with few areas accepting more than one facet of the new cultural 'package'. By the Middle Neolithic there is ample evidence for regionalisation, with different areas adopting the same site and artefact types, but frequently utilising them in unique combinations. In particular, northeast Ireland, and western Scotland appear to have been particularly wide ranging in their choice of varied material culture types, whilst Co Meath focused on the exaggeration into a unique regional variety of particular forms such as Passage tombs. With the Late Neolithic these regional interpretations appear to have become suppressed by the use of a common ceramic type, Grooved ware, and centralised monument types, eg, Henges. In the long term this trend does not appear to have been stable, with Latest Neolithic forms showing a reversion to localised practices.

5. The Neolithic archaeology of the Isle of Man

The previous chapter has situated the Isle of Man within the broader cultural context of the Irish Sea area during the Neolithic, and has highlighted the evidence for spheres of similarity which in turn has been interpreted as the result of interaction. This chapter introduces in more detail the Manx cultural context within which Neolithic pottery was utilised.

Very little of the material included within this chapter, and the historical context of study from which it is derived, has been synthesised previously. For this reason Appendix 3 presents a history of research into the Manx Neolithic, whilst Appendix 4 is a gazetteer of the sites mentioned in the text, many of which are unpublished.

The chapter begins with a summary of Manx topography and geology, and is followed by a study of the archaeology by phases from Early to Latest Neolithic. Within each phase the nature of the sites and their associated artefacts are considered followed by a discussion of the evidence.

5.1 Manx topography and geology

The landscape of the Isle of Man can be divided into three main topographical components, the northern plain, the upland massifs, and the lowland coastal skirt (see Figure 5.1)¹³.

The first of these areas forms a triangle of land at the northern end of the Island occupying about one third of its land mass. It is generally flat with the exception of the east-west line of the Bride Hills towards its northern edge. The plain butts

¹³ Dackombe and McCarroll (1990) in their study of Manx geography utilise a more complex classification of land types in which the coastal plain is subdivided into a number of separate units. The present study has simplified their scheme in line with the more limited geographical concerns of this work.

against the northern massif, and develops into the coastal fringe of the west of the Island. The northern plain has been considerably reduced in size since prehistory, as a result of coastal erosion. In some areas this erosion has removed as much as 130m between 1876 and 1981 (Rouse 1990).

The upland massifs can be divided into three blocks, the northern and southern massifs, and the Mull Hill. The northern massif rises to a maximum height of 621m at Snaefell, the highest point on the Isle of Man. It is divided from the southern massif by a central valley about 0.5km wide, running east-west, and opening out at either end to join the coastal fringe at Peel and Douglas. The southern massif rises to a maximum of 483m at South Barrule and is less extensive than its northern counterpart. The Mull Hill rises at the southern tip of the Island, and although it is not as high, or as extensive, as the other massifs it forms a significant contrast to the Island's lowlands.

The coastal fringe forms a continuous band about 3km wide, down the west coast of the Island, extending from the northern plain down to Peel. It is composed of low undulating hills formed by mounded sands and gravels. On the eastern side of the Island the fringe is discontinuous, and falls into two sections which are interrupted by the northern massif. In its southern part the fringe broadens considerably, extending inland for 8km in parts.

The Isle of Man is mainly composed of the slates and greywackes of the Manx Group, which make up the bulk of the northern and southern massifs, as well as the Mull Hill (see Figure 5.2). These rocks form part of the Caledonian orogenic belt and join with similar outcrops in south east Ireland and the Lake District (Dackombe 1990). Outcrops of other rock types in the south of the Island are more localised in extent but still exhibit some variety. In the south east of the Island are the Lower Carboniferous Castletown Limestone series which are exposed along c10km of coastline, and the Scarlet Volcanic formation which is exposed for some 1.5km (Ford 1993).

Turning to the west coast of the Island, Peel sandstone outcrops along c2km of coastline and is composed of a variety of sandstones, conglomerates, and mudstones, probably of Devonian date (Dackombe 1990). Within the Manx Group there are also three outcrops of granite at Foxdale, Oatland and Dhoon, varying in size from 0.5 - 2km; as well as a small gabbro outcrop at Poortown.

A final, but highly significant geological type in the south of the Island, are the series of c80 tertiary dykes (Lamplugh 1903) which outcrop in a swarm around the Castletown Limestone and to a lesser extent throughout the Manx Group rocks. No detailed research has been carried out on these rocks, although the majority are olivine dolerites and basalts.

Over most of the southern massifs and coastal plain, the drift geology is locally derived boulder drift with alluvial fans at the mouths of river outlets. On the northern plain the geology is very different, being composed of Pleistocene deposits burying the solid geology to a depth of 125m below OD, making a total thickness in places of 250m (Dackombe and Thomas 1985). These deposits are foreign to the Island and include erratics from the Ailsa Craig, southwest Scotland. The lithology of these deposits is highly complex, with considerable debate surrounding the manner of their formation (see summary in McCarroll *et al* 1990).

5.2 Neolithic site types on the Isle of Man

Traditionally, interpretation of site function on the Isle of Man has been presented in very broad terms and with little consistency of terminology: eg, cemetery (Cubbon 1932; Bersu *et al* 1947), burial site (Cubbon 1978), habitation site (Garrad 1986), settlement (Moffatt 1978), or rubbish pits (Garrad 1984a). Whilst some of these interpretations are themselves debatable (eg, rubbish pits) they are sufficiently general to allow poor quality data to be drawn upon where necessary.

In keeping with the framework established in Appendix 1, the Manx Neolithic sites were re-appraised using a more systematic approach. The range of site types which resulted from this initial phase of analysis form a subset of the wider variety present throughout the whole of the study area. At the same time the Isle of Man also contains one category unique to itself, the 'earthfast jar'. The Manx sites all fell into one or more of the following categories:

- Cist
- Court tomb
- Crematorium
- Earthfast jar
- Occupation (meaning 'presence at', not necessarily 'settlement')
- Passage tomb
- Unclassified burial (specifically Late Neolithic cremation sites)
- Unclassified tomb (specifically atypical or badly damaged megalithic tombs)

In addition to those sites which could clearly be identified as Neolithic on the basis of morphology or artefact associations there is a further broad class of material which comes under the generic term 'stray finds'. This includes material of unknown archaeological context, such as surface finds, products of cliff erosion, or non-archaeological excavation work. Not all such material was examined in detail for this study. No unprovenanced lithic finds were included since the chronology of Manx lithic types is at present under revision pending the completion and reporting of Sinead McCartan's research on the subject.

The considerable complexity involved in such study precluded an assessment of this material in the present work and it was decided to consider lithics only from known Neolithic contexts. In the case of stray finds of ceramics, only those finds which exhibited either a diagnostic Neolithic rim form or decoration were included. This might seem a particularly stringent measure since the following discussion will show that the various Manx Neolithic fabric types are easily distinguishable. However, it was not established by this study that those same fabric types do not occur in Bronze

Age or later traditions. Stone axes on the other hand were an artefact type the majority of which were derived from surface deposits, and in this case there is widespread agreement that hafted axes are Neolithic, whilst socketed axes are Bronze Age (*cf.* Smith 1979).

Returning to the known Neolithic site types, the accurate description and interpretation of the evidence at each of the Manx sites depends to a great extent on the quality of the evidence. The evidence available for an appreciation of these matters is presented in Appendix 5. This indicates that despite the large quantity of evidence relating to the Neolithic period on the Island there are serious limitations to the complexity of interpretation which can be placed on it. These limitations stem from the small scale of excavation at many sites, the high level of prior damage, and the frequently low level of recording. Within this thesis interpretation of the ceramics has therefore been carried out at a general level without detailed inter-site comparison.

5.3 Early Neolithic evidence

Throughout the study area, the Early Neolithic has been defined as running from c4600 - 4000cal BC. Within the Isle of Man, however, there is very little evidence for a significant change in material culture at this time.

In the preceding chapter, it has been noted that there is no evidence for Early Neolithic pottery on the Island in the form of Carinated bowls, whilst the only possibly Early Neolithic monument is at Ballafayle (Kermode 1927). The site consists of an asymmetrical trapezoidal mound with some suggestion of kerbing. An area of heavily burnt stone, pits, and burnt bone was found running down the centre of the long axis of the cairn. The form of this monument finds parallels with sites at Ballymacaldrack, Co Antrim (Evans 1938b), Lochill, Dumfries and Galloway (Master 1973) and Street House, Cleveland (Vyner 1984), and thereby suggests that the Isle of Man was not entirely separated from Neolithic cultural influences.

Unfortunately, the long history of crematoria continues into the Middle Neolithic making this evidence somewhat suspect. A further crematorium site might have been present at Cashtal yn Ard (Henshall 1978), although the situation of this site beneath a Middle Neolithic Court tomb argues for its later date.

To argue that the inhabitants of Man in the Early Neolithic were unaware of the Neolithic material culture practices used by their neighbours would seem a very dubious proposition, however. What seems more likely is that the Manx Mesolithic communities were sufficiently distinct in their way of life to prevent them from accepting alternative cultural practices which became widely adopted throughout much of the Irish Sea area. A similar case has been made for the Mesolithic Ertebolle culture of Denmark which appears to have gradually adopted the use of stone axes, domestic plants and animals, and monuments over a thousand years, despite their close proximity to Neolithic neighbours (Hodder 1990). The case for a similar pattern of events on the Isle of Man is supported by the perpetuation of Mesolithic flint traditions after their apparent abandonment in Britain and Ireland.

Throughout the Late Mesolithic Manx flintwork bears a close relationship to that of Ireland. It is generally characterised as being 'heavy bladed' (Woodman 1978; McCartan 1989) with the most diagnostic artefact being the Tanged point. This lithic type does not appear to have continued in use into the Neolithic period in Ireland. On the Isle of Man however, the situation appears to be different. Excavations in 1989 by McCartan (1994) at Rhendhoo, located an *in situ* heavy blade assemblage, apparently associated with a number of hearths. Charcoal from the site was not directly related to the lithics in sealed deposits, but the range of dates produced were as follows: 4800 - 4350 cal BC (BM 2693); 4150 - 3650 cal BC (BM 2695); and 3950 - 2750 cal BC (GU 2703). BM 2694 unfortunately extend beyond the calibration curve of Stuiver and Kra (1986), although the later dates clearly overlap into the Neolithic period.

Unfortunately, there is at present no evidence with which to suggest a date for the adoption of agriculture on the Isle of Man. The apparent resistance of Manx

communities to the early acceptance of other Neolithic cultural symbols would seem to argue for a late introduction. Indeed, perhaps it was the lack of a sedentary farming life-style which precluded the use of fragile pottery and geographically fixed monuments.

5.4 Middle Neolithic evidence

The evidence for Neolithic material culture during the following c1500 cal years presents a picture of marked contrast. As Chapter 4 has shown, by the Middle Neolithic, the Isle of Man was utilising similar burial monuments to the rest of the Irish Sea province. These are presumably reflections of a broader change within Manx society in terms of settlement pattern, economy and cultural perspective. The relationships of the inhabitants of the Isle of Man with their neighbours must also have undergone a change from the earlier emphasis on distinctive identity to their inclusion with a common cultural framework.

The range of Middle Neolithic site and artefact types present on the Island is considered below, followed by a discussion of the evidence this provides for the nature of Manx cultural life at this time.

5.4.1 Middle Neolithic site types

During the Middle Neolithic the archaeological evidence is dominated by burial monuments of various forms which are described below.

5.4.1.1 *Court tombs*

Two Manx sites fall into this category, Cashtal yn Ard and King Orry's Grave. The former site was excavated in the early 1930s by H J Fleure and G J H Neely (1936). Although it had been disturbed previously (see Jewitt 1885, quoted in Fleure and Neely 1936) the site is recognisable today as a typical Court tomb by its pronounced

forecourt and segmented chamber area (Daniel 1950; Piggott 1954). Nonetheless, beneath the rear of the trapezoidal cairn at the site was found a burnt mound which is atypical for such site types, however. It has been suggested that this burnt area may be the remains of a Crematorium related to that at Ballafayle (Henshall 1978).

The final form of King Orry's Grave is also clearly of the Court tomb tradition, although unfortunately in this case the two ends of the site have been bisected by a road. There has been some discussion (Daniel 1950, 82) as to whether the two ends of the site were ever connected. The prevailing view seems to be that they were, although the monument would be rather long, at c60m, if this was the case (Daniel 1950, 179; Prehistoric Society 1971, 22; Henshall 1978). At the northeast end is a typical court tomb facade and segmented chamber excavated in 1953-4 by Basil Megaw (unpub.). The southwest end is more enigmatic with Henshall (1978) suggesting it has affinities to a Passage tomb tradition, whilst Basil Megaw illustrates it as a Court tomb (Prehistoric Society 1971, 22). Within this thesis the monument is assumed to be a double horned Court tomb.

5.4.1.2 Passage tombs

As was noted above, Henshall (1978) argues that King Orry's Grave has possible Passage tomb elements, although the final form of the site is more easily interpreted as a Court tomb.

In addition, Henshall sees two other sites, the Cloven Stones, and the Mull Hill Circle as being a part of the Passage tomb tradition. At the first of these sites only a portion of a chamber area survives, and it seems difficult to attribute it to this class on the basis of this evidence alone. Within this thesis The Cloven Stones is therefore recorded as an 'Unclassified tomb' (see Appendix 1).

The Mull Hill Circle is the most ambiguous of Neolithic monuments, and although various attempts have been made to cite parallels with other sites (eg, Piggott 1954, 160, 168; Henshall 1978), no single suggestion is entirely satisfactory. The site

consists of 6 sets of T-shaped chambers arranged in a circle. It was excavated by Herdman and Kermode (1894) and one of the largest Middle Neolithic ceramic assemblages on the Island was recovered (see also Piggott 1932). Further excavation was carried out by Henshall who noted a revetment wall around the circle which still held cairn material. (Prehistoric Society 1971, 18). Henshall's suggestion that the site was a Passage tomb involves considerable stretching of the classic descriptions of such a site (Piggott 1954, 193-9; Herity 1974). Within this thesis the Mull Hill Circle is therefore considered under the category of 'Unclassified tomb' (see Appendix 1).

Nonetheless, there is one site on the Island which can certainly be considered a Passage tomb, the Kew. No recorded excavations have been carried out at the site, despite the fact that it survives on the surface as a double line of upright stones contained within slight traces of a mound (Cubbon and Bruce 1928).

5.4.1.3 *Unclassified tombs (megalithic)*

Four sites are included in this category, Ballaharra, The Cloven Stones, Ballakelly and the Mull Hill Circle. The first three sites fall into this class because they are too badly damaged to allow more detailed interpretation. The Cloven Stones has already been discussed above. At Ballaharra, the site was discovered as a result of quarrying which had already badly damaged it prior to archaeological examination, but through rescue work by Sheila Cregeen (1978) a detailed evaluation of surviving remains was carried out. The megalithic component of the site survived as a chamber area set within a pit (Davey *pers comm.* 1995). It seems likely that the chamber was made of at least two compartments, although the poor survival of the site makes detailed classification difficult. Ballakelly has been described by Daniel (1950, 180) as "little more than a rectangular chamber surrounded by numerous large stones." The chamber was examined by Lukis in 1865 and a sherd, flint and a few burnt bones were recovered¹⁴. Of particular interest at the site are a cluster of cup marks on a stone behind the chamber, presumably relating to the tombs role in the Latest

¹⁴ Although registered with the British Museum, attempts by current staff to locate the finds within the Lukis collection have been unsuccessful.

Neolithic or Early Bronze Age. Henshall (1978) includes the site within her classification of 'rectangular and segmented chambers' which also includes Cashtal yn Ard and King Orry's Grave. The present author feels that a more cautious approach is justified in considering the wider relationship of this site. In contrast to the preceding sites, the Mull Hill Circle is in a remarkably good state of repair but, as noted in the section on Passage tombs (above), its form does not allow it to be easily situated within any established megalithic site type. It is therefore placed within this category.

Other sites which it has been suggested are Neolithic tombs include cists at Port St Mary (Swinnerton 1894), and Clay Head (Henshall 1978). The former site consisted of a composite cist large enough to be characterised as megalithic, but the dimensions would not be entirely out of character in a Bronze Age cist (eg, St John's Mount, Barnwell 1868). Furthermore, no clear dating evidence was found to place the site in the Neolithic period¹⁵. The site at Clay Head falls on similar grounds.

5.4.1.4 Occupation

There has only been one Middle Neolithic site which clearly falls into this class, Billown Quarry 1. This site consisted of a pit cluster excavated by Lancaster University Archaeological Unit in advance of quarrying (1993), and since destroyed. Overlying the pits was a lithic scatter which was typologically indistinguishable from the material found in the Middle Neolithic pits. It is important to note that the lithic scatter may in fact be connected with the Late Neolithic site of Billown Quarry 2 in the adjacent field (Darvill 1996).

¹⁵ A few crumbs of pottery were found at the site during its excavation. The precise context of these is, however, unclear and, if pushed for a date, they appear to be Late, rather than Middle Neolithic in character.

5.4.2 Middle Neolithic artefacts (non-ceramic)

The majority of Middle Neolithic sites listed above have suffered at some point in their history from some degree of disturbance (see Appendix 5). This has naturally reduced the quantity of artefacts available for study, but there is sufficient to gain a picture of most major artefact types current on the Isle of Man at this time.

5.4.2.1 *Lithic types*

The earlier dates from Rhendhoo (McCartan 1994) suggest that Manx heavy blade tools may still have continued in use in the north of the Island even into the Middle Neolithic. The evidence from the Middle Neolithic sites described below suggests that this was not generally the case.

The most secure lithic assemblage dated to the Middle Neolithic comes from Billown Quarry 1 (LUAU 1993). This can be dated on account of its association with Shouldered pottery. The lithic analyst Bob Middleton (1993, 25) noted that the most diagnostic artefact within the assemblage was a single leaf-shaped arrowhead. However, this came from the surface scatter at the site, and may therefore be associated with the Late Neolithic activity in the adjacent field (ie, Billown Quarry 2). In summing up the character of the assemblage at Billown Quarry 1, Middleton notes similarities with Late Neolithic assemblages and also the Beaker assemblage from Ballachrink (McCartan and Johnson 1992).

Two other Middle Neolithic sites have also produced lithic assemblages, Ballaharra and King Orry's Grave (Cregeen 1978; and Megaw unpub.). The lithic assemblages are chiefly characterised by the number of convex scrapers found around the chamber area at Ballaharra, and in forecourt features at King Orry's Grave.

5.4.2.2 *Human remains*

The largely acidic soils on the Isle of Man are ill-suited to the preservation of bone and this may account for the scarcity of human remains from many of the Manx burial sites. Added to this must be the considerable damage which has been effected at many tombs, such that in the case of Ballakelly and the Cloven Stones nothing has survived. Nonetheless, sufficient has survived from the remaining Manx megaliths to provide an indication of the burial rite practiced.

At Ballaharra, although the chamber was much disturbed fragments of inhumed bone survived beneath a paving level, suggesting that they were protected from subsequent damage (Cregeen 1978).

At Cashtal yn Ard, of the five compartments present the first three had definitely been disturbed prior to antiquarian excavation (Jewitt 1885, quoted in Fleure and Neely 1936). However, Jewitt did locate fragments of skull (possibly of a young woman) and other bone fragments in the first chamber. Similarly slight evidence for an inhumation was found by Basil Megaw at King Orry's Grave. Here a single piece of unburnt human bone was found in the first chamber. The disturbed nature of the site means that it cannot be assumed that this piece of bone belonged to a primary interment.

In contrast, the burial rite at the Mull Hill Circle appears to have been cremation. Many of the chambers at this site seemed undisturbed prior to excavation in the 1890s. Unfortunately, the excavation report (Herdman and Kermode 1894) does not detail the quantity of bone found, but it is clear that all the remains found were cremated. The crematorium site at Ballafayle, which may belong in this period, also produced two burnt deposits in the chamber area (Kermode 1927).

5.4.2.3 *Other artefacts (non-ceramic)*

The chronology presented in Appendix 2 indicates that hafted stone axes were in use throughout the Irish Sea area during the Middle Neolithic. It is therefore likely

that at least some of the numerous stray axe finds made throughout the Island can be attributed to this period. The only securely contexted axes on the Isle of Man have, however, been found in Late Neolithic deposits and discussion of the evidence is therefore reserved until this later section.

Other evidence relating to the Middle Neolithic is extremely scarce. The only animal bones which can be dated to this period are from Ballaharra, where the remains of sheep and cattle teeth were found, presumably associated with the megalithic burial rite (Cregeen 1978). The floral evidence is similarly slight. A possible find of a Middle Neolithic grain store was found during cliff erosion at Phurt in the 1980s, and considerable carbonised remains have been preserved from this, although they remain unidentified. The area in which the pit was exposed has produced a large quantity of Middle Neolithic, and Bronze Age pottery, although the finds came from eroding land surfaces and could not be closely correlated with the grain pit (see Appendix 4 for site description). A single grain impression has been found on a sherd of Middle Neolithic pottery from the Mull Hill Circle, although once again this has not been identified to a species.

5.4.3 Middle Neolithic ceramics

Ceramic assemblages were obtained from five of the Neolithic sites described above: Ballaharra, Billown Quarry 1, Cashtal yn Ard, King Orry's Grave, and the Mull Hill Circle. These are illustrated in Appendix 6 which contains a corpus of all diagnostic sherds of Manx Neolithic pottery. Throughout the remainder of this thesis individual vessels are referred to by their unique identifier given within this corpus.

The nature of the assemblages from these sites was then used to identify further examples of Middle Neolithic pottery without a known archaeological context. Further assemblages were thereby recorded from Berk and Phurt. The former consists of a single small bowl recovered from a mound in 1929 (Kermode 1930); whilst the latter is a large mixed assemblage recovered during cliff erosion in the

1980s. In addition to these finds, a single sherd with a Middle Neolithic rim form and decoration was also found within the Late Neolithic assemblage from Ballavarry (see Figure A6.25 B'va 14). One major category of ceramics is identifiable within these assemblages: Shouldered pottery. This ceramic type is well known throughout the Irish Sea province (see Chapter 4) and is described in Appendix 1. The Manx Shouldered pottery is characterised more closely in Chapter 6.

In addition to the finds of Shouldered pottery, there is also some evidence, albeit very tentative, for the presence of Sandhills style pottery on the Island (eg Figure A6.56 Phu 9). Little is made of this within this chapter since the identification relies on somewhat circumstantial evidence. The form and fabric type are clearly distinct from the Shouldered component of the assemblage. Unfortunately, the Phurt Neolithic assemblage has become mixed with sherds from the nearby Bronze Age assemblage (see Appendix 4 for details). In consequence, although the sherd differs in form from those sherds which are clearly of Bronze Age date (eg, Figure A6.56 Phu 16; Figure A6.59 Phu 38, 41-7,) it is possible that it does belong to this latter group.

5.4.4 The Isle of Man in the Middle Neolithic

Figure 5.3 presents the distribution of Middle Neolithic sites throughout the Isle of Man. This shows a marked clustering of sites around the fringes of the Island, away from the upland massifs. In the case of megalithic tombs it seems probable that this is a reflection of the original distribution since it seems unlikely that any such sites occurring in the uplands would have been completely removed. It is, however, possible that the centuries of agriculture in the lowlands may have significantly altered the distribution pattern through site destruction. In the case of occupation sites there may be many more present throughout all parts of the Island which have not yet come to light. Of particular interest in this respect is the site at Phurt which produced a large ceramic assemblage from cliff erosion, although there were no traces of the site on the ground. Until further sites of this kind are found the

evidence relating to the Manx Middle Neolithic is heavily biased towards funerary monuments.

The range of such monuments present on the Island is of particular interest. Chapter 4 has already noted that the presence of Court and Passage tombs on the Island situates Manx communities within a wider network of megalithic practice in the Irish Sea area. There are, however, a large number of unusual megalithic forms on the Island which do not fall into these more specific classes. These would seem to present evidence of a continued independence in the application of foreign cultural patterns within the Manx context. Perhaps the best example of this is the Mull Hill Circle which has defied attempts to present convincing parallels (Daniel 1950; Piggott 1954, 160, 168), and yet it is clearly part of the megalithic building tradition current throughout the Irish Sea area. Ballaharra also presents difficulties in attempts to find parallels although perhaps not as insuperable as is the case with the Mull Hill Circle. In this instance, it might be the case that the site is related to Llanddyfnan (Baynes 1911) and Lligwy (Baynes 1909) in Anglesey which were also placed within pits, albeit rock cut. Even the Court tomb of King Orry's Grave might be seen as unusual in its considerable length, and attempts have been made to argue a combined heritage of both Court and Passage tomb for the site (Henshall 1978).

Geographically, it is notable that those sites which relate most closely to types current elsewhere in the Irish Sea basin (ie, Ballafayle, Cashtal yn Ard, and King Orry's Grave) all cluster along the eastern seaboard. It would be tempting to speculate that this was an area of the Island in most direct contact with the neighbouring lands, perhaps even representing a colony from which the Neolithic culture spread to the rest of the Island.

The diversity of Manx tomb types compares well with the evidence from other Island communities such as Arran (Henshall 1972), and Anglesey (Lynch 1969). Turning to the burial practices employed in the Irish Sea province more generally, there is a broadly similar approach used at all sites, albeit with minor variations in

every instance. Herity (1974; 1987) has summarised the burial practices at megalithic sites in Ireland, whilst Henshall (1972) and Lynch (1969) have done the same for those parts of Scotland and Wales respectively which encroach on the study area. These works show that the burial rite practiced, whether it be inhumation, or cremation, could vary between sites, even within a close geographical area. The presence of both practices on the Isle of Man need not therefore be seen as unusual. Similarly, the inclusion of Shouldered pots and flint work including arrowheads within the burial chamber can also be paralleled throughout the Irish Sea area. At face value, Manx innovation appears to have restrained itself to affecting the morphology of the tombs themselves.

The subject of the role of pottery in the Manx Middle Neolithic, and the varied uses to which it may have been put will be returned to in Chapter 11.

5.5 Late Neolithic evidence

The picture of life on the Isle of Man during the Middle Neolithic presents some evidence for individual development, but in large part reflects that of the rest of the Irish Sea area at this time. During the Late Neolithic this picture alters dramatically, in terms of the nature of evidence, the quantity available, and the picture it presents. The location of Neolithic sites discussed in this section is illustrated in Figure 5.4.

5.5.1 Late Neolithic site types

Whereas the Middle Neolithic on the Isle of Man is dominated by burial sites, the range of site types present on the Island during the Late Neolithic period is more balanced with numerous occupation sites being known. Nonetheless, within the three categories of site listed below is concealed a very varied range of material culture practices.

5.5.1.1 *Unclassified burial (Manx cremation sites)*

Moffatt (1978) has noted the lack of standardisation in Late Neolithic burial rite on the Isle of Man. The linking feature between them all is the practice of cremation as the primary burial rite. This feature of Manx Late Neolithic burials led Piggott (1954, 347) to suggest links with his Dorchester culture. It will, however, be noted that the cremation contexts on the Isle of Man differ from those at Dorchester-upon-Thames, Oxfordshire since in the latter instance they are primarily associated with Henges (Atkinson *et al* 1951). Moffatt (1978) has also attempted to parallel Manx cremations with those at Henge sites such as Bryn Celli Ddu, Anglesey (Hemp 1931) and Llandegai, Gwynedd (Houlder 1968). However, until Henges can be clearly identified on the Isle of Man, it is difficult to argue for a direct link between Manx cremation practices and those of surrounding areas.

Of the Late Neolithic burial sites so far identified, the following can be classed as cemeteries on account of the quantity of remains present at them: Killeaba (Cubbon 1978a), Ballateare (Bersu 1947) and Ballaharra (Cregeen 1978). The structuring of the burial deposits at these sites do, however, vary considerably. For example, at Ballaharra cremations were deposited communally, whilst at both Killeaba and Ballateare the burials were deposited individually. The individual deposits at Killeaba were placed in isolation, with one also being found clearly within a timber lined pit; whilst at Ballateare one example was found within a jar. In contrast to the practice of individual burial at these sites, the two cremation deposits at Ballaharra contained between them 33 - 43 individuals. This suggests a single deposition of an accumulation of corpses.

In addition to these well documented cemetery sites, three other potential examples are also known, although the evidence for these is less complete. These are Knocksharry (Cubbon 1932), Scard (Kermode 1902b), and West Kimmeragh (Garrad 1987a). At the first site the excavation report states that two platforms were found containing cremated remains. A similar situation was revealed by the excavations at West Kimmeragh. It is also worth noting that a stone platform was found at Killeaba, although no dating material was found within it. At Scard a number of jars were

recovered during pipe digging and subsequent excavation. Charcoal was found in them along with the barest traces of bone.

Further variation in burial practice can be seen at Round Ellan (Garrad unpub.) and Ramsey Brooghs (Kermode 1894). At the former site a cremation was found in the base of each of two jars, whilst at the latter site jars containing cremation deposits were reported as having come from 'a rude kind of cist' (Walkey 1894).

5.5.1.2 Occupation

A large number of Late Neolithic sites can be seen as fitting into this broad category. The most well-known of these is Ronaldsway 'House' (Bruce *et al* 1947). Other sites known are:

- Ballacottier (Garrad 1981 and 1984b)
- Ballalheaney (Garrad 1985)
- Ballavarry (Garrad 1984a and c)
- Billown Circle (Cubbon 1945)
- Glencrutchery (Clark 1935)
- Knockaloe Beg (Garrad unpub)
- Park Farm (Garrad 1987b)

An introduction to each of these sites is presented in Appendix 4. As was noted in Section 5.2, the majority of these sites have been interpreted in very broad terms by their excavators. The exception to this is the Ronaldsway 'House' which, as its name indicates, was seen as being the remains of a permanent habitation site for a family unit.

This rather specific interpretation of function appears to be supported by the central hearth, occasional postholes, and the apparently comprehensive range of tools and ceramic types present at the site. The evidence does not, however, unequivocally support the conclusion that the site was a house (see Appendix 4).

The contexts of the remaining sites are generally poorly known. The worst instance of this is the site of Glencrutchery which has produced a large ceramic assemblage but is

itself very poorly understood (see Appendix 4). The site at Billown Circle (Cubbon 1945) consists of a group of stones generally interpreted as forming a circle, although once again this is far from certain, and the site is not considered as such within this thesis. Immediately adjacent to this a number of ceramic and lithic finds were made in the vicinity of a mound¹⁶. The precise context of these finds is unclear, and they may have been previously disturbed. With the finds from both of these sites the level of recording is such that they might also be convincingly argued to be stray finds.

The remaining five occupation sites were excavated by Larch Garrad in a series of evaluations conducted throughout the 1980s. At Ballacottier and Ballalheaney the few features consisted of hollows interpreted as sheep scrapes, whilst at Knockaloe Beg no features were found. At Park Farm, pits and postholes were identified, although no patterning could be identified in these. The site of Ballavarry provides a stark contrast with these ephemeral occupation scatters. Three inter-connecting pits were found which contained large and secure ceramic and lithic assemblages. The importance of the site ranks alongside that of the Ronaldsway 'House' with which it can reasonably be compared (see Chapter 11).

5.5.1.3 *Earthfast jar*

This category of site type is unique to the Isle of Man and consists of isolated finds of complete vessels deliberately buried upright up to their necks. Although isolated vessels are found in other parts of the study area they are not of such uniform type and do not present such a consistent cultural phenomena as on the Isle of Man.

The nature and function of the Earthfast jar sites is extremely poorly understood. In the majority of cases the jar has been brought to light during ploughing and removed from its context with little attempt to open a wider area (see Appendix 4). Only in the case of Billown Quarry 2, has the area around a Ronaldsway Earthfast jar been investigated in detail. In this case no explicable features were located. It may,

¹⁶ The author is extremely grateful to the staff of the Manx Museum library who made available previously unpublished plans of the site and unaccessioned excavation notes.

however, be the case that many of the Manx Earthfast jars constitute parts of much larger and unrecognised sites. The subject of the function of the Manx Earthfast jars is explored more thoroughly in Chapter 11.

Those sites which fall into this category are listed below:

- Ballacross (1 jar)
- Ballagawne (1 + ?1 jar)
- Ballahot (1 jar)
- Ballaquayle (1 jar)
- Billown Quarry 2 (2 jars)
- Cleigh Rouyr (1 jar)
- Colby (1 jar)
- Colby Mooar (1 jar)
- Ronaldsway airport (2 jars)
- Scholaby (1 jar)
- Skyhill (1 jar)

5.5.2 Late Neolithic artefacts (non-ceramic)

In contrast to the impoverished assemblages dating to the Middle Neolithic, Manx Late Neolithic sites present a profusion of artefacts, both in terms of quantity discovered, and also in the number of regularly identifiable types present.

5.5.2.1 *Flintwork*

The distinctiveness of Manx Late Neolithic flintwork has been commented upon (Bruce *et al* 1947; Piggott 1954; Moffatt 1978) and is seen as one of the defining characteristics of Manx culture at this time.

Bruce *et al* (1947) in their initial assessment of the evidence noted that the following lithic types were characteristic: serrated saws, hump-backed scrapers, lozenge shaped arrowheads, and polished discoidal knives (see also Piggott 1954, 350; Moffatt 1978). To this list, Sinead McCartan's recent work has added disc cores, and hollow scrapers (McCartan and Johnson 1992). This latter-type is not normally associated with Late Neolithic flintwork in the Irish Sea area, being more typically found in the Middle Neolithic megalithic contexts of Ireland (see Herity 1987), but work by

Woodman (1993) suggests that within Ireland they may have had currency into the following period. Within the Isle of Man hollow scrapers have been retrieved from excavated contexts at Ballacottier, Ballalheaney, Glencrutchery, Ronaldsway 'House' and West Kimmeragh, and in field scatters at Ballavarry and South Barrule.

The hump-backed scraper is probably the most exclusively Manx of all the lithic work of the time. It is normally worked over most of the top surface with a characteristic sub-rectangular profile, and is found at the majority of Late Neolithic sites (Moffatt 1978).

The lozenge arrowhead used on the Isle of Man in the Late Neolithic, appears to have its ancestry in the forms found at such Middle Neolithic sites as Ballaharra, and indeed throughout the Irish Sea area. These forms seem, however, to have gone out of use elsewhere, to be replaced by javelin heads, and chisel and lop-sided transverse arrowheads (see Green 1980, 189; Woodman 1993).

Many of the forms typical of the Late Neolithic can therefore be seen to have their origins in the Middle Neolithic, although in this later phase they are accompanied by an increased number of new and distinctively Manx types. The subject of Manx lithics is currently being re-examined by Sinead McCartan whose work will doubtless considerably clarify these issues.

5.5.2.2 *Coarse stone artefacts*

With the discovery of the Ronaldsway 'House' a considerable number of stone artefacts were recovered. Of immediate interest were the stone axes which clearly dated to the Neolithic period and are considered in the following section. In addition to these were found stone rubbers, polishers and decorated slate plaques (Bruce *et al* 1947). The identification of these finds in a Neolithic context served to illustrate the diversity of material culture at this time, and also helps in the dating of other stone artefacts found subsequently as stray finds.

Slate plaques

Probably the most well-known of Late Neolithic artefacts from the Isle of Man are the decorated slate plaques found at Ronaldsway 'House'. A total of five plaques were recovered from this site, of which two are decorated. Since this time a further decorated example has been recovered from excavations at Ballavarry (Garrad 1984c). These decorated examples are illustrated as Figure 5.5, whilst the detail of their decoration will be considered in more detail in Chapter 10.

Further plain ?plaques have been found by Larch Garrad at Park Farm (Garrad 1987). If these had been accompanied by decorated examples their identification as artefacts would have been made simpler. In the absence of such supporting evidence it is, however, impossible to be sure that they are not simply water-worn pebbles.

Slate lids

Ronaldsway jars are frequently found accompanied by a slate lid. This rather crude means of sealing the vessel has proved to be extremely effective with several jars being found empty after some 4,500 years. The discovery of one of these sealed jars at Ballahot is worth quoting in full:

“About two feet below the surface of the face of the quarry I noticed a conspicuous hole, out of which a jackdaw flew. On looking more closely at this it appeared like the top of a drainpipe, with a hole chipped out of its side, covered with a slate. As there were young jackdaws in it I postponed its excavation for a fortnight” Kewley (1915, 33).

Slate lids have been found covering the following Earthfast jars:

- Ballacross
- Ballahot
- Ballaquayle
- Billown Quarry 2

- Cleigh Rouyr¹⁷
- Colby Mooar
- Scholaby
- Skyhill

In addition, slate lids have been found with jars at a number of burial sites. At Ballateare, the presence of slate lids accompanying the truncated jars at the site was inferred from the presence of non-local slate fragments nearby (Bersu *et al* 1947). At Killeaba, a perforated slate slab was found above a Ronaldsway jar (Cubbon 1978a). At Scard, one of the eleven jars was found with a slate lid intact. Kermodé's unpublished notes relating to Glencrutchery, although difficult to disentangle, also suggests that one of the vessels present (specifically Figure A6.33 Gle 7, Figure A6.34 Gle 14) might have been covered by a slate lid. A large slate slab was also used to cover the deposit of animal bone and a small pot at Ronaldsway 'House', although this cannot be considered a pot lid in the true sense of the word.

The number of jars from different site types indicate how widespread must have been the use of slate lids over large Ronaldsway jars. It has been speculated that the collared rims of Ronaldsway jars were a means of fixing a stretched skin over the vessel's mouth, and that the stone lid only provided additional protection (Bruce *et al* 1947). Whilst this is possible it should be noted that if the pot had been rested upside down on a slate slab prior to firing, as seems likely, then the pot would have slumped to provide an even and complete seal. Once fired the pot's mouth would then have presented a flat surface which would be easily sealed by a slate slab. It is difficult therefore to see the additional advantage that would accrue from using a skin cover in addition to the stone one.

Grindstones

Three grindstones were recovered from Ronaldsway 'House', one extremely high quality example of fine grained quartzite with hollowed surfaces on both flat faces, as

¹⁷ At this site no stone lid was found, although since the jar was empty it seems fair to assume that one had been present but was subsequently dislodged.

well as two other coarser examples also with hollowed surfaces. Given the presence at Ronaldsway 'House' of a number of stone axes it is difficult to ignore the theory that the grindstones were used to polish stone axes. The presence of two worn granite rubbers at the site may, however, be seen as evidence for corn grinding. A similar grindstone made from a macroscopically comparable rock type has also been found during fieldwalking at Park Farm (Garrad 1987).

Other stone artefacts

In addition to the stone axes, plaques, and lids, a few other stone artefact types have also been identified at Neolithic sites on the Isle of Man. Once again, Ronaldsway 'House' has provided the greatest number of these, including hammer stones, and three stone balls, polishing slabs and grain rubbers. These balls have been compared with those found at Skara Brae, and in the Irish Passage tombs (Bruce *et al* 1947), although the chronological scheme presented in Appendix 2 indicates that the two are not contemporary.

5.5.2.3 Stone axes

The stone axes on the Isle of Man are the most direct evidence of Manx contact with the neighbouring islands, since many are directly identifiable to British and Irish rock sources. The Isle of Man is fortunate in that a number of these axes of varying type have been obtained from secure contexts, notably the Ronaldsway 'House'¹⁸. At this site four axes were found from the Langdale area (Group VI), indicating that at least some of the large number of axes of foreign stones found on the Isle of Man can be dated to this period. In addition to the Group VI axes from the Ronaldsway 'House', petrological work by Coope and Garrad (1988) has shown that axes from the Island also originate from North Wales (Group VII), and Northern Ireland (Group IX) (Sheridan *et al* 1992). Perhaps the most exotic of the Manx axes is

¹⁸ A fragment of a Group VI axe (macroscopically identified), was also found in a pit in the eroding cliff-line at Phurt, whether this relates directly to the Middle Neolithic ceramic finds from the site is unclear. A rhyolite axe was also retrieved at the Beaker site of Ballachrink (McCartan and Johnson 1992), although again this could not be securely contexted. Finally, a weathered axe was recovered during excavation at the Late Neolithic site of Leodest (Garrad 1986), although the context was almost certainly disturbed.

a jadeite example found at Glencrutchery in 1892 and originating in Europe (Campbell 1963).

In addition to the Group VI axes at the Ronaldsway 'House' seven locally made axes were found with a similar and distinctive form consisting of a roughened and truncated butt (RTB). These axes were further qualified by the recognition that they all belonged to the same rock type (Group XXV), as identified in this section by the work of Coope and Garrad (1988). The source of this rock has been located at Ballapaddag, and is shown on the distribution map of Manx axes, Figure 5.6. Other axes of this type and form have been found throughout the Isle of Man as the figure shows, although none have been securely contexted. Within this present study it is interesting to note that no axes of Group XXV have been identified by petrological analysis outside of the Isle of Man, although in several instances, the RTB form has been reported within Britain. For example, in Yorkshire (Evans 1897, fig 74, 81), Cumbria (Cherry 1967, fig 4b), and Dumfries and Galloway (cited in Bruce *et al* 1947). A further example is noted in the records of the Dumfries Museum, although the specimen has been lost. It has not been possible to confirm these examples through first hand analysis.

5.5.2.4 *Human remains*

During the Late Neolithic cremation seems to have been the primary burial rite. The occurrence of cremation deposits at Late Neolithic burial sites has already been discussed in Section 5.5.1.1. In addition to these sites which are clearly funerary in character, cremated bone has been found in very small quantities at Ballacottier, and Ballalheaney. Further cremated fragments have been found at Billown Circle, although their relationship to the Late Neolithic site is unclear. It also seems likely that some parts of the Glencrutchery site were also funerary, since Kermodé describes the finds of 1897 as being a 'further burial ground'. In this instance no evidence is available as to the burial rite practiced.

The only item of unburnt human bone to be recovered from a Late Neolithic context is a femur discovered at Ronaldsway 'House'. Given the unusual nature of the findspot it seems fair to view this bone as being significant as a votive rather than a burial object in the traditionally accepted sense.

5.5.2.5 *Other artefacts (non-ceramic)*

The largest assemblage of animal bones to be recovered from a Manx Neolithic site came from the Ronaldsway 'House'. These bones were examined by Dr J W Jackson and were recently reappraised by M Maltby, Bournemouth University, as part of this research. The text of Maltby's report is presented as Appendix 7.

Maltby agrees with Jackson in identifying bones of cattle, sheep, and pig, as well as some bones from a bird (possibly a cormorant). Since the nature of the deposits at Ronaldsway 'House' have still to be convincingly interpreted it seems premature to suggest that this assemblage in any way indicates the diet current during the Late Neolithic period.

With the exception of the Ronaldsway 'House' assemblage the evidence of faunal remains is as slight as in the preceding period. At Ballaharra, one of the Late Neolithic cremation deposits contained three fragments of a dog, and one of another animal. The excavator (Cregeen 1978) interpreted these as being chance inclusions within the burial deposit. At Ballateare, a bone (presumably animal) had been worked into the shape of a pin (Bersu *et al* 1947).

5.5.3 Late Neolithic ceramics

Ceramic assemblages have been identified from all of the Manx Late Neolithic sites mentioned above. In addition to these assemblages, a large number of other finds, of no-known context, can be identified as Late Neolithic on account of their similarity in terms of form and decoration. These can be split into three types

according to the manner in which they were retrieved: surface and cliff erosion finds, finds from non-archaeological excavation, and finds of unknown provenance.

5.5.3.1 Surface finds and finds from cliff erosion

Throughout the 1980s and early 90s the study of Manx prehistory has benefited from the activity of two fieldwalkers, Alan Skillan who has walked in the north of the Island, and Robert Farrar who has focused more on the south. These individuals have found a large number of ceramic yielding Neolithic sites. These include: Ballacottier, Ballalheaney, Ballavarry, Knockaloe Beg, Park Farm, South Barrule, and West Kimmeragh. The survival of Neolithic pottery in these surface scatters is a strong indication that the underlying deposits were only recently disturbed. In consequence, their identification has been followed up by excavation at all of these sites, except South Barrule, with the result that often sizeable ceramic assemblages have been recovered. That these discoveries were so effectively capitalised upon is a tribute to the work of Larch Garrad at the Manx Museum. Further fieldwalking over a number of years at Greenlands has also located Late Neolithic pottery, whilst a single sherd of Late Neolithic type was also recovered by Kermode (1930) from cliff erosion at Shellag. Finally, at Guilcagh, a single bowl was discovered during the widening of the Lhen trench in 1962 (Cubbon 1978b).

5.5.3.2 Non-archaeological excavation

A number of the Late Neolithic jars from the Island have been found as a result of non-archaeological digging, for example, the cemetery at Scard, and the jar at Ballahot. These, however, still retained their archaeological context. At other sites only a few sherds have been recovered, and were passed to the Manx Museum before their context could be adequately established. These include a rim sherd found during the construction of a barn near to the cemetery of Ballateare. This site has been named here Ballateare (Dutch Barn). At Leodest, a farmer found a few sherds whilst digging a pit in which to bury a sheep. Test pitting in the area failed,

however, to find further remains. Finally, during the construction of the Queen Elizabeth II school, Peel, a couple of sherds were found.

5.5.3.3 *Unprovenanced finds*

One vessel in the Manx Museum is unaccompanied by accession information. This vessel is probably that mentioned by Kermode (unpub.) as coming from Orrisdale Brooghs, although no further details of the site are known. The large portions of the vessel suggest that it was found *in situ*, perhaps in the form of an Earthfast jar. From Cronk Coar, a mound used for Bronze Age burials, a number of Late Neolithic sherds have been recovered, although their exact relationship to the Bronze Age site is unclear. Finally, there are a few sherds identified as coming from the Ronaldsway Village site. This was a Bronze Age / Early Christian settlement not far from Ronaldsway 'House'. They were probably found during excavation work at the site between 1935 and 1937 (Neely 1940), although this cannot be confirmed.

All of the diagnostic ceramic finds from the Manx Late Neolithic sites mentioned in this thesis are illustrated in the corpus presented as Appendix 6. As a whole these ceramics are referred to here as Manx Late Neolithic pottery. Two ceramic types can be identified within this corpus, Ronaldsway and Grooved ware. Both of these ceramic types have been introduced in Appendix 1 and their distribution discussed in Chapter 4. The Manx finds are characterised in more detail in Chapter 6.

5.5.4 The Isle of Man in the Late Neolithic

The quantity of material relating to the Late Neolithic is of a different order of magnitude from that present in both the preceding and subsequent periods. Whilst the amount of material available today creates a clear focus for research, it also seems likely that it reflects a trend in the Late Neolithic, possibly towards the use of more non-degradable materials, but certainly towards the increase in the deliberate burial of artefacts.

The distribution map for Late Neolithic sites on the Island is given in Figure 5.4. This illustrates the wide variety of areas in which material has been found. That intensive fieldwalking, particularly in the northern and southern plains has not located similar finds related to other periods seems likely to reflect an actual increase in the number of Late Neolithic sites over those sites in other phases of the Neolithic¹⁹. As was the case in the Middle Neolithic, the distribution of sites does still show a focus on the lowlands which presumably reflects the current pattern of land disturbance by agriculture rather than a real distribution. Late Neolithic occupation in the uplands is indicated by such sites as Scard, Skyhill and Earybedn.

It is noticeable that the only lowland area clearly occupied in the Middle Neolithic, in which there does not seem to be a continuity of occupation is to the east of the central massif. It is here that the classic Middle Neolithic burial forms are found (eg, Ballafayle, Cashtal yn Ard, and King Orry's Grave) and it is tempting to suggest that the unique material culture practices of the Manx Late Neolithic culture were not appropriate in a setting overlooked by such clearly non-Manx influences.

The majority of Late Neolithic sites cluster in either the north or the south of the Island, with a few outliers around the opposing ends of the central valley. Geographically there is a marked contrast between the location of sites of different types in each of these major zones (see Figure 5.4 and 5.1). In the north of the Island the occupation and burial sites appear to prefer the lowest lying areas around the Bride Hills, Ramsey, and Jurby. It is noticeable that with each burial site there seems to be a nearby occupation area, and it would certainly be of interest to establish whether or not they were actually linked. The earthfast jars are, however, positioned away from these sites and cluster instead in the foothills of the northern massif.

¹⁹ This cannot, however, be taken to indicate a greater population on the Isle of Man in this period. It may be that the Island was equally inhabited during the Middle Neolithic, but that less material was buried allowing little to survive to the present day.

In the south of the Island the picture is very different. Here there is only one burial site known and this is in the foothills of the southern massif, whilst occupation sites are rare. The majority of sites known are Earthfast jars which occur predominately in the lowlands, with one outlier at Billown Quarry 2. The extent to which these differences between north and south are reflected in ceramic design is considered in Chapter 10.

The origins of the Manx Late Neolithic culture are difficult to pin down. The absence of the major Late Neolithic site types current throughout the study area is noted in Chapter 10, whilst much of this chapter has aimed to illustrate the uniqueness of material culture practice on the Island at this time. Nonetheless, a number of external influences can be identified within the Manx Late Neolithic culture. The evidence of imported stone axe from at least three sides of the Irish Sea basin, Wales, Ireland, and northern England, is the clearest. The development of a Manx source at Ballapaddag also serves to illustrate the extent to which the locals were influenced by the trend in the rest of the British Isles towards the ownership of these tools. The detailed form of the Manx stone axe does, however, show that they were not conforming entirely to foreign concepts. The presence of Grooved ware on the Island also shows that the Isle of Man was willing to adopt foreign practices. In this instance, however, the ceramic form and decorative type is incorporated alongside the typically Manx Ronaldsway form, and was not used exclusively as seems to have been the case in other parts of the study area. The decoration on the slate plaques also suggests that the Grooved ware design tradition had permeated into other areas of decoration within Manx Late Neolithic culture. These artefacts seem to hint that we are only seeing a few surviving elements of a more widespread foreign theme throughout Late Neolithic Manx cultural life, whilst the particular brand of Grooved ware decoration is perhaps best paralleled at Walney Island, Lancashire (unpublished illus.), Machrie Moor (Haggerty 1991, fig 6.17a), and Tormore 1, Arran (Henshall 1972, fig ARN4.4) (see Chapter 10 for further discussion).

Within the lithic assemblages, the presence of hollow scrapers also points directly to contact and influence from Ireland, perhaps showing the perpetuation of a tradition which had gone out of use elsewhere by the start of the Late Neolithic.

Despite the evidence of external influence throughout the Late Neolithic there is little to suggest continuity with the preceding period. Of all the site and artefact types described, the lozenge-shaped arrowheads appear to present the best evidence for continuity between Middle and Late Neolithic practices. On the other hand, suggestions that Manx Late Neolithic bone pins, and stone 'balls' are derived from Irish Middle Neolithic Passage tombs appear unconvincing given the absence of a developed Passage tomb tradition on the Island outside of the small example at The Kew.

This leaves no apparent source for the remaining Manx lithic forms, the varied Manx burial rites, the practice of earthfast jar burial, and most importantly the Ronaldsway ceramics. Considerable effort was invested into tracing parallels through both a literature search and first hand study of sherd material throughout the study area. This showed that no convincing parallels were available for either Ronaldsway decoration, form, or fabric, with the exception of sherds from Ehenside Tarn (Darbishire 1874; Fell 1972). These were studied at both Tullie House Museum, Carlisle, and the British Museum and were found to have a very similar thickness, grit size and abundance, and finish. It also appeared likely that they came from a jar with parallel sides. Unfortunately, no rim or otherwise diagnostic material was available to confirm the similarity.

It would, therefore, appear that in the transition between Middle and Late Neolithic, the Isle of Man underwent a profound reorientation in both its material culture practices and, as a corollary, in its relationship with surrounding areas. It has already been noted that Middle Neolithic tomb types on the Island present evidence of an independent interpretation of foreign material culture practices at this time. In the Late Neolithic this trend appears to become far more pronounced, with new ideas from outside continuing to be absorbed, but this time into a mesh of practices

which are decidedly insular. The possibility that this is the consequence of migration or invasion is remote since nowhere else do the seeds of a similar culture seem to be found.

It may, however, be the case that the reorientation of material culture practices on the Isle of Man was a reaction against the trend in the rest of the study area. Certainly the development of such ritualised monument types as Henges, with their probably unfamiliar associated practices may have been unacceptable to a Manx way of life. Indeed if, as Bradley and Chapman (1986) suggest, Henges were the centre of Late Neolithic polities, it may be the case that the Manx social structure existed on too localised a scale to support such a social burden, whilst being too distant, or too foreign, to utilise those of a neighbour.

It also seems reasonable to argue that, with the breakdown of Middle Neolithic interaction networks throughout the Irish Sea area, it may have been impossible for the Isle of Man to continue pursuing its traditional cultural path in isolation. In this respect the process of competitive emulation described by Bradley and Chapman (1986) might be relevant. In their model the adoption of a new cultural practice by one community invokes the need for a responsive change in neighbouring areas. In the Manx situation, it has been suggested above, that the adoption of Henges was not feasible, and so an innovative response needed to be developed which resulted in the Manx Late Neolithic cultural package. If this proposition is true then as a corollary it implies that at the end of the Middle Neolithic, the Isle of Man existed as a political entity distinct from those of Britain or Ireland. If the Isle of Man had been part of a larger socio-political group at this time then it should have been possible for its inhabitants to assimilate the Late Neolithic cultural influence as a part of a larger polity without developing an individual cultural package.

5.6 Latest Neolithic evidence

From the innovation of the Late Neolithic, by the end of the Neolithic, the Isle of Man reverted to using artefacts current in the rest of the Irish Sea area. In addition,

with the return to an international outlook, the inhabitants of the Isle of Man seem to have abandoned their archaeologically welcome practice of frequently depositing large quantities of objects. The available evidence is therefore very poor.

5.6.1 Latest Neolithic site types

Only two sites dating to this period are known on the Isle of Man. One a burial, the other an occupation site²⁰, these are described below.

5.6.1.1 *Cists*

A single cist was excavated by Quine (1925) and found to contain a flint nodule, a scraper, and a fragmentary Beaker. No burial was found. It may be the case that other cist burials on the Island belong to this period, however, no other Beaker burials are known on the Island.

5.6.1.2 *Occupation*

In 1988 a flint scatter was excavated at Ballachrink (McCartan and Johnson 1992) and an occupation layer and ditch containing ceramic and lithic assemblages were found. The ceramics were clearly of Beaker type.

5.6.2 Latest Neolithic artefact types (non-ceramic)

The scarcity of material made a division of Latest Neolithic artefacts into types unnecessary.

The only certainly Latest Neolithic lithic assemblage found on the Isle of Man is derived from Ballachrink. The lithic typology at the site preserves a strong Manx

²⁰ It has been suggested by Audrey Henshall in unpublished notes that vessel B'ha 65 (Figure A6.14) from Ballaharra might be the remains of a Beaker. This would certainly place the vessel in this Latest Neolithic phase. There is, however, insufficient evidence with which to support this claim.

Late Neolithic element (McCartan and Johnson 1992). Some evidence for the adoption of new lithic forms is, however, provided by the finding of a barbed and tanged arrowhead which is a diagnostic element of Beaker lithic assemblages (see Green 1980, 191), although these are generally rare on the Island. It is highly likely that other non-stratified lithic scatters dating to this period have been found, however, the possibility of identifying them without accompanying ceramics seems slight.

A rhyolite axe was also found at Ballachrink which might present evidence for the continuation of Late Neolithic stone axe networks on the Isle of Man. Beyond this no additional evidence can be presented for the variety of Manx material culture at this time.

5.6.3 Latest Neolithic ceramics

The fragility of Beaker pottery when compared to that of the Late Neolithic might in part explain the poverty of assemblages recovered on the Isle of Man. Certainly, with the exception of surface finds recovered at Ballachrink prior to excavation, there have been no suggestions of stray finds of Beaker pottery on the Island. What Beaker pottery has been recovered from the Isle of Man is characterised in Chapter 6 to supplement the more general description of this ceramic type presented in Appendix 1.

5.6.4 The Isle of Man in the Latest Neolithic

The location of the two known Beaker sites is presented on Figure 5.7. The slight evidence these sites offer presents a picture which differs from that seen in the Late Neolithic. Chronologically, there may have been a period of as much as four hundred years during which the Late Neolithic and Beaker traditions operated side-by-side, perhaps even being used by the same communities. The evidence for continuity will be considered below, along with the possible social implications of the adoption of Beaker practices.

The single most effective piece of evidence with which to argue for continuity between the two periods is the Ronaldsway style rim from Ballachrink. This form can be used to argue against a migration / invasion hypothesis for the arrival of Beakers to the Isle of Man. The rim sherd is typically Manx with clear antecedents in the previous period, and no adequate parallels elsewhere. It would seem surprising indeed if a foreign Beaker using group were to have arrived and begun utilising this Manx form despite their own strong and distinct ceramic traditions. Further evidence for continuity can be seen in the flint industry from Ballachrink. Once again, the presence of an insular Late Neolithic form within this Beaker assemblage would seem to suggest the adaptation of local practices to incorporate new cultural concepts, rather than the arrival of new peoples with wholly new practices.

It may also be argued that the burial traditions of the Late Neolithic culture can be linked to the presence of the fully fledged cist burial at Baroose. At Killeaba, a mix of Late Neolithic and Bronze Age burials were found, as well as the shadow-remains of inhumation burials in two timber-lined pits. Unfortunately these were not directly dated. If the timber-lined pits are related to the Late Neolithic phase of the site then they may be evidence of an adaptation of Late Neolithic cremation rites to incorporate Beaker burial practices.

This fragmentary evidence for continuity with the preceding period does not, however, detract from the considerable cultural implications of the adoption of Beaker artefacts and burial practices. It has already been noted that in the Late Neolithic the Isle of Man developed its own cultural repertoire, perhaps in response to cultural developments in the rest of the Irish Sea area in which it was unable to participate. This has been taken as evidence for a small scale social structure on the Island which could not incorporate the ritualised and elitist practices associated with Henges.

Although it is clear that the Isle of Man still absorbed artefacts from elsewhere during the Latest Neolithic, the uniqueness of its cultural life must have resulted in

a degree of social isolation. Given the small size of the Island such cultural isolation from all of its neighbours is not likely to have been satisfactory since it reduced the strength of inter-regional bonds upon which they could rely in times of difficulty. The Beaker package may therefore have represented an opportunity to re-establish cultural links outside of the Island.

It has become widely accepted that the Beaker artefacts are symbols of a cultural trend towards the recognition of individual power over that of the Late Neolithic elites (Whittle 1981; Bradley 1984). As such it may have been more easily adopted on the Isle of Man than the large scale Late Neolithic cultural pattern. With its adoption the Island was once again a part of a wider inter-regional community, with which it could interact on a common footing. Indeed, throughout the Bronze Age and later, the Isle of Man remained part of the network of material cultural practices current throughout the Irish Sea area (see Wardle 1992) and displayed little interest in repeating the Manx Late Neolithic experiment.

Part III:

The analysis of Manx ceramics in relation to those in use in Britain and Ireland

Part II has established a cultural framework, both regional and local, within which to situate a more detailed study of Manx ceramics. The biographical approach to be adopted in this study has been introduced in Chapter 3, and an archaeological framework has been developed within which such an approach can be utilised (see Figure 3.2). The Neolithic ceramic types used throughout the study area have also been introduced. Those present on the Isle of Man are characterised in more detail in the next chapter as a prelude to analysis.

The major stages to be employed in the Manx vessel biographies have been noted in Section 3.2 as: procurement, building, decoration, use and discard. Wherever possible the analyses for each of these stages begins by establishing the range of practices employed throughout the Irish Sea province. The particular approaches used by Manx potters / pottery users, are then analysed in more detail and comparisons are made. The only deviations from this structure are for the choice of materials and the building of the pots. In the former instance the choice of materials is likely to have been too location specific to be worth a full analysis, whilst with the latter, the lack of variety in the forms used outside of the Isle of Man meant that detailed comparisons made would have been uninformative.

The analyses contained in Part III are as follows:

Definition of biographical subject

- *Characterisation of Manx Neolithic pottery*

Resource procurement

- *Study of the choice of materials used in Middle, Late, and Latest Neolithic pottery*

- *Study of clay and temper procurement patterns throughout the Irish Sea province²¹*
- *Detailed study of Manx Late Neolithic clay and temper procurement patterns.*

Building

- *Study of the stages involved in forming Manx Late Neolithic vessels*

Decoration

- *Study of the decoration employed on Middle Neolithic pottery throughout the Irish Sea province, and comparison with contemporary Manx decoration.*
- *Study of Late Neolithic decoration within the Irish Sea province, and detailed analysis of the process of Ronaldsway design creation, geographical distribution, its relationship to Manx Grooved ware, and its implications for Manx society*

Use and discard

- *Study of the evidence relating to the cultural roles of Neolithic pottery throughout the Irish Sea province, and comparison with Manx practices.*

Within each analysis the chaîne opératoire has been adhered to, particularly with reference to Manx Late Neolithic pottery, where the evidence is at its most complete. In this way an attempt is made to explore the sequence in which vessels were built and decorated and the categorisation processes which underlay these processes (cf. Karlin and Julien 1994). One negative aspect of such an approach is, however, that there is a degree of repetition where the results of one analysis are employed to support more than one stage of the life cycle.

²¹ The decision to include the results of analyses of clay and temper procurement patterns at this stage in the biography rather than as a part of an exchange stage following on from production is a factor of the results of the analyses rather than a preconceived notion of the ceramic life cycle.

6. Characterisation of the Manx ceramics

The four main types of Neolithic ceramics found on the Isle of Man have already been introduced in Chapter 5. To recap they are, Shouldered pottery, Ronaldsway pottery, Grooved ware, and Beaker pottery. The purpose of this chapter is to define these ceramic types more closely in order to present them as clearly identifiable biographical subjects within the analyses which follow. The identifications are based upon a visual examination of the pottery, the methodology of which is described as Appendix 8 and conforms to normal ceramic recording practices. In the case of temper analysis the results of visual examination documented here are augmented by thin section analysis reported in Chapter 7.

6.1 Characterisation of Manx Middle Neolithic pottery

The Shouldered pottery on the Isle of Man is chiefly defined by shallow vessels with round bases, pronounced shoulders, and simple or everted rims. Well preserved examples are known from Ballaharra (Figure A6.13 B'ha 30, 31, Figure A6.14 B'ha 36), Cashtal yn Ard (Figure A6.28 Cas 1), and the Mull Hill Circle (Figure A6.49 Mul 1, Figure A6.50 Mul 3, 4). The morphology of these bowls is, however, only part of a more varied range of forms present within the category of Shouldered pottery, for example, simple bowls from Ballaharra (Figure A6.10 B'ha 1), Berk (Figure A6.25 Ber 1), the Mull Hill Circle (Mul 7)²², and Phurt (Phu 4). There is also some slight evidence for necked vessels, ie, those with an inturned shoulder angle, at the Mull Hill Circle (Figure A6.51 Mul 15, Figure A6.53 Mul 36) and Phurt (Figure A6.59 Phu 66, 69). This is explored further in Chapter 10.

Aside from morphology the Shouldered pottery can be defined on four other grounds: sherd thickness, grit size, grit type (macroscopically identified), and decorative technique. Analyses of these characteristics were carried out on all sherds from the sites described above, with the exception of Phurt, where the possibility of contamination by later material was considered to be too high. In the

²² Henshall (unpub) tentatively identified this vessel as being Viking, however, it seems to form a coherent part of the assemblage from the Mull Hill Circle.

analysis of grit size and type all of the available 728 sherds were used, this was decreased to 454 for the study of sherd thickness where both faces had to be present, and to 53 where decoration was needed on a sherd.

Thickness was measured using the thickest portion of the body of each sherd. It was found that the average thickness of Shouldered pottery was only 9mm, whilst the standard deviation was 2mm. This reflects the generally fine feel of these sherds which exhibit a high degree of craftsmanship even when dealing with large vessels such as BiQ1 1 from Billown Quarry 1 (see Figure A6.26).

Grit type was recorded using one of five categories: igneous (other than the following), granite, quartz, ?grog, and non-visible. These classes were seen as covering the major variations which could be identified macroscopically. Grog is given with a question mark since it is difficult to accurately distinguish this grit type from lumps in the clay matrix. 'None visible' is used rather than 'none present' in recognition of the badly weathered nature of some of the sherds examined, and the difficulty of gaining accurate information from old breaks. Further details of the recording system used in the analysis of Manx pottery are given in Appendix 8.

In Shouldered pottery there is a marked preference for quartz grits, although, in some cases these have been derived from finely crushed granite. Thin section study of a sample of sherds from Billown Quarry 1 confirmed this impression (see Appendix 9, and further discussion in Chapter 7). These grits are typically small with a mean size of 3mm and a standard deviation of 1mm. The use of this fine grit is presumably in part a factor of the thin walls of the vessels.

Decoration on Shouldered pottery frequently includes burnishing across both the interior and exterior of the vessel. This is often used as the basis for a variety of decorative techniques known as ripple burnish. Such decoration comes in a range of styles, for example the delicately impressed patterns on vessels from the Billown Quarry 1 (Figure A6.26 BiQ1 2, 3), the Mull Hill Circle (Figure A6.50 Mul 4, 5, Figure A6.51 Mul 10 etc) and Phurt (Figure A6.56 Phu 12-14 etc), and a harder and

more angular style at Billown Quarry 1 (Figure A6.26 BiQ1 1), Ballaharra (Figure A6.15 B'ha 57, 58), and Phurt (Figure A6.55 Phu 1, 2). Incision is also a common decorative technique on sherds from Ballaharra, the Mull Hill Circle and Phurt.

6.2 Characterisation of Late Neolithic ceramics

The Manx Late Neolithic ceramic repertoire is best known for the large jars which are repeatedly illustrated in reviews of this pottery type (Clark 1935; Bruce *et al* 1947; Piggott 1954). These jars vary in size from the massive vessels from Ballateare (Figure A6.19 B'tel 1), and Colby Mooar (Figure A6.30 ColM 1) to small jars such as Crossag (Figure A6.31 Cro 1). Typically they are round based with near vertical walls rising to a collared rim. These do, however, form only part of a more varied tradition collectively known as Ronaldsway ceramics. Other characteristic forms are the smaller bowls, which occur widely in both collared and simple rimmed forms. Typical examples of collared bowls include those from Glencrutchery (Figure A6.31 Gle 1), and the Guilcagh (Figure A6.44 Gui 1); whilst simple rimmed bowls are best illustrated through examples from Ballacottier (Figure A6.4 B'co 12), and Ballavarry (Figure A6.22 B'va 8). Simple bowls range in size from the larger examples noted previously to smaller examples such as that from Ballacottier (Figure A6.4 B'co 11). Finally, there are a number of miniature vessels which have been retrieved from Late Neolithic sites. These appear to mimic the appearance of larger vessels, such as collared jars (eg, Figure A6.19 B'tel 3), or simple bowls (eg, Figure A6.32 Gle 6).

Alongside these forms, and always intermingled in predominately Ronaldsway assemblages are a number of Grooved ware vessels. Grooved ware is a widely recognised ceramic form found throughout the British Isles, as Chapter 4 has shown. The pottery type is chiefly defined by simple bucket shapes, flat bases, and a distinctive decorative repertoire. All of these features are present in the assemblages from Glencrutchery (eg, Figure A6.32 Gle 2-5, Figure A6.34 Gle 23, 25, Figures A6.40-42 Gle 94-122), and Ronaldsway 'House' (eg, Figure A6.62 RonH 2, Figure A6.63 RonH 3-4, Figure A6.64 RonH 8, Figure A6.67 RonH 30,

Figure A6.71 RonH 79-81). A single flat-based sherd was also recovered from Ballacottier (Figure A6.8 B'co 55). In terms of those attributes which were used to characterise Manx Middle Neolithic pottery, ie, sherd thickness, grit type and size, and decorative technique, there is nothing to distinguish the Ronaldsway and Grooved ware sherds. In characterising Manx Late Neolithic pottery using these variables the two types are considered together, although their relationship will be considered in detail in Chapters 7 - 8.

2,478 Manx Late Neolithic sherds were recorded during this study. 1,307 sherds were complete enough to allow their thickness to be measured. Grit size and type was studied using 2,172 sherds where grits were evident²³. Decoration was measured using the 328 decorated sherds.

The mean thickness of Manx Late Neolithic sherds was 16mm, with a standard deviation of 5mm. This is notably thicker than Middle Neolithic pottery, and may be related to the larger size of many Late Neolithic forms. It is also noticeable from Figure 6.1 that there are two separate peaks to the distribution curve of sherd thickness. This may indicate that Late Neolithic potters had two mental templates for the appropriate treatment of this attribute. It will be interesting to see how sherd thickness relates to the type of vessel produced.

The categories of grit type recognised in the study of Manx pottery have been noted in Section 6.1. Late Neolithic potters showed a clear preference for basic igneous rocks, or more rarely granite (see Table 6.1). These were sometimes used in large quantities producing a thick and coarse texture. Thin section analysis of selected Late Neolithic sherds presents a more complex picture (see Appendix 9). It is clear that the dominant igneous rock type used in Late Neolithic pottery is dolerite / basalt, however, sandstone was also noted in thin sectioned sherds from Ballateare, although this was not recognised macroscopically. The possibility that the category

²³ Sherds without grits were not included in the study since the absence of grits from one sherd does not indicate their absence from the whole vessel, particularly if they are not present in large quantities.

of 'igneous rock' contains a broader class of rocks than were macroscopically identifiable may warrant further investigation.

The granite component of Manx Late Neolithic sherds was generally present as large fragments, rather than the fine crushed grains of Middle Neolithic pottery. It is also noticeable that only one vessel, B'ha 64 from Ballaharra (see Figure A6.15) contained quartz grits. Once again, these grits were considerably larger than those used in Middle Neolithic pottery. Measurement of Late Neolithic grit sizes showed a mean size of 8mm, and a standard deviation of 3mm, the largest grit measured was 23mm. This size is unusually large for Late Neolithic pottery generally, and once again, will be explored with reference to the building of Manx Late Neolithic pottery in Chapter 9.

Turning to decoration, Manx Late Neolithic pottery displays little of the finesse apparent in Middle Neolithic vessels. The fine burnishing is not present, and surface finishing is reduced to smoothing in order to slurry over the grits. In the case of vessels at Ballateare, this results in a fine and polished finish, however, more generally the surfacing is poor. The range of decorative techniques used on Late Neolithic pottery is, however, broader than in the preceding period (see Chapter 10). The absence of a burnished surface precludes the use of rippling, but incision is still used, albeit in more varied ways, eg, on B'ga 1 from Ballagawne (see Figure A6.9), K'al 1 from Knockaloe Beg (see Figure A6.46), and RonH 26 from Ronaldsway 'House' (see Figure A6.67). Indeed, incision is the only decorative technique used on the Grooved ware component of Manx Late Neolithic pottery (eg, Gle 23 from Glencrutchery - see Figure A6.34, and RonH 2 from Ronaldsway 'House' - see Figure A6.63). New to the Isle of Man is the use of stab decoration, achieved with both blunt-ended tools, eg, Ballaquayle (Figure A6.18 B'qu 1), and bone-ends, eg, Gle 10 from Glencrutchery (see Figure A6.33), and B'va 7 from Ballavarry (see Figure A6.22). Applied decoration is also present in the form of cordons on sherds from sites including Ballacottier (Figure A6.5 B'co 21), Billown Circle (Figure A6.25 Bil 1-3), and Ronaldsway 'House' (see Figure A6.66 RonH 22). The rarest type of decoration on Manx Late Neolithic pottery is

the use of comb impressions, this is currently only known on sherds from Ballavarry (Figure A6.23 B'va 15) and Billown Quarry 2 (Figure A6.28 BiQ2 2). One final type of decoration which can be noted is the possible use of a roulette at Scholaby (Figure A6.74 Sch 1), although the haphazard and highly unusual nature of the resultant pattern suggests that this is a doodle rather than deliberate decoration.

6.3 Characterisation of Latest Neolithic ceramics

Only one pottery type has been found on the Isle of Man which can clearly be dated to the end of the Neolithic, Beaker pottery. This ceramic type is well-known throughout the British Isles, and is typified by flat-based jars with sinuous profiles and simple rims (Gibson 1986a). The only complete jar yet found on the Isle of Man is that recovered from Baroose (Figure A6.24 Bar 1) which conforms to this type. Work on the coarse-ware element of Beaker assemblages (Gibson 1982) has shown that there is a greater variety of shapes present in the Beaker repertoire, however these are rarely used in burials, and are therefore generally found in a fragmentary condition. Certainly, no other forms are reconstructable from Ballachrink, although a coarse-ware component of the assemblage suggests that they may have been present at one time.

There is one sherd from Ballachrink which does not, however, fit easily into the range of Beaker forms currently known, and this is B'ch 1 (see Figure A6.1). The rim form on this sherd bears a marked resemblance to a Ronaldsway collared rim, although the fabric indicates that it is better seen as part of the Beaker assemblage than as a residual find.

The other major attributes used to describe Neolithic pottery within this thesis (sherd thickness, grit type and size, and decorative technique) are more helpful than morphology in characterising the Manx Beaker assemblages. 37 sherds were available for these analyses, all were used in the calculation of sherd thickness, 30

were used in the analysis of grit type and size, and 21 in considerations of decoration.

Beaker sherds are generally thinner than Manx Late Neolithic pottery and compare more closely with the quality of Middle Neolithic sherds. The mean thickness was 9mm, with a standard deviation of 2mm. The range of preferred grit types also differed from that of the preceding period. Macroscopic identification revealed, ?grog, and 'none visible', as the dominant temper types within the Beaker tradition. This can, however, be qualified using the reports from the analysis of thin sectioned sherds from Ballachrink (see Appendix 4, and Chapter 7). These show that small fragments of igneous rock, notably dolerites and basalts are present in the assemblage. This might be seen as indicating some continuity with the practice current in the Manx Late Neolithic tradition.

The mean grit size of Beaker pottery is very small, only 1mm, and is thereby comparable with that of Middle Neolithic pottery. The standard deviation of Beaker grit sizes is, however, smaller than in this earlier pottery type, and might be taken to indicate a more standardised ceramic recipe. Any such interpretation must, however, be qualified by a consideration of the small size of the available sample.

Decoration is one area in which Beaker pottery can be readily distinguished from all earlier pottery on the Isle of Man. In particular there is a marked preference for designs created by the use of both cord, and comb impressions. Comb decoration can be seen on sherds B'ch 5, 8, and 10 from Ballachrink (see Figure A6.1), and on the Baroose vessel (Figure A6.24 Bar 1). Cord decoration is seen on B'ch 20-23 from Ballachrink (see Figure A6.5). Applied decoration is also known on sherds B'ch 24, and 25 from the same site (see Figure A6.5).

6.4 Summary

This chapter defined the subjects of this biographical study through a detailed analysis of forms, fabrics, and decoration. This has shown that, apart from the

varying gross morphology of vessels between periods, even sherd material can be clearly separated into Middle, Late, and Latest Neolithic on four main counts: thickness, decoration, grit size, and grit type. Pottery from these periods therefore form discrete categories which are amenable to analysis and comparison as separate biographical subjects.

7. Understanding the choice of materials used in Manx

Neolithic pottery

The choice of raw materials used on the Isle of Man during the Neolithic has already been introduced in Chapter 6 where it was shown that the preferred tempers varied with each pottery type. In the Middle Neolithic it was found that quartz-rich temper was preferred, during the Late Neolithic a dark igneous rock was used, whilst in the Latest Neolithic the use of temper became less common, with an apparent preference for ?grog. The purpose of this chapter is to consider this variation and its possible cultural and mechanical implications in more detail.

7.1 Introduction

Since the 1970s there has been considerable discussion in the archaeological literature about the choice of tempers used in Neolithic pottery. In large part this has been directed towards the potential evidence that this subject can yield for procurement and exchange patterns (*cf.* Peacock 1969; Sophranoff 1976; Sheridan 1985). This is the subject of this chapter. An alternative line of enquiry has considered the mechanical implications that result from the use of specific rock types in particular quantities, and sizes (*cf.* Braun 1982; 1983; Rye 1976; Arnold 1971). The relevance of such studies have been called into question by Woods (1986) who has argued that prehistoric potters were probably unaware, or unconcerned, by the detailed properties of the materials they used. This may be true, but the consistent correlation of particular tempers with particular pot types is a clear indication that the choice of temper was culturally determined at some level, and is therefore in need of study.

7.2 The function of temper

The use of temper in pottery is generally seen as fulfilling four main functions (Gibson and Woods 1990):

1. It strengthens the unfired pot to prevent collapse
2. It facilitates drying by letting moisture out easily
3. It helps reduce shrinkage during drying
4. It allows the escape of water during firing.

A wide variety of materials can fulfil these roles. In the British Isles during the Neolithic, rock fragments (eg, Jenkins 1987), crushed shell (eg, Cleal 1995), chopped grass (Darvill *pers comm.* 1996), crushed pottery (eg, Cleal 1995), and even bone fragments (Hulthen 1984) were all used. Only very rarely are clays found to be suitable without the addition of some form of tempering agent, the most well known of these being the gabbroic clays of Cornwall (Peacock 1969; Wardle 1992).

7.3 The detailed study of Manx tempers

Many temper types can be quickly characterised to a general level using only macroscopic identification aided by a hand lens, and dilute hydrochloric acid. A commonly used flow chart has been produced by Peacock (1977) which lists the range of temper types which can be identified in this way. This process was used in the initial classification of Manx Neolithic pottery, although it quickly became apparent that only a few types were present and recording subsequently focused on these.

The introduction to the Manx tempers in Chapter 6 has, however, shown that not all temper types can be accurately identified using macroscopic identification alone. Detailed description of tempers is therefore routinely carried out using petrological analysis. This technique analyses the crystalline structure of rock fragments, and is

therefore relevant to many temper types, although not to the use of organic or grog tempers.

Fortunately, the range of tempers used in Manx pottery made them ideally suited to this type of analysis, although the destructive nature of petrological study meant that only a small sample could be analysed.

7.4 The selection of sites

The objective of petrological study was to provide a close characterisation of Neolithic temper types in order to better frame an interpretation of the cultural significance of the use of each type. The destructive nature of petrological analysis necessitated the selection of plain body sherds from sizeable assemblages whose integrity would not be significantly affected by destructive analysis. Every effort was taken to ensure that no single vessel was represented in the study by more than one sherd. This was achieved by the use of sherds which differed in thickness, fabric type and finish. Samples were selected from the following sites (see Appendix 4 for more details):

Middle Neolithic:

- Billown Quarry 1

Late Neolithic:

- Ballateare
- Ballavarry
- Glencrutchery
- Ronaldsway 'House'

Latest Neolithic:

- Ballachrink

The details of sherds which were thin sectioned are presented in Table 7.1.

A larger number of Late Neolithic sites were selected for study in order to allow a more detailed consideration of the resource procurement patterns current at this time (see Chapter 8 where the site selection procedure is detailed further). Of the two Middle Neolithic sites which were suited to this study on the grounds of assemblage size, Billown Quarry 1 was selected since its pottery was well-contexted. In the case of Latest Neolithic pottery there was only one site with a suitable assemblage, Ballachrink²⁴.

7.4.1 Methodology of thin section preparation

Petrological analysis entails the grinding of a section of pottery until it is 30 microns thick. The resulting thin section is then studied under a petrological microscope in order to highlight the crystalline structure of the rock. The preparation of thin sections for petrological analysis is a skilled process, particularly when the material being studied is friable low-fired ceramic. Thin sections from Ballachrink were therefore prepared by Graham Dumas, Senior Technician, Bournemouth University, whilst the remaining sections were prepared by Carol Maddens, Technician, Bournemouth University.

7.4.2 Process of thin section description

The thin sections were initially sorted and described by the author based on comparison with thin sections of Manx rock of known type provided by Prof. Tim Darvill, and the more general thin section library of the School of Conservation Sciences. The sections were then sent to Southampton University for more detailed identification. The full text of the descriptions provided by Southampton University

²⁴ Sherds from Billown Quarry 1 and Ballachrink had already been thin sectioned as part of analyses carried out at Bournemouth University to supplement the information available in the published site reports (McCartan and Johnson 1992; Lancaster University Archaeological Unit 1993). In the case of Billown Quarry 1, 13 thin sections had been prepared, 12 from pottery sherds, and 1 from material tentatively described as daub. At Ballachrink 9 thin sections were available from this work.

are presented as Appendix 9. The variety of mineral types present in each thin section are noted in Table 7.2, whilst the rock types are recorded in Table 7.3.

These tables record the mineral and rock types present in each sherd according to the type, quantity (from abundant to rare), and the shape of the fragments (angular to rounded). Quantity is recorded in order to assess the importance of each type within the ceramic 'recipe'. Shape is noted since it provides an indication as to how the rock type entered the clay matrix. Those fragments which are angular were probably freshly crushed and deliberately added during the making of the pot. In contrast, more rounded fragments are likely to have been subject to water-erosion and therefore probably entered the clay as a result of natural processes, making them of less interest to archaeologists (see Gibson and Woods 1990). In a few instances insufficient information was included in the report on the sherds to allow all categories to be recorded on tables 7.2 and 7.3.

7.5 Interpretation of the evidence derived from thin sections

7.5.1 Evidence derived from rocks and minerals naturally occurring in the clay

The presence of naturally occurring grits may have been a factor in the choice of specific clay types. This naturally occurring temper comes in the form of minerals, and rock fragments.

7.5.1.1 Naturally occurring minerals

Of the minerals present in the Manx sherds, only quartz outcrops in massive form, and the possibility that it was added deliberately, ie, as sand, was considered, however, most sherds contained quartz in a rounded form, thereby suggesting that the mineral was naturally occurring in Manx clays.

A consistent mineral suite of quartz, feldspar, mica, and iron ore is present at all the sites sampled, presumably reflecting the background content of the majority of Manx clays. In the case of Late Neolithic ceramics these are the only mineral types which appear suggesting that the potters were using clays which were similar in this respect, despite the widely differing locations of the Late Neolithic sites tested. On the other hand, sherds from the Middle Neolithic Billown Quarry 1 consistently also contain microcline, whilst Beaker sherds from Ballachrink contain a more varied mineral suite. It is therefore possible that the potters of each period preferred potting clays with differing naturally occurring mineral components, perhaps reflecting different potting characters. The small size of the minerals, however, and the likelihood that these minerals would not have affected the clays working properties argue instead that this is a consequence of chance.

7.5.1.2 Naturally occurring rock fragments

The rock fragments naturally present in the sampled sherds were also considered. Sandstone and chert / siltstone was present in varying quantities at all sites, although the latter type occurred most frequently in Manx Late Neolithic assemblages. Quartzites and argillaceous inclusions were also present infrequently at various sites. The only rock fragment which appeared to be present with any regularity was the slate / shale from Glencrutchery and Ronaldsway 'House'. This presumably reflects the proximity of these sites to the Manx Group massifs. It is, however, interesting to note that Billown Quarry 1, which is also very close to these massifs, has no slate present. Given that the glacial till around Billown Quarry 1 is derived from the slate massif it would seem to be either an unlikely chance that the clay source(s) used contained no slate, or a deliberate utilisation of clays which did not include these fragments. The latter seems more likely when it is considered that slate fractures into platey fragments which may have presented an obstacle to the manufacture of the thin and fine vessels produced during the Middle Neolithic²⁵. We may therefore be seeing at Billown Quarry 1 the deliberate avoidance of locally available clays which were ill-suited to the requirements of

²⁵ Certainly, some of the clasts present in sherds from the Late Neolithic sites of Ronaldsway 'House' and Glencrutchery are 23mm thicker than the average Middle Neolithic sherd.

Middle Neolithic potters²⁶. Something of the potter's selection criteria for clays at this site may therefore have been identified.

Conversely, in the Late Neolithic, such slate fragments would not have been an obstacle to the production of the coarse and thick walled vessels which were often produced. The use of a clay containing slate fragments should not therefore have presented a significant aspect of the clay selection procedure.

With the exception of the evidence presented for Billown Quarry 1, there was no indication that a particular clay type was preferred, either within or between phases of the Neolithic.

7.5.2 Evidence derived from rock fragments deliberately added to the clay

The rock fragments which were deliberately added to the clay during the three phases of the Manx Neolithic do, however, exhibit a strong cultural preference for specific materials.

7.5.2.1 *Middle Neolithic tempers*

During the Middle Neolithic there was a strong preference for granite crushed into small fragments as a tempering agent (see Table 7.1, and 7.3). The small size may be accounted for, in part, by the thin walls of Shouldered pottery through which large fragments would more easily protrude. A further factor which may have accounted for the small size of the fragments is the manner in which granite breaks down. Granite is composed of three main constituents: quartz, feldspar, and mica; these exist as large grains giving the rock its distinctive speckled appearance. When crushed, the structure breaks down into its mineral parts with the white quartz grains being the most striking residue of the rock. The mica also serves to give Manx Shouldered pottery a distinctive appearance since the mica sheets tend to lay

²⁶ Darvill (*pers comm.* 1996) notes that clays suitable for potting have not yet been found within the immediate vicinity of Billown Quarry 1.

flat on the vessel's surface creating a coloured glow. This effect is further enhanced by burnishing of the vessel so that the added mica sparkles against a reflective surface. The use of mica rich clays has also been noted in Shouldered pottery from both Britain, and Ireland (McInnes 1964; Sheridan 1985), and it seems clear that it was deliberately sought.

This characteristic might serve to explain the choice of granite as the preferred Middle Neolithic temper on the Isle of Man. In terms of its thermal properties quartz is not, however, a material to be recommended. Work by Rye (1976) has shown that quartz expands when heated at a greater rate than clay. This means that if the vessel was repeatedly heated, differential expansion could lead to the vessel fracturing. Although the mechanical properties of quartz are well understood, the actual implications of thermal expansion on a Neolithic pot are less clear. It certainly seems clear though, that the disadvantages of using quartz did not outweigh the benefits achieved from its decorative effect.

The origins of the Manx quartz grit recipe might be found in the Early Neolithic preference for quartz grits which were commonly used in Carinated pottery throughout the northern parts of the British Isles. It is not surprising therefore that Shouldered pottery which appears to be a morphological descendent of Carinated bowls also retains a similar recipe, and indeed a large number of Shouldered assemblages from the Irish Sea province do use quartz grits (eg, Ballintoy, Ballymarlagh, Browndod, Co Antrim, Kirkburn, Dumfries and Galloway, Knappers Farm, Dunbartonshire, Kemp Howe, and Howe Robin 6, Cumbria).

Looking at other Middle Neolithic ceramic types the recipes are more varied than is the case on the Isle of Man, although most types use fine quartz to an extent. In some Sandhills assemblages, igneous grits are found (eg, Dundrum, Co Down, Windy Ridge, and Lyles Hill Co Antrim) whilst in others calcite grits are used (eg, Donegore Moat, Co Antrim, and LoughCrew R2, Co Meath). Drimnagh pottery is similarly variable with some vessels being lightly gritted (eg, Norrismount, Co Wexford), and others coarsely (Annaghmare, Co Armagh); whilst grits range from

limestone (eg, Drimnagh, Co Dublin), and quartz (Britonstown, Co Wicklow), to igneous rock (eg, Annaghmare, Co Armagh). In Peterborough pottery which appears to be a British extension of Sandhills ware, the fabric is generally coarse with large quartz grits (eg, Woodhouse End Barrow, Cheshire, and Luce Sands, Dumfries and Galloway). Given the variety of tempers and grit sizes used in contemporary pots, the recipe employed in the Manx vessels appears quite tightly controlled.

7.5.2.2 *Late Neolithic tempers*

In the transition from Middle to Late Neolithic there was a significant change in the range of tempers used by potters (see Table 7.1, and 7.3). Granites are still found in Late Neolithic pots, for example, at Glencrutchery, Ronaldsway 'House', and South Barrule, although none were present in the thin sections from the sites studied. The use of granite during the Late Neolithic does, however, differ significantly from the practice current in the Middle Neolithic. The grit size is much larger and the decorative appearance of the mica is therefore not utilised. Similarly, the larger grit size means that the quartz is still locked against the dark feldspar grains and does not therefore gleam white. Indeed, only one Late Neolithic vessel, B'ha 64 from Ballaharra (see Figure A6.15), contained the distinctive white quartz pieces used in Middle Neolithic Shouldered pottery, and in this case the effect was achieved by using large pieces of crushed vein quartz. Quartz is, however, used in Late Neolithic Grooved ware vessels from Little Asby Scar 3 and 6, Cumbria, Becton, Dumfries and Galloway, and Monknewtown, Co Meath indicating that its use was accepted throughout parts of the Irish Sea province.

The dominant temper types used in Manx Late Neolithic pottery were dolerites and basalts²⁷. These are both dark igneous rocks which differ in their grain size, to the extent that it seems unlikely that potters would have been able to distinguish

²⁷ Thin sections prepared by Senior (1992; 1993) support this conclusion. As part of a study of Bronze Age pottery one Neolithic sherd from Glencrutchery and two from Ronaldsway 'House' were sampled, all had dolerites as their main temper.

between them in all cases. The term 'dolerites' is used here as a cover-all term. In contrast to the colours of granite, with its white quartz, and reflective mica, dolerites and basalts are dark rocks with a fine grained structure which prevents the easy breakdown of the rock into its mineral constituents. Dolerites also differ from granite in the manner in which they outcrop. Granite occurs in large outcrops at a number of locations on the Isle of Man, eg, Dhooon and Foxdale, as well as in glacially erratic boulders on the northern plain. In contrast, dolerites occur as isolated dykes intruded through the major rock type of an area (see Section 5.1). That Neolithic people recognised these dykes as distinctive and different is indicated by their systematic use of the material in their pots, and testifies to their detailed understanding of the potential variety of the environment in which they lived.

Mechanically, it is possible that dolerites were selected for their thermal properties since olivine, which is present in many of the dolerites in the sherds sampled, has a coefficient of expansion which is similar to that of clay (Rye 1976). This may have helped to reduce the chances that the vessel would fracture during repeated heating over a fire. Nonetheless, as was noted with Middle Neolithic pottery, the thermal implications of using a rock composed of several mineral types within a pot has not been adequately explored. It cannot therefore be established whether favourable thermal expansion rates were a significant factor in the selection of dolerites for temper.

In considering the role of raw materials in the production of Neolithic pots it is important to bear in mind the strong possibility that the selection process was heavily influenced by traditional concepts, taboos, and ritualised practice, as is the case with many African potters today (Barley 1994; Ellen and Glover 1974). In this context, it is interesting to note that the use of dyke material in Late Neolithic pottery is not confined to the Isle of Man. Of great interest in the context of this work is research by Williams (1982) on Grooved ware sherds in Orkney. In this study thin sections were prepared from 5 sites and a strong preference for dyke rock

was noted, although in these instances it was primarily Camptonite and olivine basalt. In conjunction with the Manx evidence this would suggest that the use of rock from a dyke was perhaps even more important than the nature of that rock itself. The fact that the Orkney evidence related to Grooved ware is also of interest as a Grooved ware influence is apparent in Manx Late Neolithic pottery. It may therefore be the case that the use of dyke rock was a component part of the adoption of Grooved ware. This in turn indicates that the concept of Grooved ware did not just relate to the copying of pots of particular shapes with particular designs, but also entailed the use of consistent raw materials. Interestingly, in the Manx context, these distinctive materials were used not only in pots of Grooved ware design but also in Ronaldsway pottery generally.

And it is perhaps relevant to note that at Ballateare where there is no evidence for Grooved ware influence in either the form or design of the pottery, dolerites are not the dominant rock type used. In this instance sandstone was also considered suitable as the thin sections illustrate. Chapter 8 shows that the use of sandstone at Ballateare may be a consequence of the distance of the site from a dolerite dyke, such that sandstone was used as a second best. It does, however, present the possibility that at Ballateare, the Grooved ware ceramic recipe was avoided, as well as the use of the Grooved ware style.

7.5.2.3 Beaker pottery tempers

In contrast to the evidence from the two preceding periods, the choice of temper in Manx Beaker pottery appears to be far from systematic. That so little Beaker pottery is available for study must qualify the available evidence, but the thin sectioned sherds show very little pattern to the choice of tempers at this time. Within the five sherds sampled, dolerites, granites, and sandstone are all used as a temper. A similar variety of tempers is known from other Beaker assemblages such as Newgrange, Co Meath, where grits included dolerites, dolomites, grog, and quartz (Cleary 1983), and Monknewtown, Co Meath, where quartz, mica, pebbles, and shell were also used (Sweetman 1976).

Despite this diversity of type in Manx Beakers, grits generally appear as small and infrequent, almost as if the addition of temper was a residual consequence of traditional potting practice rather than a necessity for potting success. This may have actually been the case in the production of Beaker fine ware, since it has been suggested that the adoption of Beakers was accompanied by the use of more controlled firing practices, perhaps associated with clamp-kilns (see Burl 1987). However, throughout the study area as a whole, Beaker potters used grits of all sizes from small at such sites as Borland, Ayrshire, Ballyedmonduff, Co Dublin, and Dyffryn Ardudwy, Gwynedd, to large at Dalineum, Argyllshire, Killelan Farm, Islay, and Monknewtown, Co Meath. The existing Manx Beaker fabrics might therefore be part of a much wider spread of types yet to be discovered.

7.6 Conclusion

The evidence provided by thin section analysis of Manx ceramics has highlighted the presence of trends towards the choice of particular tempers, and possibly also clay types, throughout the Neolithic period.

In the case of Middle Neolithic pottery, it has been possible to suggest first: that there may have been a deliberate avoidance of clays containing slate, possibly since slate would easily protrude through the thin vessel walls; second that the use of a small temper size might also be explained in this way; and third that the possibility is present that granite was also crushed small in order to achieve the decorative effect provided by the mica and quartz.

During the Late Neolithic there was a preference for doleritic rock which may be a corollary of the arrival on the Island of a particular ceramic recipe associated with Grooved ware. This ceramic recipe may not have been adopted universally as the evidence for the use of sandstone at Ballateare, and granite at Glencrutchery indicates. The use of dolerites was widespread in both the south and north of the

Island. The preference for this particular rock type may be, in part, a consequence of the distinctive manner in which it outcrops, rather than in its thermal properties.

At the end of the Neolithic, Manx Beaker pottery suggests that there was a decline in the importance of temper in the ceramic recipe, and also in the fastidiousness with which specific temper types were selected. It may be possible that this reflects the development of an improved firing process which accompanied the adoption of Beaker forms in much the same way in which Grooved ware design was accompanied by a Grooved ware recipe.

8. The procurement of resources for Manx Late Neolithic ceramic production compared to procurement patterns elsewhere

The preceding chapter has characterised in detail the ceramic resources used throughout the Manx Neolithic period, and has considered the possible reasons for the choice of these particular materials. Two factors in the choice of materials which were introduced in that chapter but were not developed were abundance and availability. This chapter will consider these factors in more detail by analysing the patterns of procurement of both clay and temper within the Irish Sea province, and the manner in which Manx practices relate to these.

The format of this present chapter is as follows. First, the evidence for resource procurement in the Irish Sea province is presented. Second, a framework for the study of Manx resource procurement patterns is detailed, followed by the analysis of pottery from four Late Neolithic sites. The patterns which result from this are then compared with the available evidence for procurement patterns in the rest of the Irish Sea province.

8.1 Review of procurement patterns employed in the Irish Sea province

Although considerable work has been carried out on the procurement of raw materials in the Irish Sea province, nonetheless, this research has only scratched the surface of the dataset. In consequence, although it would be preferable to arrange this review by period or ceramic type, the scarcity of available evidence precludes such an approach. In addition, in some studies, where only plain body sherds were used and more than one ceramic type was present at a site, it is not possible to be certain to which type the sherds belonged. In consequence, the evidence is divided into geographical areas: Scotland, Ireland, England and Wales.

The majority of provenancing / procurement studies dealing with research into prehistoric ceramics used in the British Isles have already been reviewed by previous research students, notably Sheridan (1985) for Ireland, and Wardle (1992) for Britain. Rather than reiterate their syntheses, it is only intended here to deal with work of immediate relevance to the present study area, as a means of placing the results of the Manx study in context.

8.1.1 Ireland

McCorry (1977) carried out the first work in the provenancing of Irish Neolithic ceramics in his study of sherds from Lyles Hill, Co Antrim (Evans 1953). In this work 33 sherds of Shouldered and Sandhills wares were thin sectioned and compared with the geology of the surrounding area. McCorry's conclusion was that "it is very difficult to doubt the local nature of the pottery from this site and the variation which occurs in the type and relative proportion of the inclusions is probably a reflection of a number of different firings or individual potter's choices" (McCorry 1977, 11).

Other work on Middle Neolithic sherds has been carried out on Sandhills style pottery from Carrowmore, Co Sligo (Burenhult 1984). In this work Hulthen (1984) sampled four sherds. Comparison of these with local clays using chemical, physical, and petrographic methodologies indicated that all could have been derived locally.

Cleary (1983) carried out a study on assemblages from Newgrange, Co Meath, which ranged from Middle to Latest Neolithic and contained Sandhills, Grooved ware and Beaker vessels. A variety of techniques were utilised including both petrographic and chemical studies. Her comparison of locally derived clays with the sherd material indicated that all could have been derived locally, with the possible exception of the clay used in some unusual polypod bowls. These contained naturally occurring quartz and were therefore difficult to parallel locally. The tempers of the Sandhills, Grooved ware and some Beakers included igneous

rocks (dolerite and gabbroic). Once again this could have been derived locally from glacial erratics.

Brindley (1984) conducted a more extensive study covering 53 thin sections from the Beaker assemblages of the following sites: Knowth, Newgrange, Monknewtown, Dalkey Island, and four sites at Lough Gur (ie, Grange Stone Circle, Megalith, and sites C and D). Her results indicated that the Beaker potter appeared to favour fine grained clays, although not clays of specifically the same type. The tempers used also varied greatly, with grog, sandstone, granites, olivine dolerites, and greywackes, amongst others, being used. None of these grits provided clear indication of long distance procurement of material, and it seemed likely to the author that the potters utilised erratic, or water-carried rocks from the overlying drift of the local area.

As has already been noted, Sheridan's (1985) study constitutes the largest and best co-ordinated work on the provenancing of Irish ceramics. In addition to her own study Sheridan (1985) also summarised the evidence which could be obtained for long distance procurement in other published Irish work. From this she concluded that there was only slight evidence for long distance transportation of ceramics (as pots or materials). This evidence consisted of the presence of shell tempering at the Carrowmore cairns, Co Sligo (30km from nearest source), Fourknocks, Co Meath (20km from nearest source), and Ballynahatty, Co Down (9km from nearest source), and of Wicklow granite used in pots at Norrismount, Co Wexford (nearest source 19km away).

Sheridan's work focused on northeast Ireland sampling 13 sites using both thin section and chemical study (the latter consisting of AAS and XRF). This work involved the sampling of clays from the immediate area around sites, in order to assess whether a local provenance could be found for the materials employed. The materials used at different sites across the northeast of Ireland were also compared in order to assess whether distribution was from a common manufacturing source.

Sheridan's choice of sites studied was made with a view to assessing whether different procurement patterns were in evidence in different situations, for example between the earlier and later Neolithic; coarse and fine wares; and funerary and domestic sites. The details of the sites sampled are widely published (Sheridan 1985; 1989; 1991) and in the context of the present work it is only her general conclusions which are of relevance.

Despite such intensive study Sheridan did not identify any evidence that ceramics were distributed far from their source of manufacture. This conclusion applied even in the case of vessels which were stylistically closely related, and therefore gave every indication of being manufactured by a common group, (eg, Drimnagh bowls). Neither was there any evidence of a distinction between funerary and domestic pottery. Interestingly, Sheridan did not identify any significant change in the type of raw materials used in localised areas between the earlier and later Neolithic. Her conclusion was that "Irish Neolithic pottery was manufactured on a small-scale, localised basis and (with but a few exceptions) used locally." (Sheridan 1991, 322).

8.1.2 Scotland

Very little provenancing work has been carried out in that part of Scotland which falls within the Irish Sea province. Indeed, within Scotland as a whole there has been very little provenancing work outside of Orkney. In the most significant Orcadian study Williams (1982) sampled 146 Unstan and Grooved ware sherds from five sites including Skara Brae, Rinyo, Stenness, and Quanterness. The results of this work indicated a strong preference for crushed dyke rocks which were generally available within a c3.2km radius of the sites, whilst the range of minor inclusions in the pottery indicated that production was not centralised.

Other work was also carried out with Orcadian sherds by Phemister (1941) who noted that sherds sampled from the tombs of Rowiegar, Taiverso Tuick, and Unstan could all have been made locally. He reached a similar conclusion regarding sherds

sampled from the Western Isles at Unival on Skye, and Rudh'an Dunain and Eilean an Tighe, both on North Uist. Phemister also thin sectioned a single sample from Luce Sands, Dumfries and Galloway, which he believed could well have been made from gravels available locally.

8.1.3 England

The most well-known study of ceramic provenancing to have been carried out in the British Isles is doubtless Peacock's work on the gabbroic pots of southern England (1969). This study built upon earlier work by Thomas (1932), and Cornwall and Hodges (1964) which had identified gabbroic rock from Cornwall in sherds found in Wiltshire. Peacock's work elaborated on their findings with the recognition that the rock type was a naturally occurring inclusion in clays from the Lizard Point. Further evidence for ceramic exchange over long distances was also identified in the movement of sherds containing oolitic limestone, probably from the Bath / Frome area throughout Wiltshire (Smith 1965; Sophranoff 1981). This work has been of great importance in highlighting the value of petrological study of Neolithic pottery, and it would not be stretching the point to suggest that many of the studies which followed were undertaken with a view to discovering similar patterns elsewhere. Despite the considerable impetus provided by the work of Hodges, Peacock, and Thomas in southern England, no further large scale patterns of distribution have been identified throughout the country. For example, work on Beakers in Cornwall (Parker-Pearson 1990), and Gibson (1986b) in Northumberland, have both reached the conclusion that pots were produced locally.

However, within that portion of England which falls within the study area little comparable work has been undertaken, and the interpretation of work done has been hampered by the quality of geological mapping in the relevant areas (eg, Nicholson 1989).

One sherd of Peterborough ware from Brougham, Cumbria was examined by Peacock (1972) who noted that the volcanic tuff it contained outcropped within 8 -

16km of the findspot. He did, however, note that glacial erratics might be present within a more local area. A larger study based on 15 sherds recovered from fieldwalking over 10 sites in Cumbria was carried out by Nicholson (1989). Unfortunately, he only felt able to comment on the range of fabric types present rather than the sourcing of these deposits.

8.1.4 Wales

The general scarcity of Neolithic pottery from north Wales is reflected in the lack of petrographic studies which have been undertaken, although it is here that the best evidence for the transportation of raw materials can be found.

The most complete study to be carried out has been by Jenkins (1987) on the assemblage from Trefignath, Anglesey. Study at this site was particularly appropriate since it is situated on Ynys Gybi, a small island with varied geology. Seventeen vessels were thin sectioned a total of 37 times, with heavy mineral analysis being carried out in 4 instances. The temper component of this Shouldered and Peterborough assemblage contained 4 principle rock types. All could be matched within the geology of Ynys Gybi, or northwest Anglesey; there was therefore no evidence to suggest long distance transportation of raw materials. Concurrent with work on the Trefignath assemblage, Jenkins also analysed 3 sherds from Din Dryfol in southwest Anglesey. In this instance the clays used in one sherd appeared to have been derived from a marshy estuarine location, not immediately local to the site. No great distance would, however, have been involved in collecting materials from such a location.

Similar evidence for localised transportation of ceramics / materials comes from the Beaker assemblage at the Stone circle of Cefn Caer Euni, Gwyndd (Darvill 1986). Here 4 fabric groups were macroscopically identified, with thin sections indicating the presence of shales. The nearest known source for this temper was in the lowland fringe of the Harlech dome some 10-15km to the southwest. This

suggested to the author the possibility of transhumance between the lowlands and uplands.

Further evidence for the limited movement of ceramic resources comes from Dyffryn Ardudwy, Gwynedd (Powell 1973). At this site three sherds were thin sectioned, two from a vessel resembling Grooved ware. The grits were found to be micaceous tuff, with those in one vessel being provisionally sourced to near Cader Idris (c20km away), whilst those in another appeared similar to rocks near Criccieth (c17km away).

8.1.5 Conclusion

From the available evidence, the inevitable conclusion to be reached is that in most parts of the Irish Sea province procurement of raw materials was undertaken on a local basis. Furthermore, there is no evidence to suggest that this situation varied in different phases of the Neolithic. There is, however, some evidence to suggest that potters in north Wales were willing to go to greater lengths to procure resources although this conclusion must be offset by the limited number of analyses undertaken in this area.

This is doubtless a simplification of a more complex situation, but it provides a backdrop against which to analyse the Manx pottery, and from which comparisons can be drawn between Manx and non-Manx procurement patterns.

8.2 Introduction to the study of Manx procurement patterns

In the case of ceramics from outside of the Isle of Man, the size of the dataset, and the pressures of time precluded a detailed study based directly on sherd material. Within the Isle of Man, however, the opportunity was present to attempt original analyses on the available assemblages with a view to exploring evidence for procurement patterns. Two main techniques were therefore employed on a sample of sherds: thin section analysis of tempers, and atomic absorption spectrometry

(AAS) of clays. These analyses are presented below following an introduction to the choice of sites' studied.

8.2.1 Site selection procedure

The analysis of tempers and clays using scientific techniques is a time consuming process, frequently involving the destruction of a sherd. In consequence only a sub-sample of Manx sites could be analysed in this manner.

It was decided in the first instance that this sub-sample would focus on Late Neolithic ceramics, since it is in this period that the evidence is most complete and comparison between sites would therefore be most effective. The objective in selecting sites was to choose those which could not easily have made use of the same resources. In this way if the same resources were found at more than one site then either long distance procurement, or exchange, could reasonably be proposed.

Sites were therefore chosen which were geologically distinct and also separated by the greatest distances possible. A further element in the selection process was the curatorial requirements of the Manx Museum. These two factors are considered in more detail below.

8.2.1.1 *Geology and site selection*

The geology of the Isle of Man has already been described in Chapter 5. This has showed that in the south of the Island the predominant geology is slate with pockets of granite, limestone and sandstone, along with other more localised dyke outcrops. In contrast the north of the Island is a combination of foreign sands and gravels derived from glacial build-up (see Figure 5.2). The distribution of these geological types has been mapped by Lamplugh (1903) and their characters have been well-described macroscopically. In consequence, picking sites which had different

potential temper types in their immediate environs was a relatively straightforward process²⁸.

In finding sites with chemically distinctive clay types in their immediate locale one is left with a more difficult choice since there is no detailed data on the composition of the Manx clays. In consequence the choice of sites was based on inference, eg, the chemical fingerprints of clays in the south of the Island are likely to differ from those in the north since they derive from different parent material. Similarly, within the south of the Island clays based on different rock types were also preferred²⁹.

8.2.1.2 *Curatorial requirements and site selection*

The majority of material studied in this thesis is in the care of the Manx Museum. In order to balance the conservation and preservation requirements of the Museum against the needs of the present study it was decided to select only those sites which had a sufficiently large ceramic assemblage to allow for destructive sampling of sherds without seriously affecting the integrity of the assemblage. This also meant that it was only possible to sample plain body sherds rather than diagnostic portions of the assemblages. From the point of view of assemblage suitability it was also essential that the sherds had not been treated with chemicals or subject to adverse storage conditions resulting in fungal growths or other possible contamination.

²⁸ In defining what constituted a site's environs recourse was made to the ethnographic work on ceramic resource procurement carried out by Arnold (1985). His work, based on 111 case studies of temper and 31 of clay procurement led to the conclusion that most resources were procured from a 5km area.

²⁹ Prior to analysis the possibility that the limited area of the Island, and its previous glaciation, would have resulted in insufficient distinction between Manx clays was considered. Nonetheless, in a study of Iron Age pottery in the Western Isles Topping (1986) was able to distinguish sufficient variation in the chemical fingerprints of clays to allow separate characterisation of potting sources. This result, from a similar geological situation, indicated that study of Manx clays would probably be productive.

8.2.1.3 *The choice of sites*

Four sites fulfilled the above geological and curatorial criteria, these were:

- Ballateare (SC345971)
- Ballavarry (SC409981)
- Glencrutchery (SC382776)
- Ronaldsway 'House' (SC291686).

From an archaeological perspective the last three sites form a fairly homogeneous group (see Appendix 4). All three represent large collections from pits, and stylistic features of the pottery indicate a very close relationship between the sites. Ballateare differs in being a cemetery site with a number of cremation deposits accompanied by large jars, as well as burning pits containing some small vessel fragments. All sites fit easily within the Manx Late Neolithic ceramic range. It was felt that comparison between three sites of similar morphology would provide the fairest test for the presence of resource / ceramic exchange, whilst the inclusion of a cemetery site might provide a useful contrast between the distribution of domestic and funerary vessels.

Figure 8.1 shows the location of the four sites and the radius of their resource procurement areas, whilst Table 8.1 shows the drift geology which is present within the 5km radius area around each site (see footnote 28). The percentage relating to the geological type on which each site is situated is given in bold.

As can be seen on Figure 8.1, and Table 8.1 there is an overlap between the resource procurement zones of Ballateare and Ballavarry. The choice of these two sites was necessitated by the lack of other suitable assemblages which were more geographically distinct. The overlap constitutes 11.1% of each sites notional procurement area, and assuming the value of the 5km procurement radius the possibility must be entertained that the inhabitants of the two sites utilised the same temper or clay sources. This will be discussed during the interpretation of results.

The specific sherds used for thin section and atomic absorption spectroscopy are detailed within the relevant analyses.

8.2.2 Petrological analysis of Manx tempers

8.2.2.1 *The choice of sherds for thin section analysis*

The choice of sherds for thin section analysis are given in Table 7.1. Selections were made on the basis of the macroscopic analysis of sherds, the aim being to sample as many macroscopically distinctive geological types as was possible within each assemblage, whilst avoiding taking more than one sample from each vessel. Only body sherds were sampled in order to preserve the integrity of the remaining assemblages.

It will be noted from Table 7.1 that only 3 sherds were sampled from Ballateare and Ballavarry, whereas 5 were sampled from Glencrutchery and Ronaldsway 'House' respectively. This was in part due to financial constraints on the number of samples which could be produced. It was also felt that the macroscopically visible variability in these two assemblages could be encompassed with less samples than were needed for Glencrutchery and Ronaldsway 'House'.

The sherds selected for thin section analysis form a sub-sample of those studied using AAS, with the exception of 3 sherds from Ronaldsway 'House' which were selected since they appeared to have atypical grits.

8.2.2.2 *The procurement of Late Neolithic tempers*

The results of the thin section analysis of Late Neolithic sherds has already been given in Chapter 7 where it was shown that the major temper types in Manx sherds were either dolerites or sandstones. Both of these could have been derived from local rocks, although the possibility that erratics were utilised cannot be ruled out. Since those rock types found in the Manx Late Neolithic sherds can all be found on

the Isle of Man, there seems to be no reason to suggest that they were imported to the Island from the surrounding areas.

A full provenancing study of the Late Neolithic ceramics of the Isle of Man would have required a detailed study of the geology of the Island via thin sections. Such a work would have included extensive sampling of rock outcrops. For this to have been carried out, a disproportionate amount of time would have had to be dedicated to this portion of the thesis. In consequence, it was decided to approach this provenancing study as a preliminary exercise based on available geological maps and memoirs (Lamplugh 1903)³⁰.

The extent of tertiary dykes recorded on the Isle of Man are shown in Figure 8.1, and shows that the major concentration of dykes occurs in the south of the Island around the Langness peninsula. This swarm extends up the eastern coast at irregular intervals until just south of Douglas. Isolated examples are then found at Clay Head, and near Ramsey. Inland from Ramsey at the edge of the northern massif, three examples are known. On the west coast the main concentration is focused in the southern corner of the Island, with two examples being found north of Niarbyl.

The four sites included in this analysis are plotted on Figure 8.1. Around the sites are marked 5km resource procurement zones. It is noticeable that the three sites at which dolerites are a commonly used inclusion, ie, Ballavarry, Glencrutchery and Ronaldsway 'House' all have dykes within their 5km catchment area. In contrast, at Ballateare, where dykes only occur outside of this area, dolerites were only found in one of the three sherds examined. Geographical proximity could therefore provide an explanation for the choice of raw materials. It is also noteworthy that the dolerite dykes at Ballavarry and Glencrutchery are still 4 - 4.5km distant from the sites themselves, however, and constitute very minor geological sources within the procurement zone as a whole. This would seem to support the evidence presented

³⁰ During work on thin sections from the Ronaldsway village, Senior (1993) sampled dolerites from one nearby dyke.

in Chapter 7 that dolerite / basalt dykes were deliberately sought out and utilised by Neolithic potters in preference to other more immediate and wide-spread geological types³¹. A further point of note is that in the procurement zones of Ballavarry, Glencrutchery, and Ronaldsway 'House' there are also intrusive dykes of other types which do not seem to have been used, eg, diorite, camptonite and chlorite schists. This suggests that not all dykes carried the same connotations for Neolithic potters, although the possibility remains that the sample of sherds thin sectioned was too small to pick up such minor rock types.

The alternative possibility that doleritic dykes were used from outside of the 5km catchment area of each site must, however, also be entertained. It may be the case that doleritic temper was transported from more distant sources, however, in the absence of a detailed study of the variability within the Manx dykes it is impossible to evaluate this possibility. It should also be noted that the evidence derived from AAS analysis shows it to be unlikely that clay was derived from distant sources (see Section 8.2.10). This, and the supportive evidence of ethnographic studies, would tend to suggest that the nearer sources were utilised.

The limited number of available dolerite dykes, particularly in the north of the Island, and the apparent density of sites present (see Figure 8.1 compared to Figure 5.4), argues against each community having access to its own dolerite source. It would be interesting to know whether those groups closest to a source controlled the access of more distant communities, or whether a particular source was openly used. At present, the frequent use of dolerite, even by communities far from the sources, does not present a strong case from which to argue for the selective control of these dykes.

The only site at which a more complex situation is presented is Ballateare. Here it has been noted that dolerites form only a minor part of the temper in pots, whilst sandstones appear to have been the preferred additive. The only outcrop of

³¹ There is of course the possibility that the potters made use of dolerite and basaltic erratics, however, the systematic use of this material must argue against this, since erratics are a finite rock source.

sandstone rock on the Island is at Peel, nearly 15km to the south, although the available evidence does not preclude the possibility that a glacial erratic was used³².

That an alternative rock type should have been used when there was a doleritic supply only c6km to the east-south-east seems surprising, especially given the lack of evidence for the control of access to dolerites at other sites. It may be the case that the six kilometres represented too great a distance for a potter to regularly travel in order to collect temper, and other materials were therefore used opportunistically as an acceptable substitute when supplies grew low. This would suggest that there was no exchange system in place by which communities distant from a source could collect regular supplies.

8.2.3 Chemical analysis of Manx clays

Thin section analysis has a limited ability to differentiate clay types on the basis of the minerals naturally present. This level of analysis is not sufficiently detailed to allow the close characterisation of a clay. In order to characterise a clay a further technique needs to be utilised which describes its chemical composition. A variety of techniques are available for such study: neutron activation analysis (NAA) (see Hughes *et al* 1989), x-ray fluorescence (XRF) (see Sheridan 1985), inductively coupled plasma spectrometry (ICPS) (Heyworth *et al* 1989), and atomic absorption spectrometry (AAS) (see Spoery 1989). All of these techniques are common in provenancing studies, with NAA being probably the most widely used. As is the case with all such studies, the technique of choice is in part dictated by the availability of equipment. In the case of the present study, AAS was selected since the School of Conservation Sciences had recently upgraded its facility so that analysis could be carried out using a user friendly and semi-automated system.

AAS has been widely used in provenancing studies such as Hatcher *et al* (1980); Tubb *et al* (1980); Adan-Bayewitz *et al* (1985); Pollard and Hatcher (1986);

³² The School of Conservation Sciences is in the process of developing a thin section library of Manx rocks, unfortunately, no samples of Peel sandstone have yet been processed.

Sheridan (1989); Spoery (1989); Mirti *et al* (1990); Haslam (1994); and Shingleton *et al* (1994). In these instances, the chemical composition of a clay is characterised by producing a 'fingerprint' from the quantity of each element present³³. The principles of AAS, and its allied technique of flame emission spectrometry are described in more detail below.

8.2.3.1 *Atomic absorption and flame emission spectrometry*

The technique requires a liquid sample which necessitates destruction of the sherd material (sample size and extraction procedure are discussed below, see Section 8.2.3.6). A hollow cathode lamp of wavelength specific to a single element is then shone through the flame in which the aspirated sample solution is atomised. The atoms of the element present in the flame absorb a quantity of this light proportional to the amount present in the sample. Having passed through the flame, the unabsorbed portion of the light is then measured using a photomultiplier detector system. The quantity of the element present in the sample can be calculated by comparing the initial intensity of the light against the quantity which arrived at this detector. This is then quantified by comparison with a calibration graph established using standard solutions of known concentrations (see Beaty 1988 for a more detailed description of the technique).

Not all elements are most appropriately tested using AAS. Volatile elements, such as the alkali metals in particular, require a lower energy method in order to enable their analysis. This is provided by the aspiration of the sample solution in the flame resulting in the dissociation of the compound and the excitement of the free atoms as they absorb energy. As they return to their ground state this energy is emitted and can be measured using interference filters. The level of this emission at a wavelength appropriate to the element to be tested is measured against a calibration graph established using known concentrations of a standard solution (see Fifield and Kealey 1975 for a more detailed description of the technique).

³³ Discussions of the development of the technique are also available in Hughes *et al* (1976), and Rice (1987, 395-6).

8.2.3.2 *Approaches to the study of clay procurement*

Two main approaches to the study of clay procurement patterns using chemical characterisation can be identified from previous works.

1. Those that attempt to locate the source of clay used in ceramic production by sampling local clay sources
2. Those that attempt to locate evidence for exchange of pots / clays by comparing the sherd material used at one site with that used at other non-local sites.

The first approach was used by Adan-Bayewitz *et al* (1985), and Sheridan (1985) who attempted to sample all suitable clays around their particular sites in order to assess whether a local clay was used by the site's inhabitants. This approach suffers greatly from a number of problems. In the first instance, the approach requires the availability of detailed soil maps which, it has already been noted, are not available on the Isle of Man. Second, it is necessary for the original clay source to still be in existence, and accessible. In the case of the sites in the north of the Island, it is possible that the source used may have been lost to coastal erosion (see Chapter 5). Third, the distinctiveness of clays from different sources, and the chemical variability within a single source has not been sufficiently addressed. It is not therefore certain that a positive match clearly implies that a particular source was used, or conversely, that a negative match between clay and sherds means that a source was not used. Similarly, there is also the possibility that either as a result of the processing of clay before firing, or post-depositional changes, the sherd will no longer match the source.

In her evaluation of the potential of clay sourcing for non-mass-produced pottery Sheridan (1991) concluded that the problems involved significantly inhibited the production of meaningful results. Instead she suggests that compositional analysis can be useful in highlighting regional differences between pottery compositions. This view is better suited to the second approach to clay provenancing.

This second approach focuses on discerning evidence for resource exchange between sites and thereby moves the objective of study away from provenancing, and towards the processes involved in procurement. It also avoids the difficulty of inadequate soil maps, loss of original source or clay processing, and post-depositional altering of sherd compositions from that of the original source. This approach was therefore adopted in the present study and its implications are considered in more detail below.

8.2.3.3 The identification of clay procurement patterns

From her analytical work with Irish Neolithic pottery, Sheridan (1991) concludes that it is not possible to distinguish between the production of pottery at a farmstead or local workshop level, however, it is possible to notice regional differences. Given the geographical distance between the Manx sites it was decided to focus the analysis upon the distinction between the local procurement of clays, ie, within a 5km area, and the importation of clays from outside of this area.

A series of models were constructed to illustrate the possible procurement options available at this simplistic local vs. regional level. These are illustrated in Figure 8.2 which present them in the form of the relationship between two sites. Although the situation becomes more complex the basic options presented here also operate when four sites are involved in the analysis. In the models shown the assumption has been made that the clays utilised have differing compositional fingerprints.

Figure 8.2 shows that it will be possible to discriminate between the chemical fingerprints of sherds from different regions under the following conditions:

- When clay procurement is local and there is no joint usage of sources, exchange, or use of clays from another analysed region (example 1)
- When clay procurement takes place outside of the local area, but there is still no joint usage of sources, or exchange (example 2)

- When clay procurement sources are unique to a site, but there is regional exchange of all ceramic goods produced at each site (example 6)

It is evident from the data quoted by Arnold (1975), that local procurement is more likely than long distance procurement, however, it is clear from some ethnographic case studies that long distance procurement patterns do exist (Nicklin 1971; Arnold 1975). The possibility of the entire ceramic stock of both sites being exchanged seems extremely small, and no ethnographic parallels could be found for such a practice. It was therefore decided to discount this possibility from further consideration.

It can therefore be seen that a fingerprint which is particular to a site is indicative of intra-regional clay types, site specific clay sources, and local use.

Conversely, as shown in Figure 8.2, poor discrimination between the chemical fingerprint of sherds at different sites may be a factor of:

- More than one site using the same source, whether this is the only source used at a site or not (examples 3 and 4)
- Localised procurement, but exchange between regions (example 5)
- Localised production at a single site, but exchange to sites not themselves producing pottery (Example 7)

A poor ability to discriminate between sherds present at different sites may therefore be indicative of regionally homogeneous clays, a shared clay source, or regional exchange (in one or two directions).

The situations whereby localised production and use at each site can be ascertained (good discrimination) are therefore easier to recognise than inter-regional exchange

(poor discrimination). This is the case since exchange might be mistaken for homogeneous clays etc, or *vice versa*; but localised production produces a signature which is less open to misinterpretation.

The effect of this on the procedure of analysis can be characterised as follows. Prior to analysis the dataset consists of a homogeneous set of plain body sherds. With the analysis of initial chemical elements the dataset either begins to separate into discrete groups correlating with specific sites (indicating localised production); or it remains homogeneous (indicating non-localised production, or homogeneous clays). With the analysis of further elements, either the level of discrimination between sites increases, or it remains low. Upon the completion of analysis, if discrimination is possible between sites then there is evidence for localised distribution; if discrimination is poor between sites then either distribution was not localised, or only non-discriminating elements were tested.

It is apparent therefore that the only unambiguous result is evidence for localised production. In the present analysis it was therefore decided to exploit this fact by statistically analysing the data produced by analysis of each element prior to the testing of the next³⁴. If there was sufficient evidence for discrimination then no further elements were tested since local production had been indicated.

The decision as to what level of discrimination represented localised procurement was taken arbitrarily using a similar study by Shingleton *et al* (1994) as a guide. In this instance a discriminant analysis result of 75.5% was taken as evidence for localised procurement.

³⁴ This is a non-standard procedure employed due to the slow nature of AAS analysis and the limited time available for this preliminary study within the context of the thesis as a whole. Were a multi-element sampling technique available for use then the more robust approach of analysing a suite of c12 elements prior to statistical analysis would have been adopted. This latter approach is recommended for future work.

8.2.3.4 *The choice of sherds for AAS analysis*

Due to the differing size of the assemblages and the difficulty of selecting sherds from morphologically distinct vessels in some instances, it was not possible to select an equal number of sherds from each site. The number of sherds sampled against the estimated minimum number of vessels in each assemblage is given in Table 8.2.

At Ballateare, the number of sherds selected was only 6 due to the low number of vessels present at this site (see Bersu 1947). At Ballavarry, 8 sherds were sampled since it became difficult above this number to recognise macroscopically distinct vessels from the sherd evidence. Higher numbers were selected at Glencrutchery and Ronaldsway 'House' since at these sites there was a large ceramic assemblage with sufficient variability to allow a larger number of samples to be taken.

8.2.3.5 *The timetabling of the analysis*

Samples were collected from the Manx Museum in two batches, the first in May and the second in December 1994. The first batch was prepared for analysis in November 1994, and a sub-sample was taken from it in order to provide materials for a training period. The second batch of samples was prepared for analysis in January 1995. Analysis commenced at this point and, due to problems caused by equipment failure, continued until March 1995. All samples were stored in a refrigerator when not in use. During data analysis no appreciable difference was seen between the results obtained from samples prepared in the first or second batches. The sample numbers for sherds involved in batches one and two are given in Table 8.3.

8.2.3.6 *The sampling procedure*

The surfaces of samples along with the exposed core were removed using a tungsten carbide burr and the cleaned fragment was snapped against the side of a mortar, into which the fragment was lightly crushed. A visual inspection of the

sample was then carried out and large temper fragments were removed using tweezers. This procedure was repeated until the sample was reduced to a powder. The aim of this was to remove elements from the clay matrix which had clearly been added by the potter. For a systematic review of the implications of added temper on the results of clay provenancing studies see Section 8.2.7.1.

Half a gram of sample was then accurately weighed into a PTFE beaker and 1.5ml of nitric acid (70%), 1.0ml of perchloric acid (60%) and 5.0ml of hydrofluoric acid was added to each sample. Samples were then placed on a hot plate and heated to 100°C for 30 minutes. The temperature was then raised to 200°C and the liquid evaporated. The sample was then cooled, and 10.0ml of hydrochloric acid was added to dissolve the residue. Samples were then made up to 100ml with distilled water and stored in plastic bottles.

8.2.3.7 *Analytical process*

As stated in Section 8.2.3.3 it was the intention to select elements for analysis individually and to assess their impact on the spread of the dataset prior to analysis with the next element. The choice of elements was based on those which had been found to be discriminating in previous AAS studies, ie, Ca, Cu, Mg, K, Al, Fe, Mn, Na, Cr, Zn (sources: Tubbs *et al* 1980; Sheridan 1985; Spoery 1989; Haslam 1994; Shingleton *et al* 1994; and Bower 1975 quoted in Shingleton *et al* 1994).

Analysis was conducted using a total of 5 elements from the suite listed above, Ca, Cu, Mg, K, and Al, before it was decided that sufficient data had been obtained to propose a case for localised procurement of clays during the Late Neolithic on the Isle of Man. The equipment used was a Unicam 939 Solaar spectrometer running the corresponding PC software.

The instrument parameters used for each of the elements tested are given in Table 8.4. Standard concentrations were selected to fall within the range of maximum

sensitivity for each element and the sample dilution factors necessary to lower the sample concentrations to this level are also listed in the table.

The results of the analyses are given in Table 8.5 in parts per million (ppm), whilst the statistical tests carried out after testing each element are described below.

8.2.4 Statistical analysis of the AAS data

The quantity of data produced by the analysis of multiple elements in AAS studies necessitates the use of multivariate statistics in order to simplify the n dimensional dataset (where n is the number of elements tested) and to draw patterning from it.

A review of previous AAS studies shows that three main multivariate techniques have been adopted in the past.

- Cluster analysis
- Principal component analysis (PCA)
- Discriminant analysis

Cluster analysis and principal component analysis compound the level of variability within an n dimensional dataset in order to allow that variability to be displayed graphically in a dendrogram, or 2D graph. The analyst then determines from the spread of the data how to group the samples. These techniques are commonly used in the analysis of AAS data (Hatcher *et al* 1980; Tubbs *et al* 1985; Hair *et al* 1987,6; Pollard and Hatcher 1994; and Mirti *et al* 1990), however, they suffer from the subjective manner in which groups are derived. This is particularly true in the case of cluster analysis where the use of a different clustering algorithm can create widely differing results. Discriminant analysis does not suffer from this problem since it approaches the organisation of the data in a different manner.

8.2.4.1 *Discriminant analysis*

Discriminant analysis uses predefined groups to structure the dataset, the aim being to test the validity of each group against the range of data present in the others. In simplistic terms this is done by deriving a linear combination of those variables which best discriminate between groups. This is attempted by maximising the distance between pre-assigned groups and minimising the variance within groups (Hair *et al* 1987, 75). As a result the technique can be seen as producing an overoptimistic estimate of the validity of the groups (Beavis *pers comm.* 1994).

The results of discriminant analysis can be portrayed as a table showing the number of successful allocations and the nearest group to which misallocated samples might belong. Having defined the initial groups it is also possible to apply the technique in order to allocate unassigned samples to the most appropriate classes.

As can be seen the technique has considerable potential for testing the groups obtained from cluster analysis and it has been used in this way by Pollard and Hatcher (1986 and 1994), and Sheridan (1989). On the other hand it has been used by Haslam (1994) and Shingleton *et al* (1994) in order to test the validity of groups which were proposed on the basis of other characteristics such as context groupings.

It was decided to utilise discriminant analysis during this study since it allows the testing of prior hypotheses regarding characteristic groupings. This allows questions to be asked of the data such as: do all sherds from different sites come from different clay types³⁵?

8.2.5 Discriminant analysis of data during the study

Discriminant analysis was carried out on the dataset, after the analysis of the samples for the first three elements Ca, Cu and Mg, with the sherds being grouped

³⁵ This approach has also been adopted by Haslam (1994), and Shingleton *et al* (1994).

by site³⁶. All samples were included in these analysis with the exception of the two fired clay samples from Ballavarry. These two samples were excluded since there was no reason to presuppose that they were of the same clay as pottery from the site. Prior to running discriminant analysis the dataset derived from each element was tested for normality using a Kolmogorov-Smirnov test. The results of these tests are given in Appendix 10. In all instances the datasets were found to be normally distributed thereby confirming that the data was suited to discriminant analysis.

The results of this discriminant analysis and of those carried out subsequently are reported in full in Appendix 10. As can be seen the first three elements produced a successful classification of 69.57%. This increased to 78.26% when the results of aluminium were included in the analysis. This figure did not rise higher with the additional analysis of potassium. This was seen to be high enough to indicate localised procurement, although this was subsequently checked using a Monte-Carlo roll described below.

8.2.6 Results of discriminant analysis

The results obtained appear to indicate a fair degree of discrimination between the sherds tested from each site. They must, however, be treated with some caution since it is possible that the distinctive fingerprints are a result of data contamination. A further difficulty in the interpretation of the results of the analyses is to assess the extent to which the percentage results of discriminant analysis have been over-optimistic in their estimation of successful group membership (see Section 8.2.4.1). Both of these problems are considered below prior to a discussion of the implications of the results for our understanding of Manx Late Neolithic pottery production.

³⁶ The methodology used was that given in Lockyear (1995).

8.2.7 Sources of potential contamination

The possibility of contamination of initial clay signatures has led to considerable discussion in a number of papers. These identify contamination of an initial clay fingerprint as coming from three main sources.

1. Clay processing during production.
2. Post-depositional factors.
3. Laboratory sampling procedures.

8.2.7.1 Contamination during production

The contamination of an original clay fingerprint can result from a number of production processes. Levigation of clays in order to remove a naturally occurring and unwanted coarse fraction is a factor which has been considered by a number of researchers. Abascal *et al* (1974) notes that levigation can reduce the sodium content of a clay by as much as 50%, whilst Sheridan (1986b) explained the low quantity of sodium in sherds from Altanagh, Co Tyrone in this way. Attas *et al* (1977) have also noted that levigation can lead to a drop in the concentration of some elements, although their results are not quantified. There is no macroscopic evidence for levigation in Manx Late Neolithic clays, and given that the clay and temper mix is very coarse there seems no reason to believe it occurred. A further and less easily identifiable source of contamination is the mixing of clays during production. As Sheridan (1986b) notes there is currently no obvious mechanism by which it can be ascertained that this has taken place.

The addition of temper to a clay is a problem which has been noted by many authors (eg, Olin and Sayre 1971; Sheridan 1985; Neff *et al* 1988, 1989; Shingleton 1989). Olin and Sayre, and Sheridan, note that the effect of adding temper to a vessel is to increase the levels of some elements in the chemical fingerprint. Sheridan (1985) addressed this problem by fine sieving the coarse fraction from crushed clay samples. This approach can be criticised since the naturally occurring coarse fraction of clay is in itself an integral part of the fingerprint, and may indeed be the diagnostic portion.

Shingleton *et al* (1994) in a study of shell tempered wares, removed the shell by dissolving it in acids. Once again, this approach incurs the danger of removing naturally occurring calcareous inclusions. An alternative approach has been adopted by Neff *et al* (1988, 1989). Their work attempted to model the implications for discriminant analysis, of adding various tempers to clays of different types. Their results show that 80% of high variability temper must be added to distinct clay types before their chemical fingerprints begin to overlap. They do, however, note that in clays which are less distinct initially, the effect of overlap will be felt at lower levels of temper concentration (Neff *et al* 1988). They go on to note that in early ceramics, temper concentrations are between 40 +/- 20% (Neff *et al* 1989). In the case of Manx Late Neolithic ceramics, the temper type is normally doleritic, and is therefore of low variability. The only exception to this is at Ballateare, where sandstone was used in 2 of the 3 sherds thin sectioned. Nonetheless, the levels of sandstone are not greater than 80%, and so on the evidence of Neff *et al*'s work it is unlikely that they will have implications for this study.

8.2.7.2 *Post-depositional contamination*

Post-depositional contamination represents a more serious problem since it may be possible that the chemical fingerprints of sherds at a site are heterogeneous due to the unique depositional circumstances in each instance. For example, an electron microprobe study (Freestone *et al* 1985) found that Ca, Fe, and P leached into sherds subsequent to their deposition. A further study in simulated weathering of sherds by Tubb *et al* (1985) noted that groundwater percolation could lead to the introduction of Ca, Mg, K, and Na into the sherd fabric. It was also noted that surface erosion could lead to the inclusion of intrusive Ba, Ca, Ma, Na and Ti within a sherd. In her study of Neolithic pottery from the burial chambers of Altanagh, Co Tyrone, Sheridan (1989) noted high levels of Ca and Ma in some sherds. This was interpreted as the effect of leaching from bone. Spoery (1989) has also noted that Fe is mobile in soils and is therefore a potential contaminant.

It can be seen that three of the elements used in this study, Ca, Mg and K, may be present in sherds in enhanced levels due to post-depositional processes. These elements are, however, tested for as standard during AAS analyses. The normal procedure for minimising these problems is the taking of samples from a fresh break and the removal of outer sherd surfaces. This procedure was followed in the present study, so the possibility of contamination can be said to have been minimised.

8.2.7.3 *Contamination during analysis*

The problem of contamination from laboratory practice can come from a variety of sources. The initial weighing of samples, the dilution of sample solutions, the preparation of standards, the use of unclean flasks etc. In all cases great care was taken to minimise these problems, and all work was carried out under the supervision of trained technicians. The possibility of contamination from the sampling tool has also been considered by Gilmore (1991) who suggest that a tungsten carbide tool, as used in this study might lead to contamination by hafnium, tantalum and tungsten. None of these elements were tested for in this study.

8.2.8 Further testing of the discriminant results

The limitation of discriminant analysis in over-estimating the number of successful group allocations has already been touched upon in Section 8.2.4.1. It was therefore decided to test the result obtained by using a Monte-Carlo roll. The aim of this was to assess the probability of a result of 78.26% discrimination being achieved if the dataset was actually randomly distributed, ie, if the data was from a homogeneous group.

8.2.8.1 *Methodology and results*

The Monte-Carlo roll entailed the allocation of each sample to a random group. This random dataset was then tested using a discriminant analysis. The procedure was re-run using 500 iterations as a means of obtaining a distribution curve for data results.

A macro for SPSS for Windows was designed by Dr J Beavis, Bournemouth University, to carry out this part of the analysis.

The distribution resulting from this analysis was then tested for normality using a Kolmogorov-Smirnov test which it successfully passed (see Appendix 10). A Z score of 14.252 was then obtained for the number of standard deviations the result of 78.26% was from the mean of the randomised distribution. This Z score was converted into a probability, and the figure obtained showed that the probability of the result of 78.26% being obtained from a homogeneous dataset is less than 0.003%.

The results can therefore be treated with some confidence as indicating that the sherds from each site come from heterogeneous datasets.

8.2.9 Analysis and interpretation of discriminant results

A simple analysis was carried out to examine the spread of samples at each site from their associated group means. The measure of spread was calculated by averaging the discriminant scores in each group for each sample in that group. The original discriminant scores for each sample can be found in the column marked 'Highest Probability Group P(G/D)' in Appendix 10. The results are shown in Table 8.6. Values closest to 1 indicate a short distance between individual fingerprints from the group mean, whilst the degree of spread increases as the value falls. Those figures in the first row were calculated using the discriminant scores from all sherds at a site; figures in the second row were calculated using only those discriminant scores from sherds which the analysis had shown to be correctly allocated, ie, without potentially imported sherds.

Ballateare presents the most coherent set of fingerprints, followed by Ballavarry, Ronaldsway 'House', and finally Glencrutchery. Assuming that exchange did not occur, this could indicate that the clays used at Ballateare were internally homogeneous. In contrast, clays used at Glencrutchery were chemically varied.

This picture can be clarified further with reference to the final results of the discriminant analysis (see Table 8.7). These confirm that some sherds were better allocated to sites other than their findspot. As Table 8.7 shows, the greatest number of successful allocations was for Ronaldsway 'House' at 84.2% of the total, or 16 out of 19 samples, this is closely followed by Ballateare at 83.3% successful allocations. Ballavarry and Glencrutchery have lower levels of success at 75.0% and 69.2% respectively.

In the first instance, it is worth noting that the majority of sherds were correctly allocated to groups based on their findspots. This would seem to suggest that the initial assumption that there was sufficient variation in the clays of the Island for chemical analysis was correct (see Section 8.2.1.1). The fact that the general level of discrimination between sites was so good also argues that the majority of clays used at each site were from the local area, and that the finished pots were not exchanged. There is however, some evidence for individual patterning in the results from each site which repays examination.

8.2.9.1 Ronaldsway 'House'

The wide spread of individual fingerprints from sherds at Ronaldsway 'House' (0.6288) suggest that fairly heterogeneous clays were used, however, they rarely overlap with those of other sites. This would seem to suggest one of two situations. Either, more than one clay from the local area was used, or some of the clays / pots at the site were procured from further afield.

In support of the case for the procurement of foreign clays / pots is the misallocation of three sherds to clay types from other sites (see Appendix 10, and Table 8.7). Notably, two of these sherds best fit the fingerprint for sherds from Ballavarry in the north of the Island. Against the case for the procurement of foreign, northern, clays at Ronaldsway 'House' is the continued broad spread of fingerprints (0.6965) even after these potentially imported sherds have been removed from the calculations. It therefore seems more likely that the clays used at

Ronaldsway 'House' were of diverse character, some of which overlapped in type with those from further afield.

8.2.9.2 *Glencrutchery*

At Glencrutchery, the spread of clay fingerprints from the group mean is also rather broad at 0.5823. In addition, the level of successful allocations is low at 69.2%, or 9 out of 13 sherds correctly assigned. This, taken with the varied nature of the individual sherd fingerprints suggests that heterogeneous clay (or clays) were used, and that some of these clay(s) were very similar to those of other regions. In the event, three of the sherds from Glencrutchery have fingerprints which are most easily placed within the homogenous group from Ballateare. This is not to suggest that some of Glencrutchery's sherds actually came from this latter site, but that this is the site with the closest group fingerprint. When these sherds are removed from the calculation of the spread of the dataset the remaining sherds become markedly more homogeneous (0.7959). In this light, the evidence from Glencrutchery seems to point to a generally homogeneous dataset which is disrupted by a few sherds which appear to have a non-local character. At present Glencrutchery presents the best evidence for the use of extra-local clay resources, or possibly the exchange of pots.

8.2.9.3 *Ballateare*

Ballateare presents evidence for a markedly more insular set of procurement patterns. Here the level of group homogeneity is high at 0.7418, whilst only 1 of the 6 sherds sampled is better placed with sherds from another group. Even when this sherd is removed from calculations the level of group homogeneity is still very high at 0.7826. This would seem to suggest that the Ballateare vessels sampled came from a homogeneous clay source which overlapped only slightly with those used at the other sites tested.

8.2.9.4 *Ballavarry*

Ballavarry seems to display a pattern which is similar to that of Ballateare in its overall homogeneity, but also provides limited evidence for the use of extra-local resources, as at Glencrutchery. At Ballavarry the group homogeneity is high at 0.7307. Two of the 8 sherds sampled may have been misallocated, one being better placed with sherds from Ronaldsway 'House', the other with sherds from Glencrutchery. Once again, it seems unlikely that the inhabitants of Ballavarry in the north of the Island would have derived their clay from so distant a source. It seems more likely that either there was an exchange of finished pots between the areas, or the clay type overlapped in character with those near other sites. Nonetheless, once these misallocated sherds are removed from the calculation of group spread, the remaining sherds exhibit a very high level of homogeneity at 0.816 which would seem to indicate the use of a single, or closely related clay source.

8.2.10 Discussion

The interpretation of the results presented above is confined by the size of the dataset, and the limited number of sites sampled, nonetheless, a pattern can be seen to be emerging. It seems likely that at Ballavarry, Ballateare, and Glencrutchery either one, or a series of closely related clays, were used in the production of the majority of pots at each site. This is particularly interesting at Ballateare since it either indicates that the jars at this funerary site were made at the same time using the same clay, or that the community(-ies) who buried their dead at the site made use of the same clay source for each burial episode. Given the ethnographic evidence it seems likely that the clays at each of these sites were derived from a 5km radius around each site. Sherds from Ballavarry and Ballateare therefore probably reflect the clays of the foreign drift of the northern plain, albeit from different parts, whilst sherds from Glencrutchery probably reflect clays from the native drift in the central portion of the Island.

At Ballavarry there is also some limited evidence that a few sherds may have been derived from an alternative source more closely related to those of the native drift in the south of the Island. It is possible that a clay from the outwash fans of Sulby Glen may have been used since this was still within the local procurement zone of Ballavarry. It is also possible that the sherds may be the result of ceramic exchange with other groups who utilised native clays. Whichever is the case, it seems likely that the inhabitants of Ballavarry used pots derived from more than one clay source. Similar evidence for a limited level of exchange is presented by Glencrutchery.

At Ronaldsway 'House', there is little evidence for exchange, or the use of foreign resources / pots, however here there is less evidence of the use of a specific clay source, unless this was particularly heterogeneous in character.

Two procurement patterns can therefore be seen to have been in evidence in the choice of clays. First, the systematic collection of clays from the same, or closely related sources, and second, a more haphazard approach where more than one source was utilised. There is also some slight evidence for a limited degree of usage of clays from outside the local area, which could also be interpreted as evidence for ceramic exchange.

8.3 Conclusion of study of Ronaldsway resource procurement patterns

The analysis of clay and tempers has led to several suggestions regarding potential resource procurement patterns. In the first instance, the analyses have largely supported the case for the use of local resources and the absence of exchange in materials, or finished pots. In the case of the larger Ronaldsway jars this is perhaps not surprising, since each one would require a strong adult to carry any distance. In considering the implications of the study of the procurement patterns at these four sites for the procurement of raw materials on the Isle of Man more generally, the assumption has to be made that they are representative of the whole.

Given that this is the case then, it appears that in choosing a temper many Manx potters preferred to use a dolerite, and were willing to travel in order to get it. Nonetheless, as the evidence from Ballateare suggests, there was a point where the distances involved were too great, or cultural factors intervened, and other tempers were used instead. The choice of clays seems to have been less rigorous with more than one source, or part of a source, being used at a potting site. There is also less evidence to suggest that potters were willing to travel far in order to gain clay. This is not to say that the Manx potters did not have a particular feel or texture in mind in selecting a clay (see Chapter 7), but that more than one clay fitted the bill.

The procurement patterns used on the Isle of Man in the Late Neolithic did not therefore differ appreciably from those employed elsewhere in the Irish Sea province, and indeed in the British Isles generally. Given that the finished products of the Manx Late Neolithic potters are, however, very different from those of other potters it is of course an element of this biography to establish at what point in production this difference became manifest.

9. The building of Manx Late Neolithic ceramics

It has already been noted in Chapter 3, that most research into Neolithic ceramic production has focused upon resource procurement and decoration. Nonetheless, they only form part of the process of pottery manufacture. This chapter considers the equally important stage of pot forming itself.

During the Late Neolithic the same Manx communities seem to have been producing ceramics in a variety of forms, each of which would have presented specific difficulties during production. Since there is good documentation for these forms, and it was possible to study all of the sherds at first hand it was decided to consider what information could be gleaned from them regarding forming processes.

Following a discussion of the stages of production in the making of Manx Late Neolithic pots, this evidence will be compared with the more tentatively identified stages of manufacture apparent in the production of Middle and Latest Neolithic ceramics on the Island.

9.1 Clay preparation

Prior to building a vessel it is necessary to prepare the raw materials in order to make them suitable for working. Rice (1987, 118) characterises the preparation of clays as either entailing the addition or removal of material from the clay matrix.

9.1.1 Removal of coarse fragments

The removal of material from the clay typically entails the picking out of large foreign matter such as pebbles, roots etc, which will coarsen the clay's texture and

yet not strengthen its structure. Those Manx Late Neolithic sherds which were thin sectioned showed that slate fragments were present in clays from Ronaldsway 'House' and Glencrutchery, although fragments of this size were probably too small to be worth removing.

Other processes by which coarse particles could have been removed include sieving, or levigation (see Chapter 8). Both of these processes are time consuming since they involve either drying the clay so that it can be crushed, or flooding the clay so that it is held in solution, whilst the coarse component falls clear. Given the coarse nature of the Manx Late Neolithic ceramics, and the presence within the clays of naturally occurring particles, it seems unlikely that these processes were used.

9.1.2 Addition of coarse fragments

It has already been established that the addition of temper to Manx Late Neolithic pottery was a fundamental part of the production process, as it was for most prehistoric pottery.

The wide range, and frequently large size, of Manx Late Neolithic temper fragments, has been noted in Chapter 6. Considered as a whole, Figure 9.1 shows that there is some broad evidence for correlation between maximum grit size and the maximum thickness of a sherd. Grits are generally larger in thicker sherds, with no sherds >25mm thick systematically using grits of <5mm. It is also apparent that no sherds <10mm have grits >15mm. At a more subjective level it is noticeable that the very small cups of the Manx Late Neolithic tradition, ie, Figure A6.32 Gle 3, 4, and 6 from Glencrutchery, either have no grits, or only extremely small grains. Three broad classes of grit size and vessel thickness can therefore be noted:

Sherds <10mm	:	Grits <15mm
Sherds >10mm and <25mm	:	Grits >5mm and <15mm
Sherds >25mm	:	Grits >5mm

It can therefore be argued that in mixing a batch of clay the potter was already aware, at least in broad terms, of the thickness of the final vessel, and worked accordingly. The thickness of a vessel's walls also determines its eventual size since thick walls are necessary in order to support large pots prior to firing. It can therefore be further suggested that at the stage of mixing the clay the potter knew the size of the final vessel.

9.2 Building the pot

Within the three broad classes noted above there is considerable variation in the detail of vessel form, since in order for the potter to produce a pot it seems only to have been necessary to have defined the finished vessel in these general terms.

Two modes of production were used in forming these vessels shapes: coiling and pinching. The use of coiling is amply illustrated by the numerous coil joins apparent, either in section, or along fracture lines. This evidence has been found in sherds of all sizes of Late Neolithic vessels with the exception of cups. This indicates that coil forming was the dominant pot forming method. The quality of this evidence is not, however, sufficient to place the style of coiling within the classification of technique proposed by Woods (1989), and it is doubtful if this would in any case advance our understanding of the pottery.

Turning to the cups, the absence of coil joins and the small size of these vessels, suggests that they were probably formed simply by pinching out the sides of a ball of clay. The example from Ballateare (Figure A6.19 B'te1 3) amply illustrates this mode of production since it is about as deep as a thumb. It also seems likely that vessels up to the size of B'co 11 from Ballacottier (see Figure A6.4) could have been formed in this way. The flat-based examples from Glencrutchery may have been produced by this technique, although their form provides less direct evidence.

Cups made by pinching could have been finished within a few minutes, the production of larger Late Neolithic vessels would have required a greater degree of planning. Little direct evidence survives for the sequence of production, ie, the manner in which coils were combined to form the finished pot. As Rice (1987, 124-5) notes, many of the traces of production are removed by subsequent finishing techniques, but from the evidence of the forms produced it is possible to suggest the simplest process which could have been adopted in making Manx Late Neolithic vessels.

Such speculation necessarily relies upon experimental work in order to test hypotheses. For this reason a number of experimental pots were produced in preparation for this chapter. The material used in the pots consisted of clay from an eroding cliff deposit at The Dog Mills, Isle of Man, and dolerite from a dyke on Langness. Experimental work began on the Isle of Man during study visits and was continued in Bournemouth using a clay from the Verwood district, Dorset, and the same Manx dolerite temper. Not all pots produced were fired since it was necessary to reuse clay in the exploration of the full range of forms present in the Manx Late Neolithic tradition.

9.2.1 Basic Manx Late Neolithic shapes

The experimental work showed that it was possible to form the full range of coil-built Manx Late Neolithic pottery illustrated in Figure 9.2 out of three basic shapes:

- Round base
- Cylinder
- Flat base

9.2.1.1 *Round base*

The round base is a common structural element in the production of most Early and Middle Neolithic pottery. The two major difficulties in building such a form out of

coils is to keep an even shape, and to prevent slumping. The former becomes a problem when the pot is moved during production, this causes the wet clay to buckle around the hands, as its weight drags it towards the ground. Slumping becomes a problem when too much weight is resting on the lower part of the bowl, since this leads to the deforming of the round bowl form and eventually the production of a flat base.

It was found that the easiest way around these problems was to construct the bowl upside down. In this way the upper part of the bowl is defined first by a coil placed onto a flat surface. Subsequent coils are then built up in rings to form a dome, with each coil having a smaller circumference than the previous one. The shape is held rigid by the surrounding clay, and there is no need to move the vessel. When the vessel has been built up sufficiently only to allow room for the thumb to enter the vessel, the aperture is closed with a plug of clay³⁷.

The outside of the vessel can then be smoothed to remove any evidence of coil joins or finger marks. Prior to smoothing the interior the bowl is left to dry slightly. This allows the exterior to harden so that when the bowl is turned over it has sufficient rigidity to prevent slumping if handled carefully; in contrast the humid air underneath the bowl helps to keep the inside of the vessel workable. Given dry weather, and the coils already prepared, it is possible to bring a round based bowl to this stage of completion within an hour.

The round base is an integral part of the production of bowls and jars in the Ronaldsway tradition. In the case of bowls, the round base is the only element necessary in the production of the vessel. In producing a jar the round base needs to be joined with a cylinder in order to complete the form.

³⁷ Wood (1989) has identified this approach of building from rim to base in ceramics from Skara Brae on the basis of the pattern of coil joins noted by the excavators. In this case the pots were flat-based, however, the technique is likely to be of value in building any ceramics whose sides get narrower from rim to base. Ethnographic studies such as Watson (1955) are also available to validate the practicality of this approach to ceramic manufacture.

9.2.1.2 *The cylinder*

The cylinder is a more straightforward component to build since it only entails the placing of coils in rings on top of one another until the required height has been reached. With some minor modification of vessel diameter a bulbous, or tear-drop shape can be derived from the basic cylinder, eg, Ballagawne (Figure A6.9 B'ga 1) or Ballateare (Figure A6.19 B'tel 1).

The size and weight of many of the Ronaldsway jars suggests that the cylinders must have been made in several sittings. In this way the clay of each stage could have been allowed to dry sufficiently to prevent slumping. The practice of building large vessels over a number of days in order to avoid collapse is recorded in ethnographic case studies such as Ocholla-Ayayo (1980, 116).

Two possible methods were available for the forming of the Ronaldsway jars. It is possible that the cylinder was built up initially, and the base was worked directly onto it. Alternatively, the two components may have been built separately and only subsequently joined together. Support for this latter method comes from the jars at Ballahot (Figure A6.17 B'ho 1), and Ronaldsway Airport (Figure A6.62 RonA 2). In the case of the former there seems to be some disparity between the fit of the bowl and the cylinder, whilst the same might be said of the latter vessel. It might also be noted that practice both by the author and Timby (*pers comm.* 1996) has shown it to be much easier to form the jar out of two separate components, rather than trying to smooth the inside of the bowl when it is already attached to the cylinder.

The only additional difficulty which is encountered in making the jar in two parts is the process of joining, which requires that neither section dry out too much to prevent a good join. Once again, this does not appear to form a significant obstacle to production.

As well as being an integral component in the production of the round based jars, cylinders are also a component of flat based vessels.

9.2.1.3 *The flat base*

The flat base is easily formed out of a single piece of clay flattened to the appropriate shape. In the case of small flat based vessels, ie RonH 4 from Ronaldsway 'House' (see Figure A6.64), the base could have been built first and the cylinder built up from this. Larger flat based vessels such as Gle 2 from Glencrutchery (see Figure A6.32), have outward sloping sides. Due to the problems of slumping described above, it would have been easier to produce these vessels by building the cylinder first from the rim upwards in order to produce a cone onto which the flat base could then be simply added.

9.2.2 Conclusion

Conceptually therefore, at the building stage Manx Late Neolithic coil-built vessels can be seen as consisting of three component parts:

- Round bases: Form vessels in their own right and building blocks for jars
- Cylinders: Forming the second component of round based jars and flat based vessels.
- Flat bases: Being the basal portion of flat based vessels when attached to cylinders.

A fourth component can also be identified in the pinch pot, with this being used to make hand-sized flat, or round based vessels.

Although it cannot be ascertained that the Neolithic potter consciously considered each of these components as separate modules, the components and building processes outlined above represent the least number of stages by which the potter could have achieved the full diversity of the Late Neolithic assemblages. It is likely therefore that they represent a broad outline of the manner in which the potter

passed from the mixing of the clay to the production of a Manx Late Neolithic shape.

All of these components are used in other Neolithic ceramics. The pinch pot is present as a part of many assemblages. The round based bowl forms the basis for most other Early and Middle Neolithic ceramics. The cylinder is also apparent in vessels of the Achnacree, and Beaker / Grooved ware traditions, eg, Nether Largie South, Argyllshire (Henshall 1972, fig ARG23.1), and Knowth, Co Meath (Eogan 1984, fig 92.1418). Flat bases are also known in Grooved ware, and the anomalous vessel from Tamnyrankin, Co Derry (Herity 1982, fig 45.1). It is the unique manner in which these components are recombined which provide the individual character of the various Neolithic ceramic traditions. In the case of Manx Late Neolithic ceramics, the manner in which the components are linked to produce ceramic forms is presented in Figure 9.2. This can result in four main vessel classes, based on the production methods the potter had to employ:

- Cup
- Bowl
- Jar
- Bucket (ie, Grooved ware)

The process of recombination has already been discussed above. One last and otherwise anomalous example does, however, remain for analysis: this is the unique vessel from Ballateare (Figure A6.19 B'tel 2). In this case, the base of the vessel is composed of a pinch pot very similar to the cup Gle 4 from Glencrutchery (see Figure A6.32). This has been used as the plug in the base of a round based bowl to produce an unparalleled ceramic type.

A schematic showing the major forms of Manx Late Neolithic pottery once applied decoration had been added is given as Figure 9.3 (see Chapter 10 for further discussion of decoration, and Appendix 6).

9.3 Surface finish

Following the production of the basic ceramic form the vessel passed through further stages of preparation prior to firing, these are here termed surface finishing. At these stages the basic form is refined to the level of finished product. Three stages can be identified:

- Smoothing / polishing
- Addition of extra clay to the vessel
- Decoration

The extent to which the first two of these stages constitute decoration is a debatable area. In the context of Ronaldsway ceramics, a case can be made that extra clay was added as a part of a decorative grammar (see Chapter 10); on the other hand, smoothing appears to be a perfunctory stage carried out in the production of all vessels. Only smoothing is therefore considered in this chapter, the other elements of surface finish are considered in Chapter 10.

The smoothing of the surface to remove the evidence of coil joins has already been discussed above. At this level smoothing has a functional role in helping to reinforce the join between coils. The production of a uniform surface over the vessel requires the major components of the pot to be complete and joined. At this stage surface smoothing removes finger marks, and reduces the presence of abnormally thick or thin sections of the vessel's body, as well as presenting a more aesthetically pleasing result.

In the case of Manx Late Neolithic vessels evidence for surface smoothing is provided by a vessel from Billown Quarry 2 (Figure A6.28 BiQ2 2). This vessel still retains drag marks where fingers have been drawn up the inside of the vessel in order to smooth the surface and pull the clay up. Lower down inside the vessel

similar marks can be made out running horizontally which presumably resulted from the same activity.

In general it is noticeable that grits rarely protrude through the surface of vessels. Since pots which are not smoothed frequently feature protruding grits it seems reasonable to assume that one of the aims in the finishing stages of Late Neolithic ceramic production was the obscuring of protruding grits. Experimental work showed that this could be achieved by slurring the surface. This involves dampening the hands and running them over the vessel's surface so that the upper layer of clay slips from the drier core. In the case of ceramics from Ballateare it seems unlikely that slurring was used. In this instance the surface of many sherds have a sheen approaching burnishing. This could be achieved by smoothing the surface with the hands without first wetting them. Although a more laborious method the same effect can be achieved as by slurring, with the added benefit of a more compact, and therefore reflective, surface. Fournier (1977, 35) notes that burnishing does not in itself render a vessel's surface waterproof (see also Ellen and Glover 1974), in consequence it seems fair to assume that the production of a near-burnished surface on the ceramics from Ballateare was for aesthetic reasons³⁸.

Following the finishing of the surface and its decoration, pottery is generally left to dry to a leatherhard state. In this way excess moisture is removed from the clay to prevent steam forming within the fabric during firing, leading to fracturing of the vessel. Arnold (1975, tab 3.1) lists the range of drying times used by modern ceramic producing societies. These vary from hours to weeks, and must in part be seen as factors of the size of the vessels involved and the nature of the climate in each case. On the Isle of Man it seems unlikely that pottery would dry during the damp winter, although it is possible that drying could still be achieved by placing unfired pots near a hearth³⁹. Throughout the rest of the year it is unlikely that drying was a significant problem for potters.

³⁸ Nonetheless, Schiffer (1990) notes that burnishing reduces surface permeability and improves the heating effectiveness of ceramic vessels.

³⁹ Woods (1983) has noted that once dry it is possible to fire pots even during winter frosts using damp fuels.

9.4 Discussion

During the Middle Neolithic on the Isle of Man, and indeed elsewhere in the British Isles, the major vessel shapes are cups and bowls, with the dominant form being the bowl. This latter form could have been produced in much the same way as it was during the Late Neolithic, with the shoulder and everted rim being added subsequent to the main vessel forming. The major difference in production terms is in the thin walls of the Middle Neolithic vessels. By producing thin walled vessels, the Middle Neolithic potter faced an increased chance that the unfired vessel would slump⁴⁰. In terms of forming techniques, the transition from Middle to Late Neolithic pottery need not have involved radical reorganisation of the processes and components used by Manx potters.

Where Middle Neolithic pottery does differ significantly from that of the following periods is in the quality of the pots, and it could be argued that the Late Neolithic saw a decline in potting standards (see Piggott 1931). The abandonment of thin, finely tempered walls and the adoption of coarse temper may, however, also be seen as a necessary requirement in order to overcome the technical difficulties involved in the production of the large jar forms which are such a hallmark of the Ronaldsway tradition. There is certainly no evidence that earlier ceramic traditions managed to produce jars of any size using a fine paste and thin walls⁴¹. This is not to suggest that the Isle of Man adopted a coarser ceramic form specifically to overcome this problem. Indeed, a review of evidence from throughout the Irish Sea

⁴⁰ From a review of the ethnographic literature three means by which the thin walled Middle Neolithic pots could have been produced can be suggested. First, the basic bowl could have been formed over a mould consisting of either the inside, or outside of another pot (see Reina and Hill 1978). In this way the vessel would have been supported during production. Second, the basic vessel could have been produced with fairly thick walls, and then beaten, once the walls had dried a little, in order to thin them out (see Dumont 1952). Third, the vessel could have been produced in the same way, but the thick walls pared down (see Rice 1987). Whichever solution was adopted it seems likely that the production of the basic bowl shape during the Middle Neolithic would have required at least one additional stage from that produced in the following period.

⁴¹ The only possible contender in this respect are the jars from the Western Isles which are quite fine, they are, however, much smaller than many of the Ronaldsway examples (see Scott 1951).

area indicates that there was a general trend towards the use of coarse wares. The mechanical potential of this trend does, however, seem to have been fully realised on the Island, which produced some of the largest vessels of any found in the British Isles (see Chapter 11).

In the Latest Neolithic, the adoption of Beaker forms represented a return to thin walled vessels, as Chapter 6 has shown. This must have involved potters adopting the same or similar trimming processes as were used during the Middle Neolithic, albeit re-learned after the *c*500 intervening years. The sinuous Beaker form presented additional difficulties for the potter which may have required an altogether new approach to the forming process. Van der Leeuw (1976) has considered the particular problems facing potters producing Beakers through a series of experimental studies and the examination of sherd evidence from Dutch beakers. In many instances Van der Leeuw noted traces of wraps applied to the outside of a vessel. These he believed to be the remains of supports wound around the exterior of vessels in order to prevent the S-shaped profile of the Beaker from collapsing prior to firing. He also argues that the Beaker must have been placed on a support during production to allow it to be easily wrapped. If these arguments are correct and these tools are indeed needed to produce Beaker forms, then in the transition to the Latest Neolithic, Manx potters must have considerably altered the basic skills of their craft.

10. A study of decoration on Manx pottery compared to that used elsewhere

The importance of decoration in the archaeologist's appreciation of pottery is clearly indicated by the manner in which it influences classifications, eg, Grooved ware, Impressed ware. The frequent use of decoration on pots also indicates the value of decoration to the potters and consumers of the Neolithic. Decoration therefore forms a major part of this study of Manx vessel biography.

The study is arranged as follows. First, the archaeological uses of design are introduced, along with the methodology used in the present study. Next, the historical context of Manx decoration in each phase of the Neolithic is assessed by a review of design approaches adopted throughout the Irish Sea province. Having set the scene at each phase of the Neolithic a more detailed study of the Manx evidence is then made, followed by a comparison of the Manx practice with those of the surrounding area.

10.1 Background to the study of decoration

Decoration is one of the least formalised areas of archaeological analysis, partly because of difficulty in analysing concepts of style (*cf.* Sackett 1982), and partly because of the wide variety of views as to what place style has in archaeological analysis.

Prior to the 1950s the value of analysing decoration was seen to be in the ability to establish the presence of links between objects both spatially and temporally. These networks of decorative links could then be used to establish the spatial extent of cultural groups, or their longevity (see Plog 1980; Rice 1987, chap 8; Conkey and Hastorf 1990).

From the advent of the New Archaeology, and certainly during the 1970s, this assumption of an implicit correlation between decoration and identity was developed into the view that styles of decoration were actively used to signal group membership (eg, Deetz 1965; Longacre 1981). This being the case, the choice of a particular style would indicate what a group was trying to communicate. Decorative style was thereby used in archaeological studies of interaction and exchange (Wobst 1977; Plog 1978), in delineating social boundaries (Weissner 1985), and in studies of power relations within communities (Hodder 1982a; Faris 1983).

Following from processual archaeology there has been a further reorientation of the role of decoration in studies of the past. Most notable has been the attempt to study decoration, on both pots and rocks, as a means to delineate space in prehistory. In this way Bradley (1989) has suggested that the carvings at Passage tombs are placed in different locations on tombs from Brittany to the Boyne valley, reflecting changing social access to designs. Similarly Richards and Thomas (1984) and Barrett *et al* (1991) have argued that ornate designs on Grooved ware pots were often buried at strategic locations on monuments to emphasise their importance.

The brief review presented above serves to illustrate the diversity of approaches which have been adopted in the study of decoration over the past 50 years. Each of these approaches were appropriate within the conceptual framework of their time, whether it be cultural-historical, processual, or post-processual. In each case they are also linked in representing what the authors clearly believed to be a useful way of interpreting the diversity of their datasets. Before the current analysis can begin it is therefore necessary to consider the most appropriate framework for analysis within the context of this thesis, and the best means by which the diversity of the dataset can be used to derive patterning.

10.2 Introduction to the study of decoration in the Irish Sea province

Despite the diversity of intentions and decorative media contained within the above works they are all linked by their study of decoration from the standpoint of the user, rather than the designer. In the context of this thesis, if the life history of pottery and the *chaîne opératoire* of production, is to be fully understood it is necessary to consider decoration as both an aspect of production, and also of use.

From a potter's perspective, before the surface of the pot is decorated, the variety of possible designs exists as potential, bounded by social convention of what is appropriate and inappropriate. This convention can be termed a design grammar. Within this grammar the first mark on the pot restricts the range of grammatically correct designs which can be produced after it. This trend towards the restriction of potential is exacerbated with each stage of design until the range of possibilities are fully actualised in the final decoration.

Once complete, design is more normally appreciated as a whole, with the stages of production being less important than the grammatical correctness of the design created. Tilley (1990) in his study of Scandinavian rock art, has approached the study of design grammar in this way, by attempting to identify which combinations of motifs could be represented together in a finished design, and which were inappropriate combinations.

For the most part the quality of the dataset has precluded a detailed study of the production grammar of each of the pot types; this is particularly true in the case of the non-Manx ceramics, where time factors also constrained the depth to which analyses could be carried. In consequence non-Manx decoration is studied as a whole rather than as elements in a creative process. In the case of the Manx pottery, the quality of the evidence allowed more detailed study from which an attempt has been made to consider the grammatical sequence through which the varied designs

were produced. This approach is pursued especially when studying Manx Late Neolithic pottery when the evidence is of particularly good quality.

10.2.1 The framework for the analysis of decoration

In order to break a design down into component parts for analysis some criteria are necessary from which to consider what was, and what was not, a relevant unit. Clarke's (1968) work presents one of the most highly articulated statements on this subject. He defined an object's component parts as 'attributes', meaning "a logically irreducible character of two or more states, acting as an independent variable within a specific frame of reference (Clarke 1968, 156). His definition has subsequently been used by Plog (1980).

In essence, Clarke (1968) suggested that analysis should focus on those attributes which vary since these are most likely to contain meaning, and therefore to be relevant to the analysis. Clarke himself regarded this to be an arbitrary practice, but one which decided the direction in which an analysis would proceed (1968, 155). This is an unavoidable dilemma in any archaeological analysis, and the dangers of undertaking a study which does not produce meaningful results can only be minimised by preliminary analysis using a variety of different attributes. Despite these difficulties, the approach of design attribute classification has been widely used, eg, Friedrich (1970); Washburn (1977); Plog (1980); Hardin (1983); and Tilley (1990, 26-7 and 58).

A review of the Neolithic pottery in the study area suggested that four aspects of decoration contained the major sources of diversity:

- location of decoration on the vessel
- rim type
- technique used in the decoration
- type of design

These aspects are considered in more detail below.

10.2.1.1 Location of decoration

The position of a design on a vessel affects the availability of open space on which to execute the design, and also its visibility. When the variable shape of pots in the study area is taken into account, five locations of decoration could be identified:

- Exterior top
- Rim side
- Rim top
- Interior top
- Exterior bottom

The number of these chosen locations which were available on a vessel was also a factor of the type of rim. For example, on a collared or angular everted rim, there is the possibility of decorating the rim side, as well as the exterior top of the vessel, whereas, on a simple rim, the rim side is continuous with the exterior top and does not exist as a separate entity.

10.2.1.2 Rim type

Analyses of rim types have suffered greatly from over-elaboration in British Neolithic studies, and indeed elsewhere (*cf.* Deetz 1965, fig 15). For example, Case (1961) in his study of Irish Shouldered pottery defined 9 different rim types and, even this would not have been enough to encompass all the diversity within the Irish Neolithic dataset. In classifying rim forms within this thesis a more generalising approach was adopted, this was made easy by the comparatively low diversity present within the Manx assemblages in particular. Five classes were therefore used:

- Simple
- Everted
- Angular everted
- Collar
- Complex

These rim types are illustrated as Figure 10.1. The class of complex rims exists as a catch-all for the very few examples which could not be easily fitted into the preceding classes.

10.2.1.3 Decorative technique

It is unclear in many cases, what was the precise nature of the tool used to decorate: for example, an incised line can be caused by a fingernail, bone, stick, or sharpened stone. In other cases a particular tool can leave a mark which is extremely diagnostic, eg, comb or cord. This represents two different analytical levels: the nature of the mark created, and the nature of the tool that created it. In the present study it was decided to focus on the nature of the mark, hence decorative technique and not decorative tool.

Seven major decorative techniques were found to have been used on pottery from the study area:

- Stab
- Comb
- Applied
- Incised
- Ripple burnish (ie, indentations into a pre-burnished surface)
- Pierced
- Cord

The classification is fairly self-explanatory and conforms to usual definitions of design techniques, they are illustrated as Figure 10.2.

10.2.1.4 Type of design

This is the area of analysis which is most difficult to justify since it relies heavily on a perception of what constitutes a design, whether it be the single lines, or the composite they form. A number of approaches were tested before the present model was adopted in order to assess which had the most analytical utility. Traditionally, studies of design have assumed a hierarchical system for analysis of: element \Rightarrow motif \Rightarrow design (*cf.* Clark 1968, Friedrich 1970; Plog 1980). This formal approach to decoration seemed to lose much of the 'feel' of the designs produced within the Neolithic period. In consequence a more subjective set of designs were used which seemed to capture the level of variability better. These categories were:

- Horizontal lines
- Vertical lines
- Haphazard lines /stabs
- Ordered stabs
- Diagonal lines
- Panels of lines
- Curvilinear designs
- Hoops
- Chevrons
- Complex designs

These design types are illustrated as Figure 10.3. Panels are formed by the discrete clustering of vertical lines on a vessel, it was not, however, felt worthwhile to break this down further into component parts since the essence of the design was then lost. The category of 'complex' was included to record those decorative designs

which could not be fitted into any other grouping; as with the class of complex rims, very few examples actually fell into this category.

The decision as to what is vertical and what horizontal was made with reference to the vessel in an upright position. On the rim top vertical lines equate with radial lines, whilst horizontal lines are concentric.

10.3 Analysis of pottery decoration

The study of decoration created in Britain and Ireland focuses on the description and characterisation of the major design trends of each ceramic style. These characterisations are based upon the detailed description of each rim sherd of different decorative design from every site in the Irish Sea province. Evidence for design preferences within each style were derived from a simple quantification of this data and is summarised descriptively in the following sections. Specific examples are referred to where necessary.

The analysis begins with the Middle Neolithic since earlier pottery is absent on the Isle of Man and, in any case, is undecorated throughout the British Isles.

10.4 Middle Neolithic pottery

The study of Middle Neolithic decoration is complicated by the wide variety of different ceramic styles used contemporaneously throughout the Irish Sea province. These are all characterised independently in the sections which follow using the methodology detailed above.

10.4.1 Achnacree ware

Figure 10.4 illustrates the range of locations which are decorated in combination on the 10 whole vessels currently available for study. This shows that decoration is frequently extensive, covering large areas of the exterior of vessels. Despite this, no instance has yet been found of decoration extending onto the inside of an Achnacree vessel.

The main technique used in the decoration of Achnacree vessels is incision (eg, Glenvoidean, Isle of Bute, Marshall and Taylor 1977, fig 8.a; and Nether Largie South, Argyllshire, Kinnes and Longworth 1985, fig UN137.12), with a single example from Ballyedmond, Co Down (Evans 1938a) utilising cord on the rim side. The variety of designs used on Achnacree rim sherds is extremely limited, with the only design yet found being vertical lines. Nonetheless, if one extends the discussion to include decoration on the lower part of the vessel, then it can be seen that in the case of a bowl from Glenvoidean, Isle of Bute (Marshall and Taylor 1977) haphazard incisions were also used.

The general impression created by analysis of the decoration on Achnacree vessels is one of uniformity. At a macroscopic level, the similarities between such pots as Balloch Hill, Argyllshire (Peltenburg 1982, fig 12.233), Nether Largie South, Argyllshire (Henshall 1972, fig ARG23.1), and Glenvoidean, Bute (Henshall 1972, fig BUT1.2), are clear. The preferred decorative options were either to use vertical incisions, or to leave the vessel blank. That there are exceptions to this has already been noted above, but the aim of these analyses is to identify preferences, not the extent of variety. Nonetheless, it is noticeable that the two vessels from Ireland, at Audleystown and Ballyedmond, both deviate from the decorative grammar of the Scottish vessels suggesting that there were local designs within the overall grammar of the pot type as a whole.

10.4.2 Drimnagh bowls

As with Achnacree vessels, there is considerable variety in the location of decoration on Drimnagh bowls, although in general there is a preference for decorating the whole of the exterior of a vessel (see Figure 10.5). Decoration at other locations is less common, with the majority of rim sides and tops being left plain. Only one vessel has decoration on its interior. This is from Clachaig, Arran (Henshall 1972, fig ARN.16), and even in this case decoration does not extend below the rim. The pronounced closure at the mouth of Drimnagh vessels might explain this absence of decoration from the interior since it would be both difficult to effect, and rarely visible in this location.

A variety of decorative techniques were used on Drimnagh vessels. Incision was the most frequently used technique with cord and stabbed designs also being common. More rarely, applied and decorative piercing was used (eg, Ballykeel, Co Armagh, Collins 1965, fig 7; and Clachaig, Arran, Henshall 1972, fig ARN.16), although only on the exterior top.

The variety of decorative designs employed on Drimnagh bowls often includes composite motifs (ie, panel decoration, hoops, chevron design) and other complex examples. It is also notable that Drimnagh bowls frequently make use of several designs on the same pot creating an impression of great variety, see Baunogenasraid, Co Carlow (Raferty 1974, fig 8), Ballykeel, Co Armagh (Collins 1965, fig 9), and Bicker's Houses, Isle of Bute (Henshall 1972, fig BUT5.1). These designs are often placed on the exterior top. In part this may be because it is this surface which offered the greatest area of free space on which the potter could work, however, it also seems likely that the prominence of this location during use would also be a factor in its choice. Perhaps the vessel was hung in a prominent location when not in use allowing the decoration on the base to be viewed, whilst during use the vessel was brought down allowing the more complex decoration on the top to be seen.

Considered as a whole, when compared to other Middle Neolithic ceramic types these vessels are impressive for the quantity of carefully executed decoration which rarely leaves plain background exposed (eg, Ballintruer More, Raferty 1973, fig 3). Indeed, it seems as though the creation of an individual and highly ornate appearance was one of the major aims of the Drimnagh bowl design grammar.

10.4.3 Peterborough ware

Unfortunately, within the study area no reconstructable Peterborough vessels are available from which to assess the extent of decoration. Looking at the available sample of rim sherds it seems that the exterior top was the most frequently decorated location, although decoration was often used on all available locations including the interior top (eg, Luce Sands, Dumfries and Galloway, Cowie *in press* fig 17.184; and Woodhouse End, Cheshire, Rowley 1977, fig 16.G). Four techniques were used in decorating Peterborough pottery: comb, cord, stab, and incised, and at present there is no evidence for a preferred location for each type, except in the case of comb which has to date only been found on the exterior top (ie, Luce Sands, Dumfries and Galloway, McInnes 1964, fig 8.150). It should, however, be noted that comb is in general a very rare technique on Peterborough pottery.

The similarity between Peterborough and Sandhills ware has already been noted in Appendix 1, and to the general morphological similarity noted here can be added the fact that they are the only ceramic types to be decorated with more than two techniques used on the same pot (eg, Old Grove, Cumbria, Shell Company 1987; and Townleyhall 2, Co Louth, Eogan 1963, fig 7.5). In all other pot styles within the Irish Sea province, the potter appears to have been more conservative in this respect. This subject is returned to below in the consideration of Sandhills decoration.

Potters working in the Peterborough style also appear to have made use of a considerable variety of designs. These are predominately simple, and it is only rarely that complex motifs such as hoops and other 'complex' are employed (eg, Luce Sands, Dumfries and Galloway, McInnes 1964, fig 8.159; Machrie Moor, Arran, Haggerty 1991, fig 12.25). There is no obvious pattern in the choice of location for these designs.

As a whole, Peterborough ware displays considerable diversity with many different techniques and designs being employed with little reference to the location at which they are used. In general it might be said that the aim of the potter was to fill space rather to articulate a focused design code. This approach is similar to that noted for Drimnagh potters above, although, with Peterborough, the designs are kept fairly simple, with the emphasis being on small repeated motifs created by stabbing, or on cord maggots, rather than on large complex designs covering whole areas of the vessel (see for example, sherds from Old Grove, Shell Chemicals 1993; Bryn yr Hen Bobl, Hemp 1935, fig 2, 14-20).

As a final point, at both Bryn yr Hen Bobl, Anglesey (Hemp 1935), and Woodhouse End Barrow, Cheshire (Rowley 1977) a similar range of decoration was used. This focuses upon heavy rims and frequent stab decoration. Similarly decorated pots are not found elsewhere in the Irish Sea province, suggesting that a regional sub-style may be in evidence here. However, for this proposition to be evaluated a significantly greater dataset will be required.

10.4.4 Sandhills ware

Twenty-three whole or reconstructable Sandhills vessels have been found within the study area. These exhibit considerable diversity in the range of locations chosen for decoration, and it can be seen that all but two whole vessels (Knockoneill, Co Derry, Herity 1982, Fig 50.2; and Townleyhall, Co Louth, Eogan 1963, Fig 6.3) had decoration on the exterior top which was clearly the preferred location (see

Figure 10.6). Following from this it seems that every other location was available for decoration, including the interior, although it is rare that all locations were decorated. The range of techniques used to decorate Sandhills vessels is limited to four options: cord, incised, stab, and applied. All of these techniques occur most commonly on the exterior top, with applied decoration only occurring at this location (although this is in any case a rarely used technique). The most commonly used techniques are cord and incised decoration.

Sandhills pottery makes use of a wide variety of different designs, including all of the more complicated types identified in this study (ie, hoops, panel, chevron and 'complex'). With the exception of panel decoration, these composite designs are only used on the exterior top, and it should be noted that none of them are used particularly frequently. The most frequently used design on the exterior top is the horizontal line. Panel decoration on the other hand is most often used on the rim side (eg, Greengraves, Co Down, Herity 1982, fig 33.2).

The cline of variation in morphology and decoration between Sandhills and Peterborough ware has already been noted. Some evidence has also been presented for a regional variation within Peterborough ware itself. The evidence for Sandhills pottery is both more numerous and of a better quality, allowing closer consideration of the level of decorative variation within the style itself. This evidence indicates that a high degree of variation is present, although this does not seem to be based upon regional grounds.

At one extreme is the Carrowkeel component of Sandhills ware which is characterised by widespread decoration created by repeated stabbing (eg, Millin Bay, Collins and Waterman 1955, pl XV.1). Until recently, this approach to the decoration of Sandhills vessels was seen as being correlated with the use of vessels in Irish Passage tombs (Herity 1974) which are widely distributed. Nonetheless Sheridan (1995) in what she terms "the 'domestication' of Carrowkeel ware" has

observed that this ceramic type is found mixed with Sandhills sherds decorated in other styles, eg, at the occupation site of Townleyhall, Co Louth (Eogan 1963), and the Court tomb of Audleystown, Co Down (Collins 1954).

At the other end of the spectrum, decoration is used in a more restrained manner with more of the vessel being left plain (eg, Knockoneill, Derry, Herity 1982, fig 50.2; and Toome Bar, Herity 1982, fig 76.2). On this latter type it is notable that where decoration is restricted to the exterior top it often consists of a horizontal band, whether created by direct incision or by cord impression, eg, Goodland, Co Antrim (Case 1973, fig 5.11), or to use short vertical strokes to create the same effect (eg, Clea Lakes, Herity 1982, fig 67.4). Between these two extremes sit vessels like Newferry, Co Antrim, Movius 1936, fig 6; and Tamnyrankin, Co Derry, Herring 1941, fig 2.1 which contain elements linking these two opposing sub-styles together.

This discussion indicates the diversity of decoration used on Sandhills pottery; which is only approached in variety by Peterborough ware.

10.4.5 Shouldered vessels

In contrast to the preference for decoration on the exterior top which has been the case with the three preceding ceramic types, the location of decoration on the whole Shouldered vessels available for study is more varied. All locations are utilised, including the interior top, but the preferred location is the rim top (see Figure 10.7).

The variety of designs used on Shouldered pottery is considerable, but it is noteworthy that on the most frequently decorated location, the rim top, only three designs are present: vertical, diagonal and haphazard. This limited range of designs might be a consequence of the narrow width of the rim top however, because it seems more likely that if more ambitious designs had been desired then the space

would have accommodated them. Of the three rim top designs, vertical is by far the most popular. It is also the most popular design for use on the upper interior of vessels.

The infrequent use of composite designs, such as hoops and panels is also noteworthy on Shouldered pots (eg, Tamnyrankin, Co Derry, unpub. illus. Ulster Museum). These are placed on the exterior top, with hoop decoration also being placed on the interior in one instance from Goodland, Co Antrim (Case 1973, fig 3.1).

In general, it can be seen that the decorative code of Shouldered vessels appears to have been significantly different from that of the Middle Neolithic ceramic types described previously. Given that the Manx focus of this thesis lends a special significance to discussions regarding Shouldered pottery, the relationship of this ceramic type to others in the Irish Sea area is pursued in more detail below (see Section 10.4.5).

Shouldered pottery differs in broad terms from other Middle Neolithic styles in its use of ripple burnish and the emphasis on radial decoration on an everted rim. At first glance there is little evidence to suggest that it was influenced by other styles, although this requires more detailed study to confirm this conclusion.

Considered regionally, the decoration on Shouldered pottery in much of Ireland, Scotland and Wales exhibits a very low diversity when compared to other styles. This might be taken as indicating that this style was more closely defined by traditions of design, a proposal which seems all the more likely given that the pot type developed from Early Neolithic Carinated pottery.

In northeast Ireland the level of diversity in the decoration of Shouldered pottery is much higher. This might be explicable given the culturally open nature of Middle

Neolithic societies in this area (see Chapter 4), which in itself suggests a greater willingness to experiment with traditions. Given that this is the case it is in northeast Ireland that one would expect the influence of other ceramic design styles to have had their greatest impact on Shouldered pottery decoration, however evidence that this was the case is surprisingly sparse. Indeed, the only Shouldered bowl from northeast Ireland which is apparently a hybrid of design is from Goodland, Co Antrim (Case 1973). Some of the Shouldered pottery at this site had a style of curvilinear decoration which would have been more typically found on Sandhills ware, eg, Case (1973, fig 3.1). For the most part, however, the variety of design on Shouldered vessels from northeast Ireland is better explained as experimentation within a design tradition rather than the cross-fertilisation of styles⁴², and in this respect its relationship to Manx Shouldered pottery design is noteworthy (see Section 10.4.7).

This subject is explored below with reference to all Middle Neolithic design styles, followed by a comparison of Manx Shouldered pottery and its decoration with that used elsewhere in the Irish Sea province.

10.4.6 Co-occurrence of Middle Neolithic design styles

The stratigraphic evidence summarised in Table A2.29 indicates that ceramic styles were often used simultaneously at specific sites. For example, Drimnagh and Sandhills ware are found in association at Ballyalton, Co Down (Evans and Davies 1935), and in this instance they are also accompanied by Early Neolithic Carinated pottery. Other Middle Neolithic wares found in association with one another include, amongst others, Achnacree, Sandhills and Shouldered wares at Audleystown, Co Down (Collins 1954), and Drimnagh and Shouldered bowls at Clontygora Large Cairn, Co Armagh (Davies and Paterson 1938). Given that the

⁴² Outside of the study area Herity (1982) records similar curvilinear decoration on sherds of a shouldered vessel from Knockadoon site C, Co Limerick (Herity 1982, fig 71.1). Vessels from Ballyreagh, Co Fermanagh, and Knockadoon site C, Co Limerick (Herity 1982, fig 26.25, and 48) also appear to be hybrids between Sandhills decoration and Shouldered form.

vast majority of evidence accumulated within the study area indicates that ceramic production and use was carried out at a local level, it seems likely that the same communities produced and used more than one ceramic type at a time.

At a regional level there is further and more widespread evidence for the contemporaneous usage of different ceramic types. For example, as Figure 4.16 shows, communities in Co Down, Argyll, Arran, and Bute all utilised every variety of ceramic type available during the Middle Neolithic. In contrast, throughout much of the rest of Ireland, England, and Wales only one ceramic type was used. That a greater variety of ceramic types were available within some regions than are actually found in direct association indicates that there was some cultural selection regarding the styles of pottery which were, and which were not, considered appropriate to be used in conjunction with another.

The maintenance of clear and distinct decorative styles on pot types used within the same areas and even the same assemblages, seems surprising, since one might imagine that they would become merged through time. The fact that the ceramic types retained distinctive decoration as well as morphology would lend support to the case that these pot types were categorically separate in the minds of Neolithic potters. This subject will be explored further in Chapter 11 which considers the role of pottery types within assemblages.

10.4.7 Manx Middle Neolithic decoration

Having established the variety of designs which were in use throughout the Irish Sea province during the Middle Neolithic the analysis now focuses upon the decoration employed on Manx pottery at this time.

Decorated sherds have been found at only five sites, Ballaharra, Billown Quarry 1, Cashtal yn Ard, the Mull Hill Circle, and Phurt (see Appendix 4). All available types of sherd, ie, rims, shoulders, and body sherds are considered within this

analysis despite their differing potential, and as a result the evidence is treated at a general level. In contrast the analysis of Ronaldsway sherds presented in Section 10.5 can afford to be more rigorous and therefore relies only on rim sherds.

Prior to analysis it is worth reiterating that the generally fine quality of the finishing on Shouldered pottery which has been considered under the heading of pottery building, could easily fit in the present chapter. On a large number of sherds the surface has been highly burnished, creating a reflective effect which is pleasing to both the eye and the touch. This burnishing was often finished by rubbing the burnishing tool around the vessel's circumference to produce a series of slight horizontal lines rather than haphazard rubbings. Such attention to detail suggests that the vessel was in itself a decorative object.

10.4.7.1 Analysing the design grammar of Manx Shouldered pottery

Each specific type of decorative attribute is considered separately in the following sections before being combined in a final discussion of the design grammar of Shouldered pottery.

Three rim types are known on Manx Shouldered pottery, simple, everted and angular everted. Simple rims are only known on simple bowls, eg, Berk (Ber 1), and no decorated examples of this vessel type are known on the Island. Simple bowls would therefore seem to have been treated as utilitarian objects, in contrast to vessels with everted or angular everted rims.

The classification of angular everted rim was included in order to single out rims which were finished with particular care in order to produce a highly regular rim form. These rims changed shape using sharp angles rather than the gentle curves more normally associated with Neolithic pottery, see for example, Billown Quarry 1 (Figure A6.26 BiQ1 1, 4), or Mull Hill (Figure A6.50 Mul 3). Given the striking distinction between this rim type and the more common everted rim forms found

on the Island it was decided to examine the extent to which it is found elsewhere in the Irish Sea province (see Section 10.4.7.2)

It was hoped that rim type would correlate with other properties of decoration, as it does for Ronaldsway pottery; this was not, however, the case. Rim type is not therefore considered in association with other facets of decoration.

Only two decorative techniques are known on Manx Shouldered pottery, ripple burnish and incision. Ripple burnish naturally requires the presence of a previously burnished surface. It is, however, noticeable that incision rarely occurs on burnished vessels, so that it seems reasonable to assume that to cut such a carefully prepared surface was not generally considered an appropriate action. The two instances where it is known are from Ballaharra (Figure A6.13 B'ha 30, Figure A6.14 B'ha 36), which are in any case extravagantly decorated vessels. Nonetheless, each design appears to have been made using a specific technique, eg, horizontal designs created using incision (eg, Figure A6.11 B'ha 10-12), or haphazard and diagonal designs created using ripple burnish (eg, Figure A6.55 Phu 1, Figure 6.56 Phu 13). The only exception to this is decoration with vertical lines which were produced using both incision and ripple burnish although not on the same pot.

It would therefore seem that the burnishing of a Shouldered vessel affected the decorative technique which could subsequently be applied to it. This in turn decided the range of designs which could be used. This pattern develops further when the evidence for the location of decoration is considered.

The complexity of design on the Manx pottery, is striking, and two elements of these designs: interior, and panel decoration, are considered in more detail below in relation to examples from elsewhere in the Irish Sea province.

The variety of locations on Shouldered pots which were decorated is rather broad, including as it does the interior of the vessel (eg Figure A6.14 B'ha 45-6, Figure A6.51 Mul 9-10, and Figure A6.55 Phu 1-2), and in a few instances the lower part of the exterior (eg, Figure A6.28 Cas 2). Neither of these locations are decorated on Manx Late Neolithic pottery, or indeed many other types of pottery. The interior of the vessel in particular can be noted as an unusual location for decoration which will be explored in more detail in Chapter 11. The full set of combinations which are decorated on Manx Shouldered pottery are given in Figure 10.8. This illustrates the diverse manner in which decoration was applied, even within the limited corpus currently available.

Both incision and ripple burnishing are found on all parts of the rim, the exterior top, and the interior top. Ripple burnishing is, however, the only technique known to have been used on the exterior below the level of the shoulder (see Figure A6.50 Mul 5 from the Mull Hill Circle, and Figure A6.28 Cas 2 from Cashtal yn Ard). More curious is the manner in which the varied techniques are found in each location. These are illustrated in Figure 10.8.

This shows that in the case of incised decoration, there appears to be a simple correlation between technique, design, and the chosen location. When ripple burnishing was used there is no simple correlation, and it seems that at least two different designs were considered appropriate to every location. Conceptually there seems to have been a contrast in the status of incised and ripple burnish decoration within the grammar of Manx Shouldered pottery design. It is possible that the former was more tightly controlled since the overuse of incision would quickly have destroyed the integrity of the smooth surface which seems to have been a desired hallmark of much of the pottery of this tradition.

10.4.7.2 Discussion

The preceding analyses have identified a broad grammar controlling the manner in which Manx Shouldered pottery was decorated (see Figure 10.8). Presumably, adherence by the potter to this grammar was a necessary requirement in the production of a socially acceptable style of pot. Nonetheless, the validity of this grammar can only be tested by the discovery and analysis of further evidence. Such evidence is likely to produce some contradictions to the above scheme which will need to be addressed. However, it will also allow the grammar to be explored in greater detail as has been done with Ronaldsway pottery below.

The analysis of Manx Shouldered pottery has attempted to address the underlying principles guiding the production of decoration. In Chapter 11 the active role of this decoration in determining the suitability of a vessel for specific functions will be considered in more detail

10.4.8 Comparison of Manx Shouldered decoration with that of Shouldered pots from neighbouring areas

The discussion in Section 10.4.5 suggests that decoration on Shouldered pottery throughout the Irish Sea province generally was not influenced by that of other design styles. The extent to which Manx Shouldered pottery decoration differed from that found in the rest of the Irish Sea province, if at all, does however, require further examination.

In Section 10.4.6.1 three areas were identified which appeared to be distinctive in the decoration of Manx Shouldered pottery: decoration on the interior of the vessel, angular rims, and panel decoration on the exterior. These features are examined below, and their relationship to Shouldered pottery design elsewhere in the Irish Sea province is considered.

10.4.8.1 Parallels for the interior decoration

The presence of decoration on the interior of prehistoric vessels is generally rare, and yet on Manx Shouldered pottery it appears to have been quite common. It is also notable that the style of decoration on the interior is frequently complex and carefully implemented (eg, Figure A6.26 BiQ1 1, Figure A6.55 Phu 1 and 2).

Turning to the wider study area, interior decoration on Shouldered pottery can be found at a number of sites. Vessels from Mid Gleniron 2, Dumfries and Galloway (Corcoran 1969, fig 11.h), has closely spaced vertical lines running around the upper interior of the vessel, which provide one of the best parallels for the Manx style of decoration. Sherds of this vessel are also very hard and well-fired as is the case with the Manx examples. Vessels from Castle Skreen, Co Down (Dickson and Waterman 1960, fig 5.1), also provide a close parallel with lines of fine fluting running down the interior below the rim. Further instances can also be cited at Townleyhall 2, Co Louth (Eogan 1963, fig 2), and Shane's Castle, Co Antrim (Sheridan unpub. illustration).

The presence of decoration on the interior of Shouldered vessels, albeit of a more general type, can also be noted at other sites. For example, a vessel from Lyles Hill, Co Antrim (Evans 1953, fig 11.3) has vertical fluting down the interior of the vessel, whilst at Knockiveagh, Co Down (Collins 1957, fig 3.1, 3.5) vertically arranged fluting was present on the interior of the vessel below the rim. A further instance of interior decoration, although one which bears little direct resemblance to the Manx examples, is from Goodlands, Co Antrim (Case 1973, fig 3.1) where cord decoration was impressed in a curvilinear design on the upper interior of the vessel.

Some parallels can therefore be found for the Manx practice of decorating the interior of Shouldered vessels, a few of which seem to mirror the detail of the designs fairly closely. The geographical spread of these examples is noticeably

limited to the northern part of the study area, in particular northeast Ireland, and southwest Scotland. It seems highly likely that these areas interacted closely in their selection of designs for the decoration of Shouldered pottery.

10.4.8.2 Parallels for the angular everted rim

Rims with a markedly angular form have been noted as a minor but distinctive part of Shouldered pottery design on the Isle of Man, being found at Billown Quarry 1 (Figure A6.26 BiQ1 1), the Mull Hill Circle (Figure A6.50 Mul 3) and Phurt (Figure A6.55 Phu 1). In Ireland, Case (1961) has also noted angularity as a feature of many Irish vessels, but his classification was based on rims in which at least one facet was flat, creating an angular appearance to part of the rim only. The present classification refers to rims in which all facets are flattened, creating a square, or rectangular profile. This limits the range of parallels which can be found for this Manx practice. One of the most similar non-Manx examples comes from Mid Gleniron 2, Dumfries and Galloway (Corcoran 1969, fig 11.h). This is the same sherd as was cited above for its interior decoration. Knockiveagh, Co Down (Collins 1957, fig 3.1) also has interior decoration and an angular rim. This evidence suggests that the two elements were associated in the minds of the potters who produced the vessels, both on the Isle of Man and elsewhere. Other vessels with angular rims can be noted at Audleystown, Co Down (Collins 1954, fig 5.1, 2), and Killaghy, Co Armagh (Evans 1940, fig 1.2), although in these cases no interior decoration was known.

These examples are all found in northeast Ireland, which again supports the view outlined in Section 10.4.5 that the Isle of Man was linked to this area in its choice of decorative design.

10.4.8.3 *Parallels for the exterior panels*

The final type of decoration on Manx Shouldered pottery which is particularly distinctive is the use of vertical lines arranged in panels between the shoulder and rim, which run around the vessel's exterior. This is noted principally at Ballaharra (Figure A6.13 B'ha 30, Figure A6.14 B'ha 36).

Clear parallels for this decorative design are rare, Conway (*pers comm.* 1995) has identified this style on Shouldered sherds from recent excavations at Rathlin Island and Linford, both in County Down. Perhaps the most striking parallel is, however, derived from Tamnyrankin, Co Derry (Herity 1982, fig 46). This vessel has a series of paired vertical lines of impressions running around the upper exterior of the vessel and creating the same sort of effect as that found on the Manx examples. A loosely related panel design can also be seen on the atypical flat based vessel (Herring 1941, fig 1) from the same site, although in this instance the panels are created by raised ribs on the vessel's surface, and the detail of the effect created is quite different⁴³.

The evidence for a cross-fertilisation of ceramic design concepts between Man and the rest of the study area is less strong in this instance than seems to have been the case with other aspects of shouldered pottery design. Nonetheless, the few, generally weak, parallels which can be cited are all, once again, from northeast Ireland.

10.4.8.4 *Conclusion*

The majority of Manx Shouldered pottery can be seen to be part of a very uniform approach to ceramic design on this vessel type, which was current throughout the whole of the Irish Sea province, and beyond. The Isle of Man and northeast Ireland,

⁴³ A similar style of ribbed panel decoration to that found on the flat-based Tamnyrankin example, was found at Ballymacaldrack, Co Antrim (Evans 1938b, fig 4.a). This vessel is a simple bowl but was found in an assemblage which also contained Shouldered pottery.

appear to have been the only two areas which experimented with this design code in the production of more varied decoration. It is noticeable that the decoration which resulted shows considerable similarity, which is an indication of the strength of interaction between the two areas. Further links between these two areas and the style of decoration used in southwest Scotland can also be suggested. As a whole these correlations provide support for the intensive interactions proposed on more general grounds in Chapter 4.

10.5 Late Neolithic pottery

Turning to the Late Neolithic the analysis of decorative design is aided by the lack of diversity in ceramic types; this suggests an impoverishment of design during this period. Only Grooved ware can be confidently identified as being used throughout the Irish Sea area, whilst Ronaldsway pottery is confined to use within the Isle of Man. It is, however, worth noting that at the start of the Late Neolithic it is likely that the use of these ceramic styles overlapped with those of the preceding period.

In this section the nature of Grooved ware decoration throughout the study area is considered, along with evidence for a regionalisation in its design, and its relationship to previous styles.

10.5.1 The characterisation of Grooved ware

At present there are only seven complete Grooved ware vessels within the study area with 6 of these coming from the Isle of Man where Grooved ware has an ambiguous position in classifications. It was not therefore possible to assess the range of locations which were normally used for decoration on this ceramic style. On the rim sherds available from the Irish Sea area, decoration was present on both the rim top, exterior, and interior.

Within the study area, only four techniques are used in the decoration of Grooved ware vessels: incised, stab, applied and decorative piercing. The latter two are only used on the exterior top (eg, Capel Eithin, Anglesey, White 1981, fig 3; and Dyffryn Ardudwy, Gwynedd, Powell 1973, fig 9.2). In general it can be seen that there was a preference for decoration on the sides of the vessels rather than the rim top, whilst the most common decoration on the exterior top was incision. A single example from Knowth, Co Meath also had cord decoration on its exterior, this is discussed in Section 10.5.1.1.

The limited range of decorative techniques employed on Grooved ware vessels is interesting given the wide variety of techniques utilised in both the preceding and subsequent phases of the Neolithic. Since the Grooved ware potters were more than likely aware of the possibility of, for example, comb or cord decoration, it seems that the selection of only a few decorative types was a deliberate effort. These techniques were employed to give a unique design appearance based around linear motifs⁴⁴ and exemplified by such vessels as Knappers Farm (Ritchie and Adamson 1981, fig 5.6), and Luce Sands (McInnes 1964, 101), as well as more complex examples such as Machrie Moor (Haggerty 1991, fig 6.17a), or Tormore 1, Arran (Henshall 1971, Fig ARN4.1).

10.5.1.1 Regionalisation in Grooved ware design

Attempts have been made previously to identify regional Grooved ware styles throughout the British Isles (eg, Smith 1956; Wainwright and Longworth 1971). These attempts have been hampered by the fact that although differences in design are apparent in Grooved ware vessels, they do not appear to have been regionally

⁴⁴ The presence of curvilinear designs on Grooved ware is well known outside of the study area (see Wainwright and Longworth 1971); however, design within the study area is limited to linear motifs.

defined. This problem also exists within the more limited area of the Irish Sea province.

Much of the Grooved ware from Ireland (ie, Dundrum 1, Newgrange and Knowth) is characterised by the presence of bevelling just below the inside of the rim (eg, Sheridan 1995, fig 2.4 35; Gibson 1982, fig NEW 3.1, 12; Eogan and Roche 1994, fig 5.a). This is also found in Scotland at Luce Bay and Beckton, in Dumfries and Galloway (McInnes 1964, fig 4.103; Cormack 1964a, fig 3), and in England at Raven Gill 3, Cumbria (Cherry and Cherry 1987, fig 29.2). This feature can therefore be taken as standard throughout much of the Irish Sea province.

Decoration on the exterior of Grooved ware vessels varies to a greater extent on examples found in the Irish Sea province, although as Section 10.5.1 has shown, the total design range of the ceramic style is still fairly restricted. A minimalist style of horizontal incisions or cordoning is found at Luce Bay (McInnes 1964 fig 4.102), Raven Gill 3 (Cherry and Cherry 1987, fig 29.2), and Knowth (Eogan and Roche 1994, fig 5.a). One anomalous example from Knowth timber circle has a single horizontal line of cord on the exterior (Eogan and Roche 1994, fig 5.c). No other examples of cord decoration are known on Grooved ware vessels from the Irish Sea province, and it seems reasonable to assume that this vessel was either very early and influenced by Middle Neolithic trends in ceramic decoration, or very late and influenced by Beaker pottery.

More elaborate decoration on Grooved ware vessels is also known throughout the Irish Sea province. This falls into two main types: haphazard diagonal and chevron designs, and more complex and structured patterning in a similar style. In the former category fall examples from Newgrange (Sheridan 1985, fig 5.84 upper), Knowth (Sheridan 1995, fig 2.5 21), Townhead, Isle of Bute (unpub.), and possibly Luce Bay (McInnes 1964, fig 4.100, 101). This style of design appears to be confined to large bucket shaped vessels. The more structured design is typified by

examples from Tormore 1, and Machrie Moor, both on Arran (Henshall 1972, fig ARN 4, 1; Haggerty 1991, fig 16.17a), and Walney Island 6, Lancashire (unpub.). This latter style seems confined to small open-mouthed bowls.

Although sub-styles are identifiable within the Grooved ware range, these do not seem to have any geographical significance, it seems more likely that an understanding of this variation will be reached through a detailed study of the depositional context of this ceramic types.

10.5.2 The Manx Late Neolithic dataset

The Manx Late Neolithic dataset is composed primarily of Ronaldsway pottery with Grooved ware forming a minor component. For this reason the bulk of this analysis focuses upon Ronaldsway pottery, with the status of Manx Grooved ware being considered subsequently.

As noted in the preceding analysis, the level to which Ronaldsway design can be studied benefits from the large quantity of decorated sherds which were available, and also the considerable number of whole vessels. The corpus upon which these analyses are based is illustrated in Appendix 6. A glance through this corpus will show that Ronaldsway pottery is only decorated on the upper part of the vessel. In consequence a rim sherd carries the same quantity of design information as a full pot. Decorated body sherds were not included in the study since the precise location of their decoration on the vessel as a whole could not always be ascertained, neither could the orientation of that decoration. By studying rim sherds alone a minimum of 195 vessels were included in this analysis. The manner in which decoration was sub-divided has been presented in Section 10.2.1.

10.6 Analysis of Ronaldsway design

In the previous chapter it was suggested that the potter categorised pots at the building stage of the *chaîne opératoire* as either cups, bowls, or jars. It was decided to test the diversity of decorative design against these forms in order to assess whether the potter perpetuated these categories after the vessel had been built and the mechanical difficulties of size and shape effectively dealt with.

In the first part of the analysis, the dataset is analysed as a whole in order to evaluate the broad form of the Ronaldsway grammar. In the second part the extent to which this grammar utilises the vessel categories suggested above is considered.

The implications of these results for our understanding of atypical Ronaldsway vessels is then discussed, followed by the relationship of the Ronaldsway and Grooved ware traditions on the Island. Finally, the nature of the Manx Late Neolithic design grammars are examined for the evidence they offer us regarding the nature of Manx social relations at this time.

10.6.1 The Ronaldsway design grammar

The study of the Ronaldsway design grammar will be addressed initially by a consideration of each of its component parts.

10.6.1.1 *Rim type*

It is noticeable that the majority of rim sherds from jar-sized vessels use a collared rim. 40 out of the 54 jars currently known have this rim form, whilst the remaining 14 have simple rims. 50 out of this 54 have a further element of decoration of some sort, to be considered below⁴⁵. The spread of rim types used on bowls is more even with only 98 out of 171 bowls having collared rims, the remaining 73 are simple.

⁴⁵ The number of plain vessels present was calculated using a minimum number of individuals. This may have led to the underestimation of the actual number, although the extent to which this is true cannot be ascertained.

142 of the 171 examples were decorated further. The rim type of cups was generally simple, with only 1 collared example being known from Ballateare (Figure A6.19 B'tel 3). Only two examples of complex rims are known from Ronaldsway vessels, both are from bowls (Figure A6.72 RonV 1, and Figure A6.78 Wes 6).

10.6.1.2 Location of decoration

The rim side was the only location decorated on collared jars and bowls; no examples are known with decoration on the rim top, and only one instance of decoration on the exterior top is known. This single example comes from the jar (Figure A6.75 Sch 1). This decoration appears to have been produced by rolling a roulette across the upper and lower exterior of the vessel in a haphazard manner. Although the presence of a possible roulette impression on Ronaldsway pottery is extremely unusual the extent to which this represents a 'design' rather than a doodle is unclear. The Scholaby vessel is therefore considered on the basis of its rim side decoration alone.

The use of the collar as a surface on which to apply decoration is perhaps not surprising given that it is a clearly defined zone with a top and bottom, whilst the grit-free clay of the collar also made the application of designs easier than on the coarser fabric of the vessel proper. Nonetheless, the exclusive usage of the collar zone in the further decoration of jars and bowls is a striking indication of the existence of a guiding design code in Ronaldsway pottery production.

Simple rimmed bowls and jars are exclusively decorated on the exterior top. The use of the more open and less structured space on the top half of the vessel presents the possibility of a far broader range of design than does the limited area of the collar. The extent to which this was utilised will be explored with reference to the type of design discussed below.

Turning to the complex rimmed vessels the situation is less clearly definable. It is tempting to suggest that the more atypical form of the rims on these vessels made them sufficiently unusual to be able to operate outside of the constraints of the traditional design code. For example, the vessel with atypical rim from West Kimmeragh (Figure A6.78 Wes 5), and the flat topped example from Ronaldsway Village (Figure A6.72 RonV 1) are both unusual in having decoration on the rim top itself.

10.6.1.3 Decorative technique

The limited number of decorative techniques used on Ronaldsway vessels has already been noted. Indeed, one of these, comb decoration, only occurs on two vessels, one from Billown Quarry 2 (Figure A6.28 BiQ2 2), the other from Ballavarry (Figure A6.23 B'va 15). This cannot therefore be considered a typical part of the Ronaldsway design grammar, although the designs the comb is used to create are not unusual in themselves.

Of the remaining three types, incised and stab, are used on both collared and simple rimmed vessels of all sizes from cup to jar. It is the third type, applied decoration, which is unusual in that it is only used on simple rimmed vessels. The typical applied decoration on Ronaldsway vessels is the cordon formed by wrapping a coil of clay around the vessel and pressing it until a join is formed. The manner in which this can be accomplished is shown in Figure 10.9, and does not differ appreciably from the process by which a collar is formed. In some cases, such as Billown Circle (Figure A6.25 Bil 1) and Ronaldsway 'House' (Figure A6.66 RonH 22), the presence of the defined zone created by the cordon is used as a further area for decoration, in much the same way as the rim side of collars. The evidence therefore points quite closely towards a conceptual relationship between collars and cordons, although the two were mutually exclusive within the Ronaldsway design grammar.

10.6.1.4 Decorative design

The decorative designs used on Ronaldsway pottery can be seen to divide into designs which either infill horizontally defined space, such as haphazard or vertical lines, or define such zones in themselves, eg, horizontal lines.

It has already been noted that collars and cordons act to create zones on vessels. For collared vessels it is noticeable that the preferred decorative designs are series of vertical lines (eg, Figure A6.9 B'ga 1 from Ballagawne), or dots creating a filled field, whether in an orderly or haphazard manner (eg, Figure A6.65 RonH 15 from Ronaldsway 'House', or Figure A6.9 B'ga 2 from Ballagawne). In this way the horizontal collar zone is filled and embellished. The previous examples are rather ostentatious in this embellishment, more subtle examples which fulfil the same end can be seen at Billown Quarry 2 (Figure A6.27 BiQ2 1), Glencrutchery (Figure A6.31 Gle 1, Figure A6.32 Gle 11), or Guilcagh (Figure A6.44 Gui 1). This more limited decoration only occurs on vessels of bowl size. In cordons, the narrow width precludes extravagant design, however, there was still a preference for vertical lines which fill the zone, eg, Billown Circle (Figure A6.25 Bil 1), or Glencrutchery (Figure A6.33 Gle 12), or dots which break it up, eg, Ronaldsway 'House' (Figure A6.66 RonH 22).

The horizontal line which in itself defines a zone on the pot's surface was used on vessels which have neither cordons, nor collars, eg, Ballacottier (Figure A6.4 B'co 12), Ballavarry (Figure A6.22 B'va 8), or Knockaloe Beg (Figure A6.47 K'al 9). In many of these cases the horizontal line was then further embellished. For example, in the previous examples from both Ballacottier and Ballavarry short vertical lines achieve an effect similar to that used on the collared vessels from Glencrutchery (Figure A6.31 Gle 1) and the Guilcagh (Figure A6.44 Gui 1).

This evidence reinforces the importance within the Ronaldsway design grammar of a defined horizontal zone within the upper part of the exterior of the vessel, and the frequent desire to embellish the upper portion of this zone.

10.6.1.5 Discussion

The grammar presented above can be summarised as a dendrogram from which a range of possible choices could be made by the potter (see Figure 10.10). Lines linking each possible choice indicate the potential avenues open to the potter after a particular design decision was taken. This dendrogram is a little simplistic in that it does not illustrate instances where more than one decorative type is used on the same vessel. It does, however, provide an indication of the relatively simple principles involved in the creation of the vast majority of the Ronaldsway designs. Indeed the dendrogram only has nine routes from the start of decoration to the finished pot.

The implications of such a simple grammar on our understanding of the social position of the Ronaldsway design tradition is considered in Section 10.6.4.

10.6.2 The potter's approach to decoration using the Ronaldsway design grammar

Throughout the preceding discussions the manner in which pots were decorated seems to cross-cut the size categories which were of importance during the earlier stages of vessel manufacture. Instead, the focal point upon which decoration hinges is the choice of rim type, although it is unclear upon which criteria specific rim types were chosen for each vessel. Following the choice of rim type, the size of the vessel does, however, appear to have influenced the detailed form of the decoration, indicating that vessel size had more than a mechanical significance to the potter.

Figure 10.11 illustrates the steps in the decoration of Ronaldsway vessels in the form of a flow chart which represents the *chaîne opératoire* as best it can be currently deciphered. This chart does not consider in detail the nature of the finished design, but simply addresses the sequence in which the Ronaldsway design grammar was expressed, as evidence for the potter's classification of decoration.

The first step in the flow chart is the choice of whether or not to decorate the vessel. Given the difficulties of accurately calculating the number of plain vessels in the Ronaldsway corpus it is unclear how often the decision to decorate was made. Assuming that this was the path selected, the initial stage of the Ronaldsway design grammar was the definition of a horizontal zone in the upper part of the vessel, this could be achieved either using a collar, a cordon, or a horizontal line. At this point the potter had the option of applying further decoration or not, however the vast majority of the corpus indicates that if the potter had proceeded to this stage then further decoration was to be added.

If the choice of defining mark was a cordon or horizontal line, then further decoration consisting of small marks were used to highlight the line itself. This then constituted the extent of decoration. It will have been noted, that to this point the size of the vessel did not play any part in the development of these expressions of the Ronaldsway design code. In choosing to define a horizontal zone with a collar the situation was, however, slightly different. If the collar was applied to a jar, then the only option open to the potter seems to have been the infilling of the collar zone with further decoration. If the collar was applied to a bowl, the range of decorative options open to the potter were more varied, either the whole collar area could be filled, or only the lower part was decorated. In this latter instance the mode of decoration bears a close resemblance to the highlighting of a cordon or horizontal line, suggesting that, conceptually, it was only the junction of pot and collar which was important. The size of the vessel therefore retains a secondary significance, but only in specific instances.

The evidence therefore divides Ronaldsway vessels into three classes dependent initially on the rim types and only subsequently on size:

- Collared jar
- Collared bowl
- Simple vessels

The relationship of these classes can be seen in the Venn diagram shown as Figure 10.12.

10.6.2.1 The Ronaldsway design grammar and individual pot classes

The detailed way in which the Ronaldsway design grammar is articulated around these three pot classes is shown in Figure 10.13. These charts exclude instances of complex rims or decoration, since these do not seem to fit within the main school of Ronaldsway design.

From the dendrogram for collared jars (see Figure 10.13), it can be seen that there are eight different types of design considered appropriate. This represents almost the total level of diversity within the Ronaldsway grammar as a whole. In addition, collared jars are also used to create complex designs. In contrast, and despite there being almost twice as many examples known, collared bowls only contain 5 different design possibilities, and complex decoration is not present.

Figure 10.13 shows that the potter has a greater variety of choices in the sequence of production of decoration on collared bowls, than on collared jars. Nonetheless, the number of detailed designs which can actually result from this process is more varied in the case of jars. There are a number of ways of interpreting this, and these will be considered in Section 10.6.4.

The range of designs used on simple vessels encompasses the full 9 possible choices from within the Ronaldsway design grammar. The use of the applied cordon, and horizontal incision as a base for further decoration also serves to increase the apparent diversity of this broad ceramic class.

10.6.2.2 The position of anomalous designs in the Ronaldsway design grammar

The grammar designed above has been produced by focusing on similarities rather than differences. In Section 10.6.1 it was noted that there was one Collared jar (Figure A6.74 Sch 1) and two sherds with complex rim types which could not be fitted into the analysis (Figure A6.72 RonV 1 and Figure A6.78 Wes 6). These have been explained away as isolated anomalies which presumably result from individuals experimenting with the design grammar. To this list of anomalies might be added the elaborate collars shown on vessels from Ballacottier (Figure A6.11 B'co 15, Figure A6.12 B'co 16) and Skyhill (Figure A6.75 Sky 1-4). These sherds hint at further complexities concealed by the scheme outlined above, however, at present there are too few of these anomalies, and they represent such variety that it is not possible to produce separate grammars to account for them.

The possibility that Grooved ware designs have been included within the analysis of Ronaldsway designs is a matter that deserves more attention. As the discussion in Section 10.6.3 attempts to illustrate, Ronaldsway and Grooved ware designs on the Isle of Man appear to represent two ends of what may be the same design spectrum.

10.6.3 Relationship of Ronaldsway and Manx Grooved ware traditions

The previous part of this chapter has treated Ronaldsway pottery as being distinct from Grooved ware. Nonetheless, at Glencrutchery and Ronaldsway 'House' the two pot types are in association. These are the only sites at which the distinctive

flat bases of Grooved ware have definitely been found. However, there is evidence that the Grooved ware design tradition was more common throughout the Island than this would suggest. At Ballavarry in the north of the Island, a decorated slate plaque was found which bears a striking resemblance in both form and decoration to examples from Ronaldsway 'House' (see Figure 5.5). In addition, at Ballacottier, also in the north of the Island, a small piece of a flat base was also found (Figure A6.8 B'co 55). This evidence would suggest that the Grooved ware tradition was known and utilised all along the east coast of the Island.

The Grooved ware designs are typically more complex than those of the Ronaldsway tradition. Instead of simple lines and stabs, more elaborate motifs are built up out of intersecting incisions. This can be seen in the decoration on the slate plaques, and also in sherds Gle 23, 25 (Figure A6.34) from Glencrutchery, and RonH 2 (Figure A6.63), RonH 8 (Figure A6.64), and RonH 30 (Figure A6.67) from Ronaldsway 'House'. To date these designs have only been found on flat based vessels, suggesting that they were not incorporated within the main body of Ronaldsway design. It could be suggested, however, that other complex designs such as Gle 16, and 24 (Figure A6.34) from Glencrutchery, K'al 11, and 13 (Figure A6.47) from Knockaloe Beg, and RonH 25, and 26 (Figure A6.67) from Ronaldsway 'House' might also be influenced by Grooved ware traditions, although they could fit at the extreme of the Ronaldsway design tradition. Since the basal type of these vessels is unknown it places them in an ambiguous position between both design traditions.

At present the evidence shows that both the Grooved ware and Ronaldsway design traditions existed contemporaneously on the Island. The localised scale of ceramic production indicated by Chapter 8 suggests that they were probably made within the same communities. Despite this there is no clear evidence that the different styles of design overlapped during the decoration of the vessels, although their presence at the same sites indicates that they overlapped in use. It could be argued,

however, that the few complex designs suggested above represent a link between the two traditions.

10.6.4 Manx Late Neolithic design and its social implications

In the first instance, the considerable contrast between the decoration on Manx Shouldered pottery, and Ronaldsway pottery needs to be emphasised. The two bear little relationship to one another, at any level; the choice of rim type, the locations decorated, the range of techniques used, or the designs, are different in the overwhelming majority of cases. Browsing through the illustrated corpus in Appendix 6 will serve to emphasise the distinctions between these two traditions. The differing grammars which have been produced in this chapter show that it is not just the detail of decoration which is different but the underlying structure of it.

For an entirely new design tradition to be adopted further illustrates the dramatic nature of the transition from Middle to Late Neolithic on the Isle of Man. The transition also seems to have entailed a lessening of the diversity of decorative tradition on the Island such that they could be encompassed within a few simple grammatical rules. The possible implications of this for the society which produced it are considered below.

Three types of variation within design have been characterised by researchers, albeit under a variety of names (*cf.* Plog 1990; Sackett 1982, 1990; Weissner 1985):

- Iconological variation: ie, deliberate attempts to convey a message using style.
- Symbolic variation: ie, the change in a style which results from people coming into contact with alternative designs.
- Isochrestic variation: ie, the gradual changing of the form of a style as a result of individual's experimentation. (Encompassed within this aspect is Plog's 'motor

habit variation', meaning that variation which naturally occurs when an attempt is made to replicate an object).

It is possible that the Ronaldsway designs were iconological in the sense that they communicated the unity of Manx culture to the rest of the study area. If Ronaldsway decoration was used in an iconological manner within the Isle of Man one would expect to see variation as communities, or social classes, utilised designs as a restatement of their position, and in order to distinguish themselves from others. There is little evidence that this was the case. What little regional variation is present focuses on the detailed articulation of the decoration around the cordon. In the north of the Island, for example at Ballacottier (Figure A6.5 B'co 21), Ballavarry (Figure A6.24 B'va 25), and West Kimmeragh (Figure A6.78 Wes 10) the collar itself is not decorated, but is accentuated with a line of stabs above it. In the south of the Island, at Billown Circle (Figure A6.25 Bil 1), Glencrutchery (Figure A6.33 Gle 12), Park Farm (Figure A6.54 Par 1), and Ronaldsway 'House' (Figure A6.65 RonH 16) the collar is itself highlighted by vertical lines. This would seem to suggest some localised innovation, however, it must be seen in the context of the far more convincing evidence for the unity of the Ronaldsway design tradition.

The simplicity of the Ronaldsway design grammar suggests that what variation was present, for example, the regional variation noted above, was isochrestic, ie, it resulted from the undirected change which naturally occurs in the transmission of information from one generation to the next. This may explain the greater variability in the designs used in collared jars rather than collared bowls, since it is unlikely that jars were made regularly, thus allowing time for the potter's mental template to alter. In contrast, since the quantity available suggests that more collared bowls were made, it may have been easier to maintain an unchanging mental template for the pottery.

That the Ronaldsway design tradition could retain such a discrete identity whilst simultaneously accommodating the presence of the Grooved ware design school is also an area which needs exploration. In the context of the model for Late Neolithic Manx society it has been noted that the Island appears to have developed its own unique approach to material culture possibly to present a unique and distinctive identity to the rest of the Irish Sea area (see Chapter 5). In this respect the non-local nature of ideas, such as Grooved ware, may have prevented their full integration into Manx cultural life. This does, however, raise the question of what benefits there were to the local production of Grooved ware. It seems unlikely that the presence of flat bases in the Grooved ware tradition was in itself a significant enough step forward to warrant their adoption, and as Chapter 11 shows, there is no apparent distinction in the role of the two pot types. It seems more plausible that Grooved ware design is found on the Island as a corollary of the adoption of other non-material facets of cultural life, possibly socio-religious, but not funerary. It is certainly clear from the presence of Grooved ware designs on slate plaques that this design school was neither restricted to ceramics, or associated explicitly with functional objects.

In Chapter 5 the various site and artefact types which create the unified Ronaldsway culture were introduced. This study of design has served to reinforce the picture of the Isle of Man as a unified socio-economic unit during the Late Neolithic. In Chapter 8 evidence was presented that the procurement of clays and temper was for the most part a small scale and local industry within the Island-wide Ronaldsway culture. The evidence from design does, however, indicate that the grammar by which an acceptable pot form and decoration was produced was defined at a broader social level beyond the workshop. This serves to reinforce the position of pots as objects operating within society, a subject which is developed in Chapter 11.

Having examined Manx decoration in detail, the manner in which this relates to that of the rest of the Irish Sea province is now considered in order to situate the Manx practices within a broader context of contemporaneous design and to explore possible influences.

10.6.5 Manx Grooved ware compared to that in the rest of the Irish Sea province

The only area where a clear and geographically defined 'sub-style' of Grooved ware can be found is on the Isle of Man. In this region few of the features listed in Section 10.5.1 can be recognised, although the general form of the Manx decoration remains within the Grooved ware design grammar. For examples of Manx Grooved ware see Glencrutchery (Figure A6.32 Gle 2, Figure A6.34 Gle 23 and 25), and Ronaldsway 'House' (Figure A6.63 RonH 2, Figure A6.64 RonH 4, Figure A6.67 RonH 30).

On the Island there is no evidence for the internal decoration of Grooved ware vessels, and although diagonal lines and chevron patterns are known, no precise parallels can be cited from within the Irish Sea province. Perhaps the most apposite example is that of the open mouthed Grooved ware bowl from Ronaldsway 'House' (Figure A6.63 RonH 2). Throughout the rest of the study area the style of decoration on this form of vessel has been characterised as complex and structured (see Section 10.5.1), on the Manx example it is simple and haphazard.

This distinctiveness of the Manx Grooved ware seems best explained with reference to the influence of the local Ronaldsway style. It has already been noted that in some examples it is difficult to make an accurate distinction between the two styles (see Chapter 6). From the evidence presented above it seems that even the more typical Grooved ware designs received a degree of local adaptation.

10.6.6 Comparison of Ronaldsway decoration and that of surrounding areas

The Grooved ware tradition on the Isle of Man seems to be a local interpretation of a more widely known ceramic style. The regionalisation of this design style was probably a result of influence from Ronaldsway pottery, however this simply begs the question: from what does the Ronaldsway pottery style derive?

This is a subject which has been considered only rarely, and even then superficially; presumably due to the distinctiveness of the Ronaldsway material and the absence of clear parallels. Bruce *et al* (1947) in their definition of the Ronaldsway culture made a passing comparison between the collared rims of Ronaldsway vessels, and overhanging rims on Peterborough ware. This idea has been reiterated by Megaw and Simpson (1984, 169-70) who observe that there is also a correlation in form and incised decoration between the two styles. No specific parallels are cited, but it is possible to gain an idea of the similarities they are suggesting by study of Fengate vessels such as from the West Kennet barrow, Wiltshire (Megaw and Simpson 1984, fig 4.25 2) which has a collared rim typical of this type. It is harder to explain their suggestion of similarity of decoration between the two ceramic types since Ronaldsway pottery is typically incised and Peterborough wares typically cord impressed or stabbed⁴⁶. A similar case has been made to link Ronaldsway pottery with Sandhills ware in Ireland (Sheridan 1985). Once again, there is a broad similarity between the collared rims of some vessels and the Ronaldsway form, eg, vessels N2, N8, and N14 from Island MacHugh (Davies 1950, fig 28.N2, N8, N14).

Specific vessels from both the Sandhills and Peterborough traditions can therefore be seen to present parallels for the general morphology and rim form of

⁴⁶ In a similar vein it could also be argued that the Fengate style Peterborough vessel from Icklingham, Essex (Piggott 1954, pl X.2) also parallels the Ronaldsway jar form. Probably the closest parallel for a Ronaldsway jar outside of the Isle of Man is the vessel from Carnaby Top site 14, Humberside, described by Manby (1988, fig 4.5 6) as being Towthorpe ware. In considering the value of these parallels it is, however, important to bear in mind the geographical distance of these finds from the Isle of Man, and the uncertainty regarding their contemporaneity.

Ronaldsway vessels. Nonetheless, these vessels form only a minor component of the Sandhills and Peterborough repertoire and, for a link to be positively argued, a stronger case would need to be built. Perhaps more important than this slight evidence for a correlation is the absence of clear parallels for the diversity of Ronaldsway forms and decoration within these traditions.

Other similarities for the Ronaldsway collared rim form have also been suggested amongst other ceramic types. For example, Piggott (1954, 348) noted a correlation between the Manx form and those of vessels from Nether Largie South, Argyllshire (Kinnes and Longworth 1985, Argyll Un 137, 12), and Rudh'an Dunain, Isle of Skye (Henshall 1972, fig SKY 7.1)⁴⁷. The similarity is not at all convincing since these forms are hooked to produce a projecting point whereas the Manx collars are flat to the body of the vessels. Piggott (1954, 348) also suggests a broad similarity between a vessel from Eilean an Tighe, North Uist (Scott 1951) and the Ronaldsway jar form. A first hand study of the material from this site suggests that the general jar form is similar, although it is executed in a strikingly different fashion with the vessel walls being thin, fine and well finished compared to the heavy and coarse Ronaldsway pottery.

Curiously, the only detailed parallels which have been suggested between Ronaldsway decoration and that of other ceramic styles relates to a handful of sherds which are themselves atypical of Ronaldsway pottery. These sherds, B'tel 7,8,10, and 11 from Ballateare (Figure A6.20) (Bersu 1947) have cross hatched designs which, it has been suggested, is related to sherds from Lyles Hill, Co Antrim (Evans 1953, 43, fig 15.59), and the Bargrennan tomb, Dumfries and Galloway (eg, Piggott and Powell 1949, fig 21.1). These parallels do not carry any weight since the design can hardly be characterised as unusual.

⁴⁷ Both these vessels fall within the Achnacree classification used in this thesis.

What is striking about all these suggested parallels is that none of the ceramic traditions from which they are derived were definitely used on the Isle of Man prior to the development of Ronaldsway pottery. Similarly, no parallels can be made with the only Middle Neolithic ceramic type present on the Island, Shouldered pottery. This seriously weakens the case for direct external influence between the developers of Ronaldsway pottery and the users of Peterborough, Sandhills and Achnacree wares. It might, however, be the case that in the process of independent innovation, Manx potters utilised concepts which they were aware of from elsewhere but had not previously adopted.

10.7 Latest Neolithic pottery

The scarcity of Beaker pottery on the Isle of Man has already been noted, with only two assemblages being recorded on the island. There is a large quantity of Beaker pottery from the study area generally, however, and the possibility that this might be useful in providing an impression of the diversity of decoration which was used on the Isle of Man is worth consideration.

Beaker pottery provides a clear illustration of a unity of design, based around linear decoration, frequently arranged concentrically (eg, Sizergh, Cumbria, Clarke 1970, fig 23), or in more complex chevron, and panel designs (eg, Ysgwennant, Gwynedd, Clarke 1970, fig 896; and Bwlch-y-Gwrhyd, Gwynedd, Clarke 1970, fig 685). Comb and cord decoration are common on Beaker pottery representing a departure from Late Neolithic practice, although incision and stab designs were still often used (eg, Largantea, Co Derry, Herring 1938, fig 5.B3; and Ainstable, Cumbria, Clarke 1970, fig 285).

Study of Beaker pottery is considerably aided by the Latest Neolithic practice of burying a complete vessel with the deceased, which has allowed a large number of whole vessels to be recovered for analysis. Furthermore, within the unity of Beaker

design noted above there is much minor variation which has hinted to academics the possibility of typologies internal to the Beaker corpus. The first attempt at a Beaker typology was produced by Thurnam (1870) who suggested that the form of Beakers could be sub-divided into three main shapes which he termed alpha, beta, and gamma. Despite considerable variation around this classification, it was not until David Clarke's work that decoration was generally recognised as a valid element of Beaker analysis (1970). Clarke suggested, on the basis of shape, decoration, and the motifs created, that Beaker pottery could be classified into 7 phases, each corresponding to a point on the continent from which the ideas were received, followed by local adaptation. In response, Lanting and van der Waals produced a contrasting 7 step chronology for Beakers based on a more flexible analytical framework. This in turn was succeeded by Case (1977) who suggested a more generalising three phase scheme of Early, Middle and Late Beakers, based on Clarke, and Lanting and van der Waals work.

The possibility of testing the chronological validity of these analyses of Beaker form and design was not present until 1991 when the results of the Beaker dating programme were published (Kinnes *et al* 1991). This publication showed that there was little chronological validity to any of the classifications of style previously produced. The range of decorative variety apparent within Beaker pottery cannot therefore be explained as a factor of chronology.

In the most recent analysis of Beaker decoration Boast (1995) has accepted this lack of chronological patterning and has also noted that no clear rules are apparent in the structuring of Beaker design. This he observes may be because Beaker design was not a systematic practice, but reflects 'a set of designs sharing a common set of elements but formed from a variety of local contingent and vernacular intentions' (Boast 1995, 75). Given that this is the case there is little possibility of estimating the decorative diversity of Beaker pottery used on the Isle of Man on the basis of the sherds currently known.

What can, however, be noted is the considerable variation between Late Neolithic pottery decoration and that of Beakers. It has already been observed in Chapter 9, that the adoption of the Beaker form probably involved a significant change in the skills required by a potter. The transition to the use of Beakers must also have required a considerable alteration to the potters' concept of design. It seems that in the transition to the Latest Neolithic potters moved from the structured approach to design creation documented above, to a more flexible creative process which varied according to individual circumstance. Potters working in the Beaker style might therefore be said to have needed more originality of perception than was necessary previously, and doubtless there were some for whom the transformation of their craft reflected too great a step to be accepted in its entirety.

10.8 Conclusion

The study of Manx decoration has shown that there is a clear structure to the range and combination of designs which were used in the Middle and Late Neolithic. This is particularly true of the latter period, where a very simple design code can be used to produce all of the different elements currently known from the pottery. Such evidence can be taken as indicating that Manx ceramic decoration was a highly socialised activity where traditional conceptions of appropriate design limited the extent to which an individual potter could, or would want to, innovate. Similar instances have been noted in ethnographic studies (see Arnold 1975) which described instances where potters producing non-standard designs failed to maintain a niche within a traditional potting community.

The extent to which these Manx styles relate to contemporaneous designs elsewhere in the Irish Sea province varies significantly through time, and would appear to support the case proposed in Chapter 5 for change in the degree of interaction between the Isle of Man and the rest of the British Isles.

During the Middle Neolithic, ceramic decoration indicates that Manx potters had a high degree of familiarity with the design styles being used in northeast Ireland and southwest Scotland. Nonetheless, there is still evidence for a degree of innovation in the Manx practices, just as has been shown in the development of Manx tombs from more widely known traditions. When compared to the great diversity of design styles current throughout the Irish Sea province in the Middle Neolithic the reorientation and cultural isolation of the Island during the Late Neolithic described in Chapter 5 is further reinforced by the largely futile attempts to source, or even compare, the Ronaldsway designs. At present there is little evidence to suggest that this decorative style was other than a local innovation. Against this picture of innovation and isolation must, however, be placed the evidence for Manx use of Grooved ware. This design style had a wide currency throughout the British Isles in the Neolithic and yet was still incorporated within an otherwise distinctive Manx material culture.

In the case of Beaker decoration, there is little evidence with which to compare the Manx style of design to that used in the rest of the Irish Sea province. What evidence there is, however, does give little reason to believe that the Manx interpretation of Beaker design was any different from that adopted elsewhere, whilst it does represent a significant change from Late Neolithic design practice.

11. A study of vessel use on the Isle of man compared to the roles of pottery elsewhere

So far attention has concentrated on the production of the pot and the approach adopted by the potter in this process. All of this preparation obviously leads to the use of the pot, yet archaeologically this is one of the least studied parts of vessel biography. As both Senior and Birnie III (1995, 319) and Braun (1983) note, prehistoric vessels were made to be used, whilst it is generally at this stage in a vessel's biography that archaeological analysis ends.

The present study of vessel use is arranged as follows. First, the methodologies available for the study of vessel use are detailed, drawing on supporting data from Appendix 11. Second, the roles of the major pottery types used throughout the Irish Sea province are considered in order to set the scene for, and provide comparison with, Manx ceramic practices.

11.1 Methodologies for the study of vessel use

Despite the general lack of archaeological interest in vessel use some notable steps forward have been made. These have been introduced in Chapter 3. At that point a tripartite division of use was introduced based on the life cycle of pots and the availability of archaeological techniques. The various methodologies available for the study of these phases of vessel use were also touched upon at that time. To recap, these divisions were:

- Intended function

Informing methodologies: Vessel size, and shape

- Daily function

Informing methodologies: Surface wear, and context of deposition

- **Depositional function**

Informing methodologies: Surface wear, and context of deposition.

The overlap in the techniques available for the analysis of daily and depositional function makes analyses without secure contextual information difficult. In the discussions which follow, the available techniques are therefore employed in the situations which seem most appropriate to the particular pots being analysed.

11.1.1 Techniques for the study of Intended use

11.1.1.1 Analysis of vessel size

It is self-evident that the creation of pots of a specific size is an important factor in designing a vessel for a specific intended use. This factor has been generally ignored until recent years. In part this may be a consequence of the largely fragmentary nature of most ceramic assemblages which prevent the study of whole vessels. As the following analysis will show even within the Irish Sea province alone there are sufficient vessels of most types to allow study.

In addition, outside of the Irish Sea province there have been a number of studies with which the results of the present work can be compared. Thomas (1991) produced a study of pottery in Southern England in which he noted that Early Neolithic pottery, Peterborough vessels, and Beakers were made small enough to be used on an individual basis. In contrast Grooved ware vessels tended to be much larger, suggesting group or communal use (Thomas 1991, 93, 102). The small size of the assemblages used in Thomas' analysis may cast doubt on the results obtained, but they certainly provide an indication of the value of volumetric analysis.

The most extensive study of Neolithic ceramic volumes yet undertaken relates to Beaker vessels. Case (1995) has calculated the capacities of 301 beakers taken from Clarke (1970). From this he noted that beakers fall into two main size ranges: a cluster around 500-2000cc and a scatter of vessels larger than this. From this Case observed that some beakers were too large to be drinking vessels (*contra* Thomas 1991). He also noted that there was a slight tendency for large beakers to be deposited with adult burials; whilst small beakers were placed with children.

The range of methodologies available for volumetric analysis are detailed in Appendix 11. In the present work volumes are calculated using the summed cylinders technique applied to reconstructable vessels. This technique is detailed by Rice (1987, 220) and summarised in the same appendix.

11.1.1.2 Analysis of vessel shape

As with the calculation of vessel volume, the calculation of vessel shape relies heavily on complete, or near complete, vessels. This necessarily limits the quantity of the assemblage which can be classified to a sample, which may not then necessarily be representative of the parent assemblage (see Appendix 11 and *contra* Cleal 1993).

The basic reasoning behind the analysis of shape is that the form a potter creates is related to the intended function of a pot (see Howard 1981; Hally 1986; Rice 1987, chap 7). For example, a vessel with an open form will be more likely to be used for serving rather than for storage since it allows easy access to the vessel's contents. Similarly a bowl will be more convenient for access to a vessel's contents than a jar (see Figure 11.1). Although this approach indicates the functions to which the vessel is best suited it does not necessarily indicate its daily role. For example Rice (1987, fig 7.14) illustrates a range of cooking pots from different cultures which employ greatly differing forms for the same function. Vessel shape is therefore best studied in conjunction with other evidence (see Howard 1981, tab 1.1).

The methodology developed for the classification of vessel shape within this thesis, as well as a review of the other available techniques, is given in Appendix 11. This methodology focuses upon the degree of openness of the vessel form since this correlates with the ability to access the pot's contents.

11.1.2 Techniques for the study of daily and discard use

11.1.2.1 Analysis of surface characteristics

The difficulties involved in studying a vessel's daily use have already been noted in Chapter 3. Evidence of surface wear in a vessel can be particularly treacherous since a wear pattern derived from the use of a pot as a mortar might also be derived from post-depositional weathering. Such signs must therefore be treated with caution and considered as of potentially natural causes. Sooting or residue traces are also difficult to interpret since they may also be derived from post-depositional causes, but in these instances there is a greater possibility of ascertaining that this has been the case. More details of the approach adopted to this form of evidence can be found in Appendix 11.

11.1.2.2 Context of deposition

The scarcity with which pots are recovered from *in situ* locations has already been noted, in consequence this discussion focuses on the location at which vessels were discarded.

In Chapter 3 a model was produced from which to interpret the nature of Neolithic pottery discard patterns (Figure 3.2). The discard processes illustrated in this model result in either the deposition of the pottery on the surface and its rapid destruction, or its burial and therefore its protection from most erosional forces. Two types of burial can be discerned: chance and deliberate. The former class represents the

unlikely preservation of surface deposits by their burial beneath earthworks or their incorporation into ditch fills. On the other hand, deliberate burial constitutes a considered act, and thereby imparts a final symbolic role to a vessel in addition to those it acquired during daily use. It is therefore important to be able to distinguish between chance and deliberate contexts if the full range of functions relevant to each vessel is to be established.

This subject is explored in more detail in Appendix 11 where the depositional status of objects found in contexts of specific types is considered. In summary, features which are rapidly sealed are taken to be indications of deliberate burial, whilst open features such as ditches filled beyond the primary levels, old land surfaces, or material derived from such surfaces are taken to be chance deposits. This approach allows a systematic appraisal of the evidence, whilst it does of course require tempering by the specific details of each situation.

11.1.3 Conclusion

In the sections which follow the various ceramic types used in this thesis are considered. All ceramic types are explored in terms of intended and discard function. Only a few types are considered in terms of daily use, and then only with reference to specific examples.

11.2 Early Neolithic ceramic practice in the Irish Sea province

The absence of Early Neolithic Carinated pottery from the Isle of Man has already been noted. This point in the thesis does, however, present the opportunity to assess possible reasons as to why the Manx population ignored this innovation.

11.2.1 The roles of Carinated bowls

All of the reconstructable Carinated bowls present in the study area have a volume of more than 1.5 litres, with the largest example being c14.5 litres (see Figure 11.2). The spread of vessel sizes between 1.5 and c8 litres is fairly smooth with no obvious bunching. The vessel from Machrie Moor (Haggerty 1991, fig 3.3a) with a volume of c14.5 litres therefore sits slightly anomalously within the current distribution of sizes. It is notable that Carinated vessels do not appear in all sizes, but are rather confined to what might be termed the group and communal size ranges, ie, vessels capable of fulfilling more than the needs of the individual⁴⁸ (see Table A11.2 in Appendix 11).

The open shape of the vessel is also striking as this is not a design which is particularly suited to storage since it is difficult to cover and allows a large surface area to be exposed to the air (see Rice 1987, tab 7.2; also Hally 1986). The two remaining utilitarian functions to which these vessels were well suited are cooking pots, or serving vessels. At present it is difficult to argue that Carinated pottery was better suited to one function over the other. It is, however, worth noting that Herne (1988) in a study of this ceramic type believed that the high quality of the pottery argued against a utilitarian role, although evidence presented below shows that Carinated pottery does occasionally have traces of burning. A final point which is worth mentioning is that a few sherds from Ballymarlagh, Co Antrim (Davies 1949) had holes drilled in them after firing, presumably in order to repair the vessel. This might be taken as an indication of the value of the vessels, whilst it also shows that in practice the vessels had uses other than cooking, since a repaired vessel could not subsequently be used over a flame.

⁴⁸ The longevity of the Carinated pottery tradition is one of its most striking characteristics, and a communal role for the vessels would go some way to explaining this uniformity. If the vessels were indeed used communally then change in their design would affect a greater number of people and might therefore meet with more resistance than change in the design of individual vessels (Arnold 1985, Rice 1987).

Turning to the depositional role of Carinated pottery, the available sample shows a near even split between the frequency of burial in chance (21 sites) and deliberate contexts (25 sites) (see Table A11.6 in Appendix 11)⁴⁹. Nine of the sites at which ceramics were deliberately buried produced reconstructable vessels, and it is noteworthy that in three instances these vessels were from pit clusters, ie, Carzfield, Dumfries and Galloway (Maynard 1993), Machrie Moor, Arran (Haggerty 1991), and Newton, Islay (McCullagh 1990)⁵⁰. This practice of deliberately burying a reconstructable Carinated vessel in a pit is well documented in the rest of the British Isles (see Herne 1988). That no complete vessels are recorded at these sites, but rather representative sherds is also interesting, as is the fact that the base is always missing. This may be because the base can be reused as a plate, or lid, after the vessel itself has broken (*cf.* Rice 1987), alternatively it might be said that the base is the most difficult part of a vessel for an archaeologist to reconstruct from sherds and is therefore rarely recognised.

At Carzfield, Dumfries and Galloway, and Newton, Islay, the sherds were present throughout the pit layers indicating that the pit had been deliberately filled. At the first site, the pottery was also accompanied by flint flakes, a polished flint flake, pitchstone bladelets, and flakes of Group VI axe. At Machrie Moor, Arran, sherds were also found in pits with pitchstone and flint flakes, charcoal, and hazelnuts. Other pits at the site produced similar assemblages. The pottery was therefore part of a larger assemblage, presumably including biodegradable materials, and certainly including materials which had not reached the end of their functional life, ie, the lithic flakes. Given that such deposits are unlikely to be rubbish burial it can only be concluded that broken Carinated bowls were used at this site as part of a wider ritual practice. In this respect it is interesting to note that sherds at Carzfield

⁴⁹ From this sample, there is no evidence for pots of a particular size range being found on particular site types.

⁵⁰ A further pit deposit was found at High Crosby, Cumbria (Flynn and McCarthy 1994), however, insufficient details have been released from which to assess the evidence at this site (McCarthy *pers comm.*)

were reburied in places, and were occasionally sooted. This may have been a part of the burial practice, or have been acquired during previous usage.

Turning to the other contexts at which Carinated pottery is found, reconstructable vessels have been retrieved from 3 court tombs. The contexts at these sites include forecourt features and blocking, which might be related to funerary ritual. In this context, the Carinated sherds found in the forecourt at Browndod, Co Antrim (Evans and Davies 1936) were also fire-blackened, possibly as a part of the funerary ritual. At Ballintaggart, a vessel was found in the chamber itself, presumably as an offering or grave good for the dead. It should, however, be noted that since these site types are Middle Neolithic, the associated Carinated vessels must also be of the same date. It cannot therefore be assumed that the deposition of pottery with the deceased was common practice in the Early Neolithic.

11.2.2 Early Neolithic ceramic practice and the Isle of Man

The picture developed above for Early Neolithic ceramic practice indicates that Carinated pottery was discarded in predominately ritualised contexts such as the pit clusters noted previously. That this ceramic type had ritual connotations may well have been a contributory factor in the Manx population's apparent decision to avoid the use of pottery at this time. A further point has also been noted in Chapter 5 that there is little evidence that Manx communities were sedentary at the start of the Neolithic. In this respect, the fragility of pottery during transportation must be considered as possibly counter-balancing the various benefits of pottery, ie, that it is fire-proof, that it is non-biodegradable, and that it can be made water-proof.

11.3 Middle Neolithic ceramic practice

In contrast to the limited number of forms used in the Early Neolithic, the Middle Neolithic saw a considerable increase in the range of ceramic forms and practices. The use of these ceramic types are reviewed below, and the manner in which they relate to Manx practices considered subsequently.

11.3.1.1 *Achnacree ware*

The Achnacree bowl, can be seen as a Middle Neolithic extension of the earlier Carinated phenomena, albeit in a very stylised form, eg, Achnacree, Argyllshire (Henshall 1972), or Nether Largie South, Argyllshire (Greenwell 1877). They generally retain a slight shoulder angle and the rim is everted, albeit hooked. Nonetheless, the size range for this vessel is markedly different from Carinated vessels.

Of the 10 Achnacree bowls available 8 have a volume of less than 2.5 litres, with the smallest being c0.3 litres (see Figure 11.3). Two major size clusters can be identified, one around 0.5 litres, and another at c2 litres. The largest Achnacree vessel, from Balloch Hill, Argyllshire (Peltenburg 1982) is c41.5 litres. This is one of the largest Neolithic vessels yet recorded in the British Isles, another example of similar size being a Grooved ware vessel from Durrington Walls (Wainwright and Longworth 1971, fig 32). Considerable time and skill must have been invested in the production of this vessel and it is difficult to imagine it as representative of the ceramic repertoire as a whole.

The smaller cluster of vessel sizes at 0.5 litres suggest that they could have held individual rather than group-sized portions (see Appendix 11), whilst for the focus at 2 litres the reverse might be true. This evidence for a size division into two classes seems to be reinforced by slight formal distinctions. Three of the smaller vessels have lugs (eg, vessels from Achnacree, Argyllshire, Henshall 1972; and

Audleystown, Co Down, Collins 1954), whilst no larger vessel has this feature. In addition, larger vessels seem to have less pronounced shoulder angles, with the example from Glenvoidean, Isle of Bute (Marshall and Taylor 1977, fig 8.a) having none at all. This broad correlation of size and morphology suggests that Achnacree bowls were produced with two different templates, and presumably two different intended functions, in mind. In terms of broad morphology, vessels in both categories have a neutral form suggesting they would have been well-suited to cooking or serving.

Turning to the context of deposition, Table A11.6 (in Appendix 11) shows the frequency with which ceramic types have been recovered from deliberate and chance burial contexts. In the case of Achnacree vessels it is striking that all the available finds were deliberately buried⁵¹. This would suggest that Achnacree vessels were closely related to ritual practice. Indeed, all 6 of the Achnacree finds which can be contexted closely have come from tomb chambers, arguing for a role as either the containers for offerings, or as offerings in themselves. Interestingly, it is only in Scotland, at Glenvoidean, Isle of Bute (Marshall and Taylor 1977), Giants Graves, Arran (Henshall 1972), and Nether Largie South, Argyllshire (Greenwell 1866), that Achnacree vessels have formed the only ceramic grave good. In the remaining instances in Scotland, and at both of its Irish findspots, Achnacree pottery has been associated, albeit loosely in some cases, with at least one other ceramic type (see Table A2.21, in Appendix 2).

Although their final depositional contexts argue for a purely ritual role for this ceramic type, it is striking that at Glenvoidean two of the complete vessels (Marshall and Taylor 1977, fig 8a and b) have clear evidence of use prior to deposition. This is shown by the presence of repair holes bored on either side of fractures. Also of relevance is the thick carbon deposit which underlies the rim of

⁵¹ In the case of the vessel from Balloch Hill, Argyllshire (Peltenburg 1982) sherds were found out of context, however, the argument can be made that since such large pieces were found, the vessel could not have been exposed on the surface for long and was probably deliberately buried and then disturbed.

the smaller of the two vessels (Marshall and Taylor 1977, fig 8a)⁵². This clearly indicates that the vessel was at some point placed over a flame. This probably occurred prior to its damage and repair since if a vessel which had been repaired in such a way was placed back onto a flame the repair sutures would quickly burn through. Whether the repair was effected immediately prior to the vessel's deposition in the tomb at Glenvoidean is unclear. In this instance it is possible, however, to recognise at least a part of the life history of a vessel prior to its deposition. It also illustrates that the absence of Achnacree vessels from chance deposits is not in itself an argument against their use in daily life.

11.3.1.2 *Drimnagh bowls*

The striking diversity of decoration on Drimnagh pottery has already been commented upon in Chapter 10, whilst the morphology of the vessels can also be observed to be distinctive. They are all characterised by a closed form, often with extreme restriction at the aperture, eg Baunogenasraid, Co Carlow (Raferty 1974, fig 8), and Ballintruer More, Co Wicklow (Raferty 1973, fig 3). Such a form does not allow easy access to the contents of a vessel, whether by pouring, or retrieval by hand. These two factors in conjunction can be taken to illustrate that this ceramic type was not suited to utilitarian roles.

In a few instances, eg, Drimnagh, Co Dublin (Kilbride-Jones 1939, fig 1), or Dalkey Island, Co Dublin (Liversage 1959, fig 2.159), Drimnagh bowls have been found with holes around their top which had been pierced before firing. This would argue that the bowls were designed to be hung up. In addition, the bases are often decorated, further supporting the idea that they were designed to be viewed from below.

⁵² To this might be added that sooting was also found beneath the rim of the vessel from Achnacree itself (Henshall 1972) which further indicates that these vessels did have an active role prior to deposition.

Given that the vessels are unlikely to have been designed with a utilitarian function in mind the analysis of vessel size along functional lines is a somewhat spurious exercise. The size range represented is between 0.5 and 3.75 litres (see Figure 11.4): 86.4% of the sample of 22 have capacities of less than 2.25 litres, the 3 outliers have capacities between 3.25 and 3.75 litres. The distribution of sizes is fairly continuous between 0.5 and 2 litres.

As with Achnacree vessels, the contexts in which Drimnagh bowls are found show a strong bias towards deliberate deposition (see Table A11.6, in Appendix 11), and it is apparent that in many cases the bowls were deposited complete (eg, at Linkardstown cists). This reinforces the impression of the Drimnagh bowl as a vessel which generally had a non-utilitarian role. Unlike Achnacree vessels there are, however, clear instances in which Drimnagh pottery has been recovered from occupation deposits. For example, at Auchetagan, Argyllshire (Marshall 1978), Dalkey Island 2, Co Dublin (Liversage 1968), and Rothesay, Isle of Bute (Scott 1968). The former two can be described as chance buried scatters, whilst the latter is an anomalous feature excavated with minimal recording. In consequence, although we have a hint of a non-funerary role for Drimnagh bowls there is insufficient contextual evidence from which to pursue this avenue.

Turning to the funerary deposits themselves, Drimnagh bowls are generally found in the chambers of Court tombs and Linkardstown cists, as well as the occasional find in unclassified and Portal tombs (see Table A2.22, in Appendix 2). Their use in both Court tombs and Linkardstown cists is in itself interesting, since the former is a communal and the latter an individual burial site. We can therefore suggest that the Drimnagh bowl was appropriate as a grave good specific both to an individual, and as an offering to a community of bodies. Nonetheless, it must also be considered that the Drimnagh bowls included at Court tombs were intended to accompany individual bodies. It is noticeable that when Drimnagh bowls are used in Court tomb contexts they are frequently associated with other ceramic types, eg,

Sandhills ware, and Shouldered wares (see Table A2.22, in Appendix 2). In contrast, in Linkardstown cists, they are very often the sole ceramic grave good.

As with the Achnacree vessels from Glenvoidean (Marshall and Taylor 1978), and Achnacree itself (Henshall 1972), Drimnagh bowls from burial deposits have been recovered with evidence of pre-depositional usage. For example, in Scotland at Bickers' Houses, Isle of Bute, Clachaig, Arran, and Beacharra, Argyllshire (Henshall 1972) vessels have been found with blackening to the lower part of the exterior. The same has been found in Ireland on vessels from Baunogenasraid, Co Carlow (Raferty 1974), and Ballykeel, Co Armagh (Collins 1965). The location of the sooting argues that the vessels were placed over a flame, and it is tempting to suggest that this may have occurred as part of the burial ritual.

11.3.1.3 Peterborough ware

Peterborough pottery represents one of the best documented ceramic traditions in Britain (see Piggott 1932; Smith 1956; Gibson 1995), with a very considerable number of finds having been made throughout the British Isles. Nonetheless, the evidence within the study area is particularly weak, since very few finds have been made, and none of these were of reconstructable vessels. It will not therefore be possible to comment on the size range of Peterborough vessels, or of the range of shapes they cover. Discussion of their function is reserved for their role in depositional contexts.

The variety of context types at which Peterborough pottery has been found shows a marked bias towards deliberate rather than chance burial contexts (see Table A11.6, in Appendix 11). It is unfortunate that at present such a large proportion of Peterborough finds are uncontexted (61.5% of total). This pattern presumably relates to the curation practices surrounding this ceramic type.

Peterborough pottery has not yet been found in secure association with other ceramic types within the Irish Sea province, and indeed, throughout much of its distribution in Britain it is the only Middle Neolithic ceramic type in use. It would therefore be surprising were it not to fulfil a wide variety of different functions both during 'active' life, and in deposition. This might explain the fact that Peterborough ware has been found at both occupation and burial sites, including Court tombs, and unclassified tombs (see Table A2.23, in Appendix 2). It will be difficult to explore its roles more precisely until better contexted finds become available.

11.3.1.4 Sandhills ware

Sandhills ware is the first ceramic type to be documented within this chapter which occurs in a seemingly uniform size distribution from very small individual vessels (c0.25 litres) to large communal bowls (c11.5 litres) (see Figure 11.5). This might indicate that within the Sandhills tradition are vessels which were perceived as being of different type, and with different functions, during the Neolithic.

This view is reinforced when one considers the shape of Sandhills bowls; of the reconstructable vessels, 15 are globular, 4 are neutral and 3 open (see Table A11.5, in Appendix 11). Globular forms dominate the size distribution up until 1.85 litres at which point the other shapes begin to occur. Although this change in shape is subtle, when it is correlated with the change in size it can be suggested that the different sizes of Sandhills vessels reflect different intended functions. The more open shape of the large vessels makes them well-suited to cooking or serving whilst the globular form is better suited to storage.

Sandhills bowls and Shouldered bowls are the only Middle Neolithic vessels to occur frequently in chance burial deposits, although in both cases they are more commonly found when deliberately buried (see Table A11.6 in Appendix A11). This can be taken to indicate that Sandhills ware was not treated with the same care as the previously described Middle Neolithic pot types, although it might also

suggest that it was far more common than the other types and therefore more likely to be found by chance.

Looking at the contexts at which Sandhills ware is found the great diversity of types is striking, encompassing as it does the chamber of every tomb type current during the Middle Neolithic.

The presence of Sandhills bowls in the chambers of Boyne Passage tombs is particularly interesting since it is the only ceramic type to be used there, indicating that it was an integral part of the funerary ritual in this context (Herity 1974). In contrast, at Court, and Portal tombs, Sandhills ware is more often found with such pottery types as Drimnagh, and Shouldered vessels (see Table A2.24, in Appendix 2).

The variety of occupation sites at which Sandhills ware has been found is similarly varied. Goodland, Co Antrim (Case 1973) was a pit cluster, which the excavator interpreted as being a ritual site. In form it is closely related to the pit deposits associated with Carinated pottery during the Early Neolithic, albeit on a larger scale (see Section 11.2.1). At Scotch Street, Co Armagh (Hamlin and Lynn 1988), Sandhills ware was found in the ditch of a pennanular shaped enclosure of uncertain function. At a large number of other sites Sandhills ware has been found as part of a buried surface scatter (see Table A2.24, in Appendix 2).

Given the variety of site types at which this ceramic is found, it is not surprising that they should exhibit diverse evidence for use-wear. At Windy Ridge, Co Antrim (Woodman *et al* 1992), Clontygora Large Cairn, Co Armagh (Davies and Paterson 1938), and Murlough Bay, Co Antrim (Hewson 1936) sooting was noted on the exterior of vessels. In addition, a vessel from Beacharra, Argyllshire had parts which were more orange and friable, as if the surface had been refired (Henshall 1972, fig ARG27.1). This evidence shows that on occasion vessels from both

occupation and burial sites were placed over a flame. Furthermore, at Windy Ridge, the coarseness of the sherds suggested to the excavator that the fabric was suited to cooking (Woodman *et al* 1992). Evidence is also available for sooting on the inside of Sandhills vessels, eg, Loughcrew R2, Fourknocks 1, Clontygora large cairn (vessel R), Island Machugh, and Rath. The vessel from Rath also contained 'ashy material' along with an object tentatively identified as a burnt fingerbone (Prendergast 1959), whilst a bowl from Monknewtown (Sweetman 1971) contained small amount of cremated bone mixed with clay. This, along with the use of Sandhills pottery at Passage tombs, provides further evidence to link this vessel type with cremation rituals.

The quantity of Sandhills ware available for study, as well as the range of shapes and sizes it comes in, and the variety of site types at which it is found, are clear indications of the versatility of this ceramic type.

11.3.1.5 Shouldered bowls

As the most obvious successors to the Carinated bowl tradition, as well as the only Middle Neolithic ceramic type used on the Isle of Man, a consideration of the functions to which Shouldered pots were best suited is of particular interest.

Shouldered vessels exhibit a wide range of capacities from c1.04 - c11.4 litres, with no real evidence of clustering within this range (see Figure 11.6). This size range is broadly the same as that for Carinated pottery, which would suggest that this vessel form retained a role as a communal vessel as it developed from the classic Carinated form towards a more angular and upright shape, eg, Cairnholy 1, Dumfries and Galloway, Piggott and Powell (1949, fig 7.2); Killaghy, Co Armagh, Evans (1940, fig 1.1).

This change in shape makes the vessel slightly better suited for storage than was the Carinated form since the orifice is less open and therefore easier to seal. It is

also noteworthy that the more neutral form and higher sides of many of these vessels makes them less suitable as communal food bowls since access to the contents is more restricted. In addition, the increased ratio of maximum diameter to height raises the vessel's centre of gravity and makes them less stable. These points argue against the suitability of the vessel form as a communal serving pot, although it cannot be said that it was not used as such. No correlation is apparent between the openness of the vessel and its size.

Interestingly a number of vessels within this type have internal decoration on their upper parts which suggests a role in display, even though decoration would be obscured by the vessel contents. The nature of this decoration was discussed in more detail in Chapter 10 and it seems likely that the designs used were often intended to draw the eye towards the contents of the vessel (see Section 11.5.1).

Although Sandhills pottery is marked by its diversity, it would appear that Shouldered pottery was the real backbone of Middle Neolithic ceramic practice throughout the Irish Sea area. It has been found in direct association with sherds of every contemporaneous ceramic type in the Irish Sea area, with the exception of Peterborough ware (see Table A2.29, in Appendix 2). This could be a consequence of its derivation from Early Neolithic Carinated pottery, which may have lent Shouldered pottery something of the privileged status of its predecessor as an integral part of most ceramic assemblages.

Whilst Carinated pottery was often deliberately placed in pit deposits, it does not seem that this material culture tradition was widely perpetuated in the use of Shouldered pottery⁵³. The depositional role of this pottery type seems therefore to have altered from that of Carinated pottery. Shouldered pottery is frequently found in tomb deposits (see Table A2.25, in Appendix 2), although this change in depositional status should not be seen as surprising since it is only in the Middle

⁵³ A single find of sherds of Shouldered pottery from a pit context has been made at Goodlands, Co Antrim (Case 1973).

Neolithic that there is a proliferation of tomb building. At these tomb sites, a very high proportion of the Shouldered vessels come from the chamber itself, suggesting a role as offerings or grave goods in these contexts. The relationship between the role of Shouldered pottery in tomb deposits on the Isle of Man and in the rest of the study area is explored in more detail below.

Unlike Drimnagh and Sandhills pottery, the use of Shouldered wares in tomb deposits appears to have been restricted for the most part, to Court tombs. The absence of Shouldered pots from Passage tombs, Wedge tombs, or Linkardstown cists is striking. Of all the tomb types it is easiest to find a derivation for Court tombs, with their broad form being similar to that of the early Neolithic crematoria. The use of Shouldered pottery with its connotations of tradition, may therefore have seemed appropriate, whereas these connotations may have been ill-suited to the other more innovative burial forms of the Middle Neolithic.

Away from tomb contexts, Shouldered pottery is also found at a variety of occupation deposits, frequently being preserved as a result of chance deposition (see Table A11.6, in Appendix 11). It is clear from this that the antiquity of the Shouldered form did not restrict its use to ritualised practices. For example, occupation scatters have been found at Bay Farm 2, Co Antrim (Mallory 1994), Knowth, Co Meath (Eogan 1984), and Shane's Castle, Co Antrim (Sheridan *pers comm.* 1996), amongst other sites.

11.4 The relationship of Middle Neolithic ceramic types

In considering the functional relationship of Middle Neolithic ceramic types it is important to remember that the dataset can only be treated at a general level due to the lack of contextual definition in many cases. The possibility of reconstructing typical Neolithic household assemblages is also beyond the ability of the current analysis since this study has focused on the most readily identifiable types within

assemblages which frequently also contain sherds from less diagnostic vessels, ie, small plain bowls. More detailed analysis which attempts to accommodate these two factors is, however, undertaken for Manx Late Neolithic pottery.

Despite these limitations a number of general observations can, however, be made. In the first instance, the presence of Shouldered pottery can be noted as a feature of all parts of the Irish Sea province (see Figure 4.14). This is of interest given the roles to which this vessel type is well-suited, ie, as communal serving vessels. If Shouldered pottery was indeed used for this purpose then it suggests a common approach to dining throughout all parts of the Irish Sea province regardless of other regional variations in material culture practices. It is also interesting that Shouldered pottery is a common part of funerary ritual throughout all parts of the Irish Sea province. The inter-regional importance of this ceramic type seems certainly to be a consequence of its derivation from Carinated pottery, the importance of which in the Early Neolithic has already been noted.

In addition to the generally high quality products of the Shouldered pottery tradition, potters in most parts of the Irish Sea province also produced either Sandhills, or Peterborough wares (see Figure 4.16). The morphological similarity of these vessel types suggests a varying regional response to the same need. In the case of Sandhills wares the vessels come in a variety of sizes and are often coarse. These factors, and their variable shape, make them well-suited to a variety of roles from individual serving to large cooking pots. The varying nature of contexts in which Sandhills vessels are found reinforces the impression of a style with a variety of uses. It is unfortunate that Peterborough pottery has not been better preserved throughout that part of Britain which falls within the Irish Sea province, although its appearance in a variety of different contexts seems to support the case that it too fulfilled a variety of roles. To the probably rather specialist usage of the Shouldered bowl we can therefore add a more utilitarian and multi-purpose ceramic type to the range available to pot users in the Irish Sea province. Within England and Wales

these two types of ceramics appear to have been sufficient for the demands of Neolithic communities. In Scotland and Ireland, the Achnacree and Drimnagh bowls were also used, presumably reflecting additional needs of communities in these areas, or perhaps just an alternative response to a need felt throughout the Irish Sea province.

Drimnagh pottery is the most widespread of these ceramic types (see Figure 4.11) and the form and elaborate decoration of these vessels indicates their suitability outside of the utilitarian context. The possibility that they were designed to be hung up when not in use has been discussed, and their role in funerary contexts has also been noted. This evidence still, however, suggests the suitability of Drimnagh bowls in more than one type of funerary context and argues against a dogmatic view of a single function for this ceramic type.

Finally, Achnacree pottery was used by communities in south west Scotland, and north east Ireland, thereby adding a fourth layer to the levels of ceramic variability in these areas. Morphologically these vessels suggest a strong association to Shouldered pottery forms, whilst the fact that they seem to have been made in two broad size classes suggests they were made with more than one intended use in mind. Despite the broad morphological similarity to Shouldered pottery, this ceramic type is far rarer, and, on the available contextual evidence, was deposited in a much smaller range of situations, primarily within the tomb chamber. This would suggest that the Achnacree vessels had a specific role in the funerary ritual of communities in these areas for which the ceramic types used elsewhere, eg, Sandhills and Shouldered pottery, were not seen as suitable.

Even at a regional level there is therefore significant evidence for a variable approach to ceramic usage throughout the Irish Sea province, in terms of the range of ceramic types which different areas had available for use, and the different manner in which these types appear to have been used. The role of the following

analysis is to consider in more detail the manner in which Manx ceramics were used at this time, and to compare this evidence back to that available for the study area more generally.

11.5 Manx Middle Neolithic ceramic practice

As with the study of the decoration on Manx Middle Neolithic pottery, the study of the roles of Manx ceramics at this time is limited by the scarcity of assemblages and the limited number of reconstructable vessels present within them. Nonetheless, it is possible to make some tentative comments on this topic.

11.5.1 Evidence for the intended roles of Manx Middle Neolithic ceramics

Manx pottery of this period is best characterised by the Shouldered bowl form which is both widespread and easily recognisable even in sherd material, eg, B'ha 10-12 from Ballaharra (see Figure A6.11). In addition to this form the Shouldered pottery tradition also contained other forms, for example the simple bowls from Ballaharra (Figure A6.10 B'ha 1) and Berk (Figure A6.25 Ber 1), as well as slack shouldered vessels such as Cas 1 from Cashtal yn Ard (see Figure A6.28), and Phu 4 from Phurt (see Figure A6.55). The size of Shouldered bowls on the Isle of Man does, however, suggest that these vessels occupied a position distinct from the rest of the ceramic repertoire⁵⁴.

Shouldered bowls have a total volume of between 1.04 and 11.66 litres, with the majority being in the size range which might reasonably be characterised as vessels suitable for group use (see Table A11.2, in Appendix 11). Indeed, the large vessel from the Mull Hill Circle (Figure A6.49 Mul 1) could even be characterised as

⁵⁴ Reconstructable vessels are available from Ballaharra, Berk, Cashtal yn Ard, the Mull Hill Circle, and Phurt. Reconstructable shouldered pots have only been recovered from Ballaharra and the Mull Hill Circle.

being suited for communal use, ie greater than 10 litres (see Table 11.6). In contrast, the simple and slack shouldered vessels have much smaller volumes ranging from 0.7 litres at Berk (Figure A6.25 Ber 1), to 1.68 litres at Ballaharra (Figure A6.9 B'ha 1). These vessels are of a size suitable for use by an individual. Within the corpus of Middle Neolithic pottery we therefore have a range of sizes which suit the major needs of a community from individual through group to communal sized vessels.

In terms of the detail of their form, the reconstructable large Shouldered bowls have a preference for open to neutral forms. These make access to the vessel contents easy, especially given the low height to width ratio of the bowl form. This and their size, would suggest that they were best suited for cooking or serving to a group; their open form argues against their having been used for storage. Further evidence of the suitability of these vessels to a social role can be gleaned from their decoration.

It is noticeable that Shouldered bowls are frequently very well finished, and often burnished, this in itself suggests an element of display not always found on the smaller vessels. It is also notable that the external decoration is normally confined to the area above the shoulder, suggesting that the vessel was to be viewed from above, or the side. Perhaps more important in this respect is the decoration on the rim top and interior. Decoration on the rimpot is always radial, and never concentric, causing the eye to be drawn into the vessel and its contents, rather than simply delineating a perimeter. The quantity of interior decoration is unusual in prehistoric vessels, and again suggests that the vessel was to be viewed from above. In vessels 10 - 14 from Ballaharra (Figures A6.13-15 B'ha 30 - 56) the interior decoration is concentric, as if it was to frame the contents⁵⁵, whilst the ripple burnished decoration of sherds such as Phu 1 and 2 from Phurt (see Figure A6.55)

⁵⁵ In this respect it is interesting to note that B'ha 30 from Ballaharra had a carbonised residue on the interior of its base, but not in the incised decoration of the interior, suggesting that this was above the accepted fill level.

served to create a more subtle effect. This evidence makes the large Shouldered bowls suited to a role as the centre piece of a communal function, possibly serving, or perhaps non-utilitarian. It is less easy to imagine that the vessels were intended for use as cooking pots, and certainly there is little evidence of exterior sooting to indicate that this was their daily role.

The sherds from Phu 2 (Phurt) do, however, caution against a simple acceptance that all highly decorated sherds of the type described above come from shouldered bowls best suited to a serving role. In this case, the decoration is very similar to Phu 1, but the form is closed, and may be derived from a bag-shaped rather than a shouldered vessel. This indicates that there may be a greater variety of forms, suited to greater varieties of function than have been noted above. In this respect a number of necked sherds, eg, Mul 36 from the Mull Hill Circle (see Figure A6.53), and Phu 66, 69 from Phurt, can also be noted (see Figure A6.59). These are also probably derived from closed vessels which would make them better suited to a storage than a serving role.

Smaller simple or slack shouldered bowls generally have less detailed finishes and, in the case of the reconstructable vessels, no decoration is present. The form of these vessels is generally open, and certainly their shallow depth would not present an obstacle to accessing their contents. These vessels can best be seen as being for individual serving uses, whilst the absence of decoration suggests that such small vessels did not have a great part in display. Once again, however, these opinions must be tempered by caution since there are many sherds from small vessels which do have more carefully finished rims and decoration, eg, Phu 10, 11, and 14 from Phurt (see Figure A6.56). These sherds further illustrate that the small corpus currently available on the Isle of Man may not be typical of the full range of ceramics in use at this time. This is a point which is developed further below.

11.5.2 Evidence of discard use from Manx Middle Neolithic ceramics

The previous section has considered the roles to which Manx Middle Neolithic ceramics were most ideally suited. This section considers the depositional evidence which is available for the examination of the vessel's final function.

Seven assemblages are known of which five are from contexts suggesting deliberate deposition, ie, tomb chambers, or infilled pits. The remaining two sites have been classified as stray finds. The first, Berk, consists of a single intact bowl and the good state of preservation of this vessel suggests that it too was deliberately buried, although it is unclear under what circumstances. The second, from Phurt, consists of an assemblage derived from old land surfaces, but which eroded from a cliff line. Contextually these are stray finds, and since the assemblage was sealed by subsequent silts and sands (Dackombe and Thomas 1985), it is viewed as a chance burial in this chapter.

Given the deliberate nature of deposition at the majority of these sites it is likely that the assemblages under study are a culturally biased sample selected from a broader range of vessels. Some confirmation for this view comes from Phurt at which there seems to be a much greater range of small sized vessels than within deliberately deposited assemblages.

Four of the deliberately deposited assemblages derive from tomb chambers, ie, Cashtal yn Ard, King Orry's Grave, the Mull Hill Circle, and Ballaharra. The first two are Court tombs, whilst the latter are more individual tomb types probably developed within the Island (see Chapter 5). The surviving pottery from the Court tombs is limited to small assemblages of a few, generally plain, shouldered pots. The size of these vessels is small to medium. This contrasts greatly with the situation at the two atypical tombs where large ceramic assemblages have been found. At Ballaharra, there were an estimated 19 vessels associated with the primary deposits, while at the Mull Hill Circle Herdman and Kermodé (1894)

estimated the assemblage to comprise 26+ vessels. Clearly the use of pottery to accompany the dead was more developed at these latter two tombs. In addition, the size of vessels at these sites are generally large, with many being highly decorated. These vessels are of the type characterised as being suited to communal display in Section 11.3.1.5.

This evidence suggests that the differences between the traditional Court tombs and these more varied Manx forms existed at the level of burial practice as well as tomb morphology. If the ideal roles suggested for Middle Neolithic ceramic forms in Section 11.5.1 were translated into daily use, then at Court tombs the use of pottery seems to be directed at the individual deceased, whereas at Manx style tombs, the choice of pottery suggests it was selected with a more communal ancestor in mind.

The last deliberately deposited assemblage came from Billown Quarry 1, where a number of pits had been dug and subsequently infilled with soil containing sherds and lithics. Some sherds found in different pits were derived from the same vessels, indicating that at least these parts of the site were contemporaneous, and that it was only necessary for part of a previously broken vessel to be deposited in any instance. A similar, if more extensive, situation has been noted at Goodlands, Co Antrim (Case 1973), where the assemblage was treated as being ritually deposited. The detailed role of ceramics at Billown Quarry 1 is confusing because the assemblage contains large and elaborate vessels such as BiQ1 1 (Figure A6.26), as well as rims which hint at more varied vessel types, such as BiQ1 14, 15, 17, 18 (Figure A6.26). In this respect the assemblage appears closest to that of Phurt and might not therefore have been culturally filtered.

Although some patterning has been noted in the choice of ceramic form and sizes at different sites, much of the evidence suggests that the detailed form, and decoration, was not specific to any particular occasion. This is shown in Figure 11.7, which selects a number of specific elements of Manx Middle Neolithic

pottery which have been identified in this chapter, and in the study of decoration in Chapter 10. This shows that none of the noted attributes are specific to any particular sites, or indeed types of sites, and serves to reinforce the view that ceramic types are likely to have had more than one use, and their selection for a task was more akin to bricolage than a rigid grammar (see Boast 1995).

11.5.3 A comparison of the roles of Manx, and non-Manx pottery

From the range of ceramic types described in Sections 11.3.1.1 - 11.3.1.5 it seems likely that the major utilitarian needs of communities throughout the Irish Sea province could have been easily met with only one or two types. Given that on the Isle of Man only pottery in the Shouldered tradition was used it might be expected that this would lead to an impoverished range of functionality. Certainly, the size and shape of the Shouldered bowl form itself is quite limited as the preceding discussions have shown. It is, however, important to remember that alongside this clearly definable vessel, Manx potters produced a wide variety of other forms and sizes within the Shouldered tradition, for example, the simple and slack sided bowls found at Berk (Figure A6.25 Ber 1), Cashtal yn Ard (Figure A6.28 Cas 1), and Phurt (Figure A6.55 Phu 4). It is likely that these other ceramic forms would have made up for the restricted size and shape of the Shouldered bowls themselves. Indeed, the size and shapes of both Achnacree and Sandhills vessels can both be matched from these other elements of the Shouldered tradition. Even the closed form used in Drimnagh bowls can be seen to be in evidence in sherds from Billown Quarry 1 (Figure A6.27 BiQ1 24), and the Mull Hill Circle (Figure A6.53 Mul 36). What differs in the Manx assemblages is not therefore the variety of shapes and sizes, but the manner in which that variety is articulated. In this respect the Manx seem to have rejected specific stylistic forms which presumably carried unwanted cultural connotations, rather than the practical potential of the various vessel shapes they embodied.

Turning to the deposition of pottery, in comparison with the number and variety of Middle Neolithic sites known from elsewhere in the Irish Sea province the Manx approach to ceramic discard seems quite restricted. As was noted in Chapter 5, 5 of the total 7 assemblages on the Island come from tombs, with the two remaining assemblages being stray finds. The role of ceramics in ritual practice at tombs will be considered initially.

Throughout much of the Irish Sea province there is considerable evidence for the placing of tombs on sites where there was an existing tradition of material culture practice. For example, at Trefignath, Anglesey (Smith and Lynch 1987), Beacharra, Argyllshire (Bryce 1902), Ballybriest, Co Derry (Evans 1939), and Glenvoidean, Isle of Bute (Marshall and Taylor 1977), sherds were found in the old land surfaces (OLS) beneath the site. It is likely that at most of these sites this material constituted of naturally developed rubbish deposits, perhaps over ploughed ground. In contrast, on the Isle of Man, no such OLS deposits are known, suggesting that fresh sites were picked for tomb building.

Following the construction of the tomb, in many parts of the Irish Sea province, pottery played a part in the ritual practices which took place in the forecourt. For example, in Scotland at Cairnholy 1, Dumfries and Galloway (Piggott and Powell 1949) pottery was found at a level associated with hearths and covered by clean earth, whilst at Monamore, Arran (Mackie 1964), pottery and flint was found in the forecourt area in a natural soil build-up. Similar situations can be cited in Ireland and Wales, where pottery was found either on the OLS, or sealed within a forecourt feature, eg, Browndod, Co Antrim (Evans and Davies 1936), Ballyutoag, Co Antrim (Herring 1937), and Dyffryn Ardudwy, Gwynedd (Powell 1973). Within the Isle of Man there is evidence of such forecourt ritual at King Orry's Grave, where a hearth containing several flint scrapers and flakes was found (Prehistoric Society 1971, 22). In this instance pottery was not used as a part of the ritual practices, although this in itself is not surprising since several sites elsewhere have

shown evidence of forecourt ritual without pottery, eg, Crarae, Argyllshire (Scott 1961) where a pit filled with marine shells was found. The only other Manx tomb which has been both sufficiently well preserved, and well excavated, to give evidence of forecourt ritual is Cashtal yn Ard. In this instance a paved layer was found in the forecourt, as is often the case in both Irish and Scottish sites (see Herity 1987; Henshall 1972), but no features or finds. In terms of ritual practice, the Manx tombs do seem to offer less variety than is noted elsewhere in the Irish Sea province. However, it must be noted that the discussion above has focused on sites in Britain and Ireland where forecourt ritual is most pronounced, in contrast there are other sites in these areas where forecourt ritual is similarly low key, eg Glenvoidean, Isle of Bute (Marshal and Taylor 1977), and Trefignath, Anglesey (Smith and Lynch 1987). The Manx sites need not therefore be taken as indicating an atypical approach to ritual practice in the forecourt of chambered tombs.

The role of pottery in the chamber deposits at the Manx sites has been discussed. The size of deposits at the two Court tombs, Cashtal yn Ard, and King Orry's Grave was noted at this point as being small in comparison with assemblages from Ballaharra and the Mull Hill Circle. It has been suggested by both Henshall (1972) and Herity (1987) that the quantity of grave goods relates to the original number of burials. Henshall (1972, 85), however, goes on to note the difficulty involved in comparing assemblages from chamber contexts due to the frequency of disturbance at these sites. In general terms it can be noted that there is nothing to distinguish the Manx Court tomb assemblages from vessels at similar sites in Scotland, Ireland, and Wales; in all areas, Shouldered bowls and associated derivatives form the dominant part of assemblages (see Tables A2.20 - A2.28, in Appendix 2). In Scotland and Ireland, however, these are often accompanied by other more localised ceramic types not used in the Isle of Man (see Table A2.29).

11.6 Late Neolithic ceramic practice

11.6.1 Grooved ware

Despite the wide distribution of Grooved ware throughout the British Isles, within the study area it is unfortunate that so few complete, or reconstructable vessels have been recovered. Indeed, there is only one non-Manx Grooved ware vessel which can be reconstructed sufficiently to get a clear idea of shape (Knowth, site 9, Eogan 1984). Nonetheless, from the evidence present in the rest of the British Isles it is clear that Grooved ware vessels are always flat based and generally have an open form (see Gibson 1986, fig 9). In terms of size they typically vary from small individual 'cups' to large buckets (Thomas 1991, fig 5.8).

This makes the vessels ideal for placing on a flat, but not a rough, surface, whilst the shape makes access to a vessel's contents easy. The size range apparent within the Grooved ware repertoire makes this ceramic type suited to more than one function. Interestingly, the only available analyses of Grooved ware residues indicate a pollen suite which included members of the hemlock family (Moffatt 1993). The possibility, therefore, that some Grooved ware vessels were used in a ritual context involving hallucinogens cannot be ignored.

The evidence of depositional practice for the study area shows an extremely strong bias towards deliberate rather than chance burial (see Table A11.6, in Appendix 11). To date only 1 instance of the chance burial of Grooved ware is known. This strongly suggests that this ceramic type was curated. Furthermore, the scarcity of complete vessels and the large number of sherds found deliberately deposited suggest that Grooved ware had a symbolic rather than a daily function. There is certainly some evidence for the latter practice in southern England (eg, Durrington Walls, Richards and Thomas 1984; Wyke Down, Barrett *et al* 1991). Indeed, within the Irish Sea province, the evidence of sherds in the post pipe of the Knowth, Co Meath, and Machrie Moor, Arran, timber circles might also be equated with this practice (Eogan and Roche 1994; Haggerty 1991). In these contexts it seems that

Grooved ware was used as a foundation deposit. Such deposits indicate the considerable importance of the Grooved ware tradition in Neolithic life, beyond that of simple pots for utilitarian use.

The recognition that Grooved ware occurs in Ireland is relatively recent (see Sheridan 1995). So it seems likely that re-analysis of sherds from early excavations might turn up new examples of this ceramic type. In this respect it is interesting to note that flat based sherds have been identified at a variety of Irish Portal and Court tombs, eg, Ballykeel, Co Armagh (Collins 1965), Ballyalton, Co Down (Evans and Davies 1935), and Ballymacdermot, Co Armagh (Collins and Wilson 1964). If this is the case then it would seem that Grooved ware was used in the perpetuation of ritual practice at these Middle Neolithic site types. Certainly the presence of Grooved ware at Trefignath, Anglesey (Smith and Lynch 1987), and Lligwy, Anglesey (Lynch 1969) argues that this was the case in Wales.

There is also evidence for Grooved ware being used in close proximity to Passage tombs in the Boyne valley (Cleary 1983; Eogan and Roche 1994). This provides clear evidence for the assimilation of these earlier burial monuments into the lives of people in the Late Neolithic, and indicates the continued importance of the social complexes in Co Meath. However, in addition to the reuse of existing monuments, the Late Neolithic is characterised by the building of new and enigmatic types such as Henges and Pit circles, as well as the perpetuation of that similarly confusing Middle Neolithic site type, the Timber circle. In Co Meath Grooved ware has been found at a Pit circle at Newgrange (Sweetman 1985), a Timber circle at Knowth (Eogan and Roche 1994), and a Henge at Monknewtown (Sweetman 1976). On Arran, a Timber circle with Grooved ware has also been found (Haggerty 1991). Interestingly all of these sites are in areas which were of importance in the Middle Neolithic, and indicate a continuation, or an appropriation, of these traditionally significant areas (see Chapter 4). They also serve to indicate that Grooved ware had a role in the rituals of the living as well as of the dead.

In practice it would seem, therefore, that Grooved ware appears in the majority of contexts available during the Late Neolithic, a fact which is not surprising when one considers that it was the only ceramic type in widespread use at this time. There have not, however, been any finds of Grooved ware in chance buried occupation scatters such as are common in the Middle Neolithic. This is surprising if the ceramic type had a role in daily life, and if it did not it is also unexpected that no other Late Neolithic ceramic type is known. There remains the possibility that Middle Neolithic ceramics continued in use into this later period as domestic vessels.

11.7 Manx Late Neolithic ceramic practice

A very full picture has been built up of the production stages of Manx Late Neolithic pottery from resource selection through to the final decoration of the vessel. This work has indicated that Ronaldsway potters worked to fulfil the needs of their immediate community. It is therefore to be expected that vessels suited to a variety of different domestic uses were present within most assemblages, along with vessels serving the ritual needs of the community or society as a whole.

The study of Late Neolithic vessel use is also greatly assisted by the size and quality of the dataset. The number of Late Neolithic ceramic yielding sites within the Isle of Man is very high and, perhaps more importantly, the variety of site types from which material has been derived is also fairly broad (see Table A2.27, in Appendix 2). It therefore seems probable that all the major classes of vessels used during the Late Neolithic are represented within the corpus of Manx Late Neolithic pottery in Appendix 11⁵⁶.

⁵⁶ The fact that most of these assemblages are from deliberately buried contexts might be taken as suggesting that the assemblages had been culturally filtered, however evidence is presented in Section 11.7.3.1 which indicates that this was not the case.

In considering the functional status of vessels in Manx Late Neolithic assemblages one naturally encounters questions regarding the relationship of Ronaldsway and Grooved ware vessels when found together. This is only a problem at Glencrutchery and Ronaldsway 'House', but it certainly needs to be addressed if the position of this intrusive ceramic tradition is to be better understood. Within this chapter the two ceramic types are considered side by side, and any distinctions noted are summarised in a concluding discussion.

11.7.1 The intended roles of Manx Late Neolithic pottery

11.7.1.1 Size range of Manx Late Neolithic pottery

So far the size of Manx Late Neolithic pottery has been considered using relative measurements, eg, small and large (see Chapter 9). This section avoids these subjective categories and considers the absolute volumes each vessel could contain.

Figure 11.8 indicates that Manx Late Neolithic pottery occurs in a wide range of volumes from 0.04 - 33 litres. At the lower end of this scale are the miniature vessels introduced in Chapter 6 which appear to mimic the form and decoration of their larger equivalents. Into this group fall vessels from Glencrutchery (Figure A6.32 Gle 3,4 and 6) and Ballateare (Figure A6.19 B'tel 3). Two of the vessels from Glencrutchery are of Grooved ware form (Figure A6.32 Gle 3, 4). It is likely that a further fragmentary vessel from Ballaharra also belongs to this class (Figure A6.15 B'ha 64). The range of volumes of these vessels are between 0.04 and 0.05 litres. The capacity of such vessels are therefore clearly inadequate for most functional purposes.

A larger size bracket can be identified of vessels between 0.29 and 2.10 litres. 12 reconstructable vessels fall within this group which might reasonably represent

vessels best suited to contain individual servings (see Table A11.2, in Appendix 11, for details of definitions of size classes). These include 2 vessels from Ballacottier (Figure A6.4 B'co 11, 12), 1 from Ballateare (Figure A6.19 B'tel 2), 4 from Ballavarry (Figure A6.22 B'va 8-11), 2 from Glencrutchery (Figure A6.31 Gle 1, Figure A6.32 Gle 5), 1 from the Guilcagh (Figure A6.44 Gui 1), and 2 from Ronaldsway 'House' (Figure A6.63 RonH 2, Figure A6.64 RonH 4). It is certain that many other vessels which could not be adequately reconstructed also belong to this class. It is also worth noting that three of the vessels, ie, those from Ronaldsway 'House', and Gle 5 from Glencrutchery are Grooved ware pots (see Figure A6.32).

Next in size comes a group of 6 vessels with volumes up to c10 litres. These might reasonably be seen as being best suited to group uses (see Table A11.2, in Appendix 11, for details of definitions for size classes). It is, however, noticeable that these 6 fall into two fairly separate size classes. One clusters at around 4.2 litres and consists of Crossag (Figure A6.31 Cro 1), Glencrutchery (Figure A6.32 Gle 2), and Killeaba (Figure A6.44 Kil 1). It is tempting to suggest that this represented a standardised size class. The other is a less well defined group of vessels of increasing size above this, ie, Ballahot (Figure A6.17 B'ho 1), Billown Quarry 2 (Figure A6.28 BiQ2 2), and Cleigh Rouyr (Figure A6.29 Cle 1).

Above the 10 litre mark there is a further group of 9 vessels which are large enough to indicate their suitability primarily for communal uses such as storage. Once again these can be divided into two groups. A cluster of 4 pots around 10 litres consisting of, Ballacross (Figure A6.8 B'cr 1), Ballaquayle (Figure A6.18 B'qu 1), and 2 from Ronaldsway Airport (Figure A6.62 RonA 1, 2). The remaining 5 pots increase in size from c12 litres up to a colossal 33 litres. These are Ballagawne (Figure A6.9 B'ga 1), Ballateare (Figure A6.19 B'tel 1), Colby Mooar (Figure A6.30 ColM 1), and 2 vessels probably from Scard (Figure A6.73 Sca 4, Figure A6.74 Sca 5).

This spectrum includes the full range of volumes which one might expect to be necessary for daily use, ie, individual, group, and communal. Interestingly, the Grooved ware vessels identified are only of individual or small group sizes. This contrast with the situation existing in southern England, where Grooved ware occurs primarily in large group to communal sizes (Thomas 1991). This presents an initial piece of evidence that Grooved ware was used in a distinctive manner on the Isle of Man than elsewhere in the British Isles.

In the following section this classification of vessel size is compared against the evidence for the shape of the assemblage.

11.7.1.2 Shape of Ronaldsway and Manx Grooved ware ceramics

It has already been observed that there were 4 categories of vessel form at the production stage. These consist of cup, bowl, jar, and Grooved ware (ie, buckets) (see Chapter 9). It therefore seemed worthwhile to assess the extent to which these shape categories overlapped with the volumetric classes established in the previous section, this is shown in Table 8.8. Grooved ware is not included within this initial analysis, since it has already been established that it occurs as vessels of miniature, individual, or small group size.

This table shows a close correlation between the absolute size of a vessel, and the broad form which it takes. Table 8.8 elaborates on the detailed form of the Late Neolithic bowls and jars, and shows that all the bowls had an open form, thereby making access to their contents easy. This suggests that the vessels were expected to be routinely used and, along with their individual size, indicates their suitability as cooking or, more probably, serving vessels (eg, Figure A6.4 B'co 12, Figure A6.22 B'va 10).

The group sized jars (ie, Figure A6.29 Cle 1, Figure A6.31 Cro 1) favour a neutral form which makes access to the contents more difficult, especially when considered along with the great depth of these vessels. This suggests that they were not designed to be used for serving to a group. The form is slightly better suited to cooking a large quantity of food but, against this is the height of the jars which would have given them a raised centre of gravity and a tendency to topple. In sum, the shape and size of the vessels makes them best suited to a role as storage vessels.

Communal sized vessels (ie, Figure A6.8 B'cr 1, Figure A6.62 RonA 1) accentuate the trend displayed by the group sized vessels, that is, they gain their greater size by growing in height rather than width. It also seems that they were generally built using a closed form. This may, in part, be a factor of the mechanical difficulties involved in controlling the production of a vessel of this size with an open or neutral form. Nonetheless, the shape and size of the communal vessels makes it extremely difficult to access their contents. In the case of the vessel from Colby Moor (Figure A6.30 ColM 1) the height of the vessel means it would not even have been easy for anyone smaller than an adult to reach in and touch the bottom of the jar. In addition, the weight of these vessels, once full, would have prevented them being moved. These difficulties are compounded when the find context of these vessels is considered, as the whole vessels have all been found deliberately buried up to their necks. Consequently, any contents they held could not have been retrieved by tipping them onto their side. In terms of size and shape, the communal sized jars are therefore best suited to the storage of items or substances not in daily use. Indeed in the case of very large vessels, their great size and depth means that they are not even very well suited to this purpose, and it seems likely that they were built without a utilitarian function in mind. This will be explored in more detail when their context of deposition is considered.

The discussion above has therefore identified four main classes of vessels within the Manx Late Neolithic repertoire:

- Miniature vessels without an apparent utilitarian function
- Bowls which seem best suited to a role as individual serving / cooking vessels
- Medium sized jars which would have fitted a role as storage vessel
- Large jars which could not have practically fitted a utilitarian role.

It has not, however, been possible to identify vessels which may have been intended to cook for or serve to more than one person. Such vessels would ideally be open and group sized.

The absence of such vessels from the Ronaldsway repertoire would be surprising, and it is possible that further classes of pots are present within the sherd assemblage but have gone unidentified. It is also possible that the vessels described above were not used for the purpose to which they were morphologically best suited, and that vessels for cooking or serving to more than one person have been concealed within these idealised categories.

Assuming that this is not the case, however, it is interesting to note that the only open vessel in the group size category is the Grooved ware vessel Gle 2 from Glencrutchery (see Figure A6.32). It may also be possible that other Grooved ware bases from Ronaldsway 'House' and Glencrutchery once belonged to such vessels (eg, Figures A6.40-41 Gle 94 - 106, Figure A6.71 RonH 79 - 81). The possibility that Manx Grooved ware was best suited to group practices such as cooking or serving conforms to the suggested role of Grooved ware in the south of England (Bradley 1984; Thomas 1991). The evidence for this being the case on the Isle of Man is at present very slight; the majority of reconstructable Grooved ware vessels are of miniature or individual size, and they are not widely known on the Island.

11.7.2 Daily roles of Manx Late Neolithic pottery

As with Shouldered pottery, there is little evidence for the roles to which Late Neolithic pottery was put in daily life, with the exception of Earthfast jars. In the discussions above it has already been established there these pots were often too large to be moved, and so it seems highly likely that the locations in which archaeologists find them are the locations in which they were actually used. What role they served is, however, more difficult to establish.

11.7.2.1 Context of earthfast jars

Earthfast jars have been referred to repeatedly throughout this thesis as unique to the Ronaldsway culture, and also highly enigmatic. Nine whole vessels belonging to this category have been found. Typically they have been discovered through ploughing, and in only one instance, at Billown Quarry 2, has a wide area around the vessel been excavated. At this site two stray jars were found during open area excavation, but no interpretable features were discerned. At present therefore there is no evidence for structures associated with these large jars, and it is possible that in some cases, had a wider area been excavated, they would have been found to form part of burial sites such as Scard, or Round Ellan.

The jars are found buried up to their necks, many with slate covers to protect the contents (see Chapter 5) which appears to have been a highly effective sealing technique. It is difficult to ascertain how much of the vessel protruded above ground. If their function was as storage jars it would seem reasonable to assume that their necks were left exposed to allow easy retrieval. If a more ritualised function is suggested then it is possible that many of the jars were not intended to be reopened, and that they were fully buried and concealed. This would explain the presence of so many jars at the base of the plough level.

The size of the vessels has been used to indicate that some could conceivably be storage jars, ie, Ballacross (Figure A6.8 B'cr 1), Ballahot (Figure A6.17 B'ho 1), Ballaquayle (Figure A6.18 B'qu 1), Billown Quarry 2 (Figure A6.28 BiQ2 2), Cleigh Rouyr (Figure A6.29 Cle 1), Crossag (Figure A6.31 Cro 1), and two vessels from Ronaldsway Airport (Figure A6.62 RonA 1, 2). In the latter case it is interesting to note that the two jars were found c300m from the Ronaldsway 'House'. The possibility certainly exists that these jars were related to a nearby settlement area. In addition, many occupation deposits contain sherds which probably came from vessels of this size and type. This would suggest that storage jars were used both within the assemblages for daily use, and also had an additional function aside from the home.

The larger jars are from Ballagawne (Figure A6.9 B'ga 1), and Colby Mooar (Figure A6.30 ColM 1). These fall into a size range which makes them closely comparable with the jars found at burial sites such as Scard, and Ballateare. The possibility therefore remains that these jars were outliers of undiscovered cemeteries. Given the large size of these vessels, it seems likely that they were built specifically for use in this context, which might also be argued for most of the large cemetery jars.

That no residues or artefacts have been found within any of the stray jars suggests either that the contents were all removed, or that they were biodegradable. The latter seems the more likely, although it is far from certain. In the case of BiQ2 2 (Figure A6.28) (Burrow 1996) it seems that the vessel did at some point hold a spherical organic object; no further evidence is forthcoming from other vessels⁵⁷. Nonetheless, it is worth noting that the vessels could not have been used to store water, as tests with experimental vessels have shown their fabric to be highly porous. There is also no evidence for waterproofing of the surfaces.

⁵⁷ This vessel was x-rayed and excavated in laboratory conditions, thereby allowing a detailed study of the contents.

11.7.2.2 Residues on earthfast jars

Although no residues have been found on the inside of earthfast jars, they do frequently carry black deposits forming a band around the upper part of their exteriors, eg, on vessels from Ballacross (Figure A6.8 B'cr 1), Ballahot (Figure A6.10 B'ha 1), Colby Mooar (Figure A6.30 ColM 1). It seems very likely that these deposits are a result of the firing process. Had the vessels been placed over a fire as a cooking pot one would expect to see sooting over the base of the exterior rather than the upper portion. Preliminary chemical studies were carried out on these residues using FTIR spectroscopy and this pilot work indicated that the residues sampled were pure carbon. No further work was carried out⁵⁸.

11.7.3 Evidence of discard uses of Manx Late Neolithic ceramics

The evidence from Manx Late Neolithic assemblages shows a marked bias towards deliberate burial with only 4 out of 33 classifiable assemblages being found in contexts indicative of chance deposition (see Table A11.6, in Appendix 11). Of those assemblages which could be classified a further 14 (46.7% of the total) were from occupation contexts, 6 (20%) were from burial deposits, 1 (3.3%) was a stray find, and 9 (30%) were earthfast jars which have been discussed above.

The evidence for discard uses will therefore be discussed under the two principal headings of occupation and burial deposits.

⁵⁸ The manner of the firing process which caused this sooting band is unconfirmed. Attempts have been made by the author to replicate this band by firing pots with their rims down. This results in large quantities of soot entering the vessels, and no characteristic banding. An alternative firing technique which it seems may lead to the banding is to fire the pots upright, and with the lower portion bedded into the earth.

11.7.3.1 Occupation sites

As Appendix 11 illustrates, the category of occupation sites on the Isle of Man contains a broad array of evidence, from the rich and well-contexted site of Ronaldsway 'House' to the poorer deposits in soil scoops at Ballalheaney, although the variety of sites within this category would suggest that more than one type of material culture practice is in evidence, some evidence for a consistent approach to the discard of pottery can be seen.

The ceramic evidence from the three richest sites, Ballacottier, Ballavarry and Ronaldsway 'House' will be considered first. Each of these have the advantage that their pottery was fairly intact, allowing several vessels to be reconstructed at each site.

Taking Ronaldsway 'House' initially, there are 2 small reconstructable pots with volumes less than 0.31 litres; and several vessels which were certainly larger than this, eg, RonH 1, 3, 5, and 6 (see Figures A6.64-5). In addition, 29 sherds from this assemblage are thicker than 25mm and must therefore have come from large vessels such as jars.

Second, at Ballacottier, reconstructable vessels of 0.29 and 1.39 litres have been found, although B'co 1, 8, 9, and 47 (Figures A6.2, 3, 7) clearly come from vessels which are much larger than this. At this site there are also 10 sherds thicker than 25mm.

Similarly, at the third site of Ballavarry, 4 reconstructable vessels between 0.38-1.35 litres have been found, whilst sherds B'va 7 (Figure A6.22) and B'va 12 (Figure A6.23) must belong to larger vessels. In addition, 3 sherds thicker than 25mm are also present in the assemblage and must therefore have come from large vessels.

The evidence from all three sites shows that a full range of ceramics from small to large were deposited. Given that the production evidence suggests that pottery was built for local consumption it seems reasonable to suggest that they represent the remains of a 'household' assemblage. If this is the case then it is possible to argue that a Manx Late Neolithic 'household' assemblage consisted of a limited number of large storage sized vessels, perhaps even only one or two, and a large number of smaller vessels. In the case of Ballacottier and Ballavarry the assemblages consisted of a minimum number of individuals (MNI) of 28 and 17 respectively. At Ronaldsway 'House' the assemblage had an MNI of 44. Notably, no miniature vessels were found at these sites.

Assuming that the initial assumption is correct, and that these three assemblages represent the remains of a household's wares, one must naturally question the material culture practice which led to their deliberate deposition. In the case of Ronaldsway 'House' there is some confusion as to which material belongs with the use of the pit feature and which belongs to a subsequent infilling of the site; although it seems likely that much of the material from the site was secondary. Considered as a whole, the ceramic assemblage is the second largest of this period on the Island. In addition, it was accompanied by a lithic collection of over 2000 pieces, which included pieces of many different functional categories such as arrowheads, scrapers, saws, and knives. Alongside these assemblages must also be considered the stone axes, grinding stones, and slate plaques. Together they present evidence of large scale deposition, which must have marked the physical termination of the original function of the Ronaldsway 'House' site. Alongside the material evidence is the high phosphate level in sherds from the 'House' which indicates that the soil fill contained a high organic component compared to that at other Manx sites (see Appendix 12).

A similar if less ostentatious picture is formed at Ballavarry, where a large ceramic assemblage, accompanied by many flints of varied type, and a slate plaque were

found. In this case, however, they were deposited in a pit, rather than a sunken structure. Phosphate levels were also high at this site suggesting that there was an organic component within the deposit which had subsequently decayed (see Appendix 12). There is no evidence to suggest that this pit was dug for any other reason than to receive the assemblages, certainly the excavator did not notice any fill lines or primary deposits.

At Ballacottier, the ceramic and lithic assemblages were smaller than at the previous sites, and the finds were found scattered. This may be a consequence of the disturbance by ploughing of a shallow hollow found at the site. In any case it is clear that no large central feature was either dug, or reused, to receive the finds.

The variety of pot types at these sites suggest that the ceramics constituted a household assemblage, and this is supported by the range of other objects placed with them, as well as the hint that organic material was also deposited. What differs at each site is the level of ostentation in the size and variety of the assemblage types, and the depositional context. If, as is being suggested, the remains constitute the objects of a household, then the ostentation presumably relates to the wealth of that household. The variety of depositional contexts suggest that it was the act of deposition itself which formed the focal point of ritual practice at these sites. In contrast, the level of ostentation, and the nature of the depositional context seem to be more in the manner of props than integral parts. Given that in each case a household sized range of ceramics were deposited, it is tempting to compare this Manx practice with the practice in southern Ghana of abandoning pots on the death of the owner (Barley 1994, 113), or the similar gypsy practice (Hodder 1982c). It is, however, noticeable in the Manx context that complete pots larger than a cup are very rarely reconstructable. This would suggest that the assemblage was smashed prior to deposition and only a token part was then buried.

The fact that at Ronaldsway 'House' a habitation site was used for the deposition would seem to support the case that it followed the death of the owner. It also argues against the deliberate deposition being the consequence of an ostentatious display such as a potlatch, since it seems unlikely that this practice would involve the destruction of the habitation site itself.

The presence of Grooved ware at these three sites provides a further link between them. At Ronaldsway 'House' it occurs on slate plaques and pots, at Ballavarry a slate plaque was found, whilst at Ballacottier a fragment of a flat base was retrieved. Furthermore, the only other Manx site where Grooved ware is found is Glencrutchery, where a similar depositional practice may have been in evidence, although in this case there is insufficient contextual evidence to examine the site in detail (see Appendix 4). It has already been noted that in southern England Grooved ware is associated with communal ritual (Bradley 1984; Thomas 1991). It is therefore possible that the remains seen at these Manx sites are those of communal rituals which ended in conspicuous deposition. This does not of course preclude the possibility that the rituals involved were related to the destruction of the deceased's property⁵⁹. Whether or not this is the case, the presence of Grooved ware at these sites, and not at burial sites or in other contexts provides us with a further valuable insight into the role of this foreign ceramic type on the Isle of Man.

It is possible that similar depositional practices might explain the much smaller assemblages at Ballalheaney, Billown Circle, Knockaloe Beg, and Park Farm. Unfortunately, none of these sites were well preserved, or extensively dug.

⁵⁹ An alternative, and less appealing, explanation of the presence of Manx Grooved ware at these sites is that it formed a natural part of the household assemblage and was therefore buried along with the rest as a matter of course.

11.7.3.2 *Burial sites*

At burial sites the evidence is very different. Here pottery seems to have had, for the most part, a more active role, with whole pots being required and positioned in articulation with the dead. As with the occupation sites, the variety of burial contexts is initially confusing with little obvious patterning (see Moffatt 1978). The evidence will therefore be treated on a case by case basis.

At Killeaba, Knocksharry, Round Ellan, and Scard the only ceramics in evidence are the large jars which either contained, or were placed alongside, cremations. These jars were buried up to their necks. At Scard it seems highly likely that the vessels acted as receptacles for offerings. Darvill (1996) goes further in suggesting that they may have acted as symbolic links between the earth and daily life. The evidence for deliberate deposition at occupation sites would go some way to supporting the case for an association in Manx Late Neolithic culture between earth and ritual. That cremations were sometimes placed both alongside and sometimes in these jars does not, however, indicate that the association was consistently articulated.

At Ballateare, the large jars are also present, and several smaller vessels were found indicating other roles for ceramics in the burial rite. Miniature vessel B'tel 3 as well as part of a bone pin and polished flint knife were found within a large jar which reinforces the suggestion that the jars contained offerings. In this context the suggestion that the miniature vessels were designed as replicas of full-sized jars is intriguing, if difficult to interpret. Further sherds from small vessels were found in *Ustrinae*⁶⁰ at the site. That these latter vessels were only present in sherd form indicates that in this instance vessels had an additional role in the funerary rite, perhaps associated with the practice of deliberate deposition at occupation sites.

⁶⁰ Bersu (1947) coined the term *Ustrinae* for the burnt hollows at Ballateare, due to their similarity to features in the urn fields of central Europe.

A further role for ceramics at Ballateare is indicated by the atypical pedestalled bowl B'te1 2. This was found within a cremation deposit which suggests that it may have served to contain some of the bone, or perhaps that it was an offering with the remains.

A similar situation was found at Ballaharra, where a cremation deposit dating to the Late Neolithic was found to contain a fragment of a miniature vessel perhaps analogous with the *Ustrinae* sherds from Ballateare, as well as burnt arrowheads, and animal bone. At Ballateare there is no indication as to the number of individuals in the cremation deposit, whilst at Ballaharra the deposit contained c34 individuals (Cregeen 1978). In this latter instance, the burnt arrowheads suggest that the bodies were accompanied by grave goods during cremation (although the possibility that the arrows were the cause of death cannot be ruled out). The miniature vessel however shows no trace of burning and was therefore added later. Whether it was added as an offering with an individual cremation, or was placed with the whole mass of bone is unclear.

At the cemetery site of West Kimmeragh, the burial practice appears to have been significantly different, with no large jars being present, and cremations being placed in pits in a cobbled surface. In this instance the assemblage is composed of sherds from vessels which appear to have been small to medium sized. This range of vessel sizes seems to have more in common with the ceremonial practice in the forecourts of court tombs than with that previously described for Ronaldsway burials. Perhaps in this case the deposits are associated with feasting, rather than being deposits for the dead. A similar case could be argued for the sherds from the *Ustrinae* at Ballateare noted above.

From the varied approaches to the ritual deposition of 'household' assemblages it was suggested that it was the act of deposition which was important, rather than the detail of the context. A similar case seems to apply at burial sites where pottery

appears to have been used in some cases as receptacles for either offerings, or the cremations themselves, whilst at others the sherds suggest an element of ritual feasting. The extent to which the practices overlapped with one another is shown in Figure 11.9. This illustrates that no site exhibits the same range of burial practices, whilst no site is entirely different from all others. The only thing which unites them all is the use of cremation and pots. The burial rite does not seem to have been a particularly traditionalised practice within Manx Late Neolithic culture, and on different occasions the common themes of jars and cremations, seem to have been articulated in very different manners.

11.7.4 Discussion

A variety of themes have been explored in this study of Manx Late Neolithic pottery function.

Through an examination of the forms and sizes of Manx Late Neolithic pottery it has been suggested that each of the conceptual forms used in the production of the pots (see Chapters 9 and 10) related to functional vessel categories. Interestingly, these categories do not seem to correlate with the choice of decoration on the vessel suggesting that this represented embellishment rather than an integral part of the vessel's design during daily use. This evidence provides us with further insights into the framework which guided Manx potters in the production of ceramics.

Perhaps the most significant feature of this study has been the identification of a full range of ceramic types from bowls suited to individual use, to jars ideal for a communal storage role. This is of particular significance since all these types can be seen as having been produced and utilised within the same communities - a situation which can rarely be identified outside of the Isle of Man, and therefore presents unique opportunities for analysis.

Turning to the contextual information, it is interesting to note that although the form and decoration on Manx Late Neolithic ceramics present an appearance which is internally unified and apparently coherent the depositional role of the pots seem to have been less structured. Visually therefore, the pottery would have presented a clearly Manx signature to outsiders, although within the Island it may have been perceived more variably, particularly at burial sites. That the cultural practices associated with Late Neolithic pottery appear in such variable forms supports the view that it was the act rather than the form of ceramic practice which was of importance. This theme has been developed by Boast (1995) with respect to Beaker pottery decoration. In this case Boast notes that it was the inclusion of certain elements in the design which was of importance rather than the detailed manner in which they were articulated. Although Manx pot design was more rigid than this, a similar case can be made for Manx ceramic practice.

Having considered the roles of both Manx Middle and Late Neolithic pottery it is now the intention to place these practices within a broader context of ceramic practice throughout the Irish Sea province.

11.7.5 Comparison of the roles of Manx and non-Manx pottery

During the Late Neolithic the major site types in use in Britain and Ireland are all of enigmatic function. In some cases, eg, Henges, these involved massive labour investment in order to build them, whilst in all cases these site types seem to have been designed with communal ritual in mind. Conversely, on the Isle of Man, no consistent approach has been found either to death, or to the detail of ritual practice, and no communal monuments are present (see Chapter 5). This has been interpreted as a difference in social values and organisation between the inhabitants of the Island and their neighbours. A consideration of ceramic usage also supports this distinction.

Grooved ware in Britain and Ireland appears to be closely related to communal ritual at large scale monuments, in particular with foundation deposits at timber and pit circles. Grooved ware is also used in Britain, and possibly in Ireland, in the maintenance of ritual practice at Middle Neolithic tomb types. On the Isle of Man, Grooved ware fulfils very different roles. It was not used at burial sites, whether in Middle Neolithic tombs, or at the Late Neolithic cemetery sites. However, it may have had connotations of death, since it is found at sites such as Ronaldsway 'House' and Ballavarry, which have been interpreted as the result of communal ritual involved in the deposition of household goods. From this perspective it appears that the inhabitants of the Isle of Man took the principal idea of communal behaviour associated with Grooved ware, and transposed it from the communal monuments of Britain and Ireland into their own small-scale ritual environment.

In the case of Ronaldsway pottery, there is less evidence of a parallel between Manx ceramic practice and that current in the rest of the Irish Sea province. The evidence relating to Ronaldsway ceramics suggests that it was primarily a household ware, with some forms, such as large jars, also being used in more ritualised circumstances. In the rest of the study area there is little evidence for a domestic role to Grooved ware, and there is no other obvious candidate for this position, since within the study area there have not been any instances in which this pottery was associated directly with another ceramic type. It is probable that in order to find a Late Neolithic domestic pottery type one will have to look to the perpetuation of Middle Neolithic wares, or the initial use of Latest Neolithic pottery.

In Chapter 10 the difficulty in finding parallels for Ronaldsway ceramic forms and decoration was discussed with reference to Middle Neolithic ceramic types. There is a similar difficulty in trying to parallel Manx Late Neolithic ceramic practice in this earlier period. Although a few whole vessels have been found in stray contexts in Ireland, eg, the Sandhills bowls from Lisalea, Co Monaghan (Herity 1974), or

Newferry, Co Derry (Movius 1936), these do not compare accurately with the burial of Earthfast jars on the Isle of Man. In none of the Irish examples is there clear evidence that the vessels were deposited deliberately and with care being taken to ensure the interior of the vessel was not contaminated. Regarding the Manx practice of burying household assemblages, there is a slight possibility of a parallel at Townhead, Isle of Bute (Scott 1968). In this instance a variety of different ceramics, including Grooved ware, Achnacree, Drimnagh, and Sandhills ware, were found along with a saddle quern. The excavator recorded them as having come from a pit, however, contextual information is poor, and the likelihood that the site was misinterpreted is high. Nonetheless, it does suggest the possibility that there may be other similar sites awaiting excavation in southwest Scotland. In Ireland, England, or Wales, no close parallels are known for this Manx practice.

Having considered the role of ceramics during the Late Neolithic the discussion now moves to a consideration of the role of pottery at the end of this period.

11.8 Latest Neolithic

11.8.1 Idealised role of Beaker pottery

Beaker pottery is widely known as a ceramic type associated with burials, and the bulk of analysis has centred on material from this type of context (*cf.* Clarke 1970). That this has been the case is not surprising given that the vessels from burials are generally complete, whereas material from other contexts tends to be fragmentary. This research bias has been addressed in recent years through studies of so-called Beaker domestic sites (Bamford 1982; Gibson 1982). Within the Irish Sea province however, the vast majority of whole vessels come from burial contexts (see Table A2.28, in Appendix 2).

The sample from the study area shows a cluster between the range of 0.25 and 3.75 litres. The spread appears to be fairly even between these two extremes, albeit with a drop off at about 3.5 litres (see Figure 11.10). This differs slightly from the results obtained by Case (1995) in his analysis of Beaker capacities throughout the British Isles⁶¹. In Case's work there is a concentration around 0.5 - 2.0 litres, and the overall spread of data extends above 20 litres.

It has already been noted that Beakers are one of the few ceramics in British prehistory for which a function is regularly suggested, ie, drinking cups (see Thurnam 1871). For vessels with volumes below 2 litres it is possible to argue for a role as individual drinking vessels, above this, however, if a role as a drinking vessel is assumed then it was probably as a communal cup.

If the argument that Beakers were drinking vessels is to be sustained then a particularly important factor is vessel shape. As Table A11.5 (in Appendix 11) shows, the vast majority of Beakers are jars, with only one bowl having been found (from Luce Sands, Clarke 1970, fig 21). This means that the rim diameter of these pots is less than their height, which is the case with most large drinking vessels today. This choice of shape may be seen as an attempt to increase the capacity of a vessel without increasing the diameter to a point where it is too wide for the user to drink from comfortably. There comes a point, however, where rim diameter exceeds that which is practical for drinking. In this respect it is interesting to note that the diameters of 18 of the 74 Beakers for which this measurement can be calculated have a diameter >150mm, with 3 having diameters >200mm. These vessels are very poorly adapted for drinking.

These factors might be used to suggest that vessels with a large diameter and correspondingly large volume were better suited to a role as either serving, storage, or non-utilitarian items. When the quantity of decoration on the exterior of many

⁶¹ It should be noted that Case (1995) calculated his vessels using the geometric solid method (see Appendix 11). As a result an exact comparison is not possible between the two data sets.

Beaker vessels is considered it seems likely that the vessels did in any case carry with them some element of prestige.

11.8.2 Depositional role of Beaker pottery

Turning to the context of deposition, it has already been noted that a large number of sites contain Beakers deliberately buried in a funerary context. This is reflected in the proportion of deliberate to chance burials (see Table A11.6). The range of funerary contexts in which Beakers are found is, however, quite broad (see Table A2.28, in Appendix 2). The majority are found in cists where they are typically found with inhumations, although there are a surprising number which are found in the chambers of Middle Neolithic Court tombs. This practice of reusing a tomb was first observed with respect to Grooved ware (see Section 11.6.1); in the context of Beaker pottery it can be seen to be more explicable since the chambers of a Court tomb are morphologically highly similar to cists. What is interesting is that it was deemed appropriate to carry out such a reuse of old sites. The same point might be made with respect to the reuse of Passage tombs in the Boyne valley and elsewhere, as well as at Portal and unclassified tombs. Perhaps surprisingly, Beakers are poorly represented at the Latest Neolithic tomb type of Wedge tombs, with sherds having been found only at Ballyedmonduff, Co Dublin (O'Riordain and de Valera 1953).

In all cases within the study area where burial is in a cist the practice appears to have been to place the Beaker alongside a single interred body. The Beaker clearly served as a grave good in these instances. It is harder to analyse the depositional practice associated with the reuse of Court or Passage tombs since in many instances it is difficult to distinguish the original contents from these later intrusions.

Surprisingly, Beakers have been found deliberately deposited at few Late Neolithic monuments, with no deliberate deposits being found at Henge sites, and only one at a Stone circle (Carneddau Hengwm, Gwynedd, Crawford 1920). Possibly the appropriation of such recent sites through the use of Beakers was a more sensitive matter than the reuse of Middle Neolithic sites which were more distant in time.

Other site types at which Beakers have been deliberately placed include features at occupation sites such as Kirkburn, Dumfries and Galloway (Cormack 1964b), Machrie Moor, Arran (Haggerty 1991), and most notably the site at Kilellan Farm, Islay (Burgess 1976a). Kilellan Farm is quite clearly a habitation site which confirms that within the study area Beakers were not just used in a funerary or ritualised capacity. Other old land surface scatters which are likely to derive from habitation sites are listed in Table A2.28 (in Appendix 2). It is interesting to note that at Kilellan Farm, which has a large number of partly reconstructable vessels there are a number of jars which appear to be of a size suitable for storage. This would suggest that the Beakers which one finds in burials are just one part of a broader spectrum of Beaker ceramics. It would certainly have been an impoverished ceramic type for household use if it only came in the size range indicated by Beakers in burial deposits.

Given the large number of whole vessels available for study it would be thought that there would be ample evidence for residue analysis. Very little such evidence is in fact available, and what there is is mostly unsatisfactory. For example, in a Beaker recovered from a cist at Tan yr Allt, Gwynedd, Davies (1931) noted that it contained 'about a cupful of dust of reddish colour, very fine and light.'. Whether this was actually the original contents of the vessel or subsequent soil infill is unclear. Similarly unclear is the 19th century reference to sooting on sherds at Loughcrew H, Co Meath (quoted in Herity 1974, 235), since in this instance it is not specified if the sherds in question are Carrowkeel or Beaker.

Perhaps the best avenues to pursue with regard to Beaker sooting are the assemblages from Monknewtown (Sweetman 1976) and Newgrange (O'Kelly 1984), both in Co Meath, at both of which sooting was present on the interior and exterior of sherds. In the case of one very large vessel from Monknewtown with a diameter of 30cm the excavator suggested that it was probably a cooking vessel on account of the residue adhering to the interior. Similarly at Newgrange Cleary (1983, 115) notes sooty accretion on the exterior of rusticated sherds. Cleary also addresses the question of vessel function in her paper, although her approach is based on the assumption that fabric will reflect function, an assumption which is not employed in the present study.

11.8.3 Inferences for the Isle of Man

The lack of Beaker sites currently known on the Island makes it difficult to compare Manx practices at this time with those highlighted for the rest of the Irish Sea province.

Certainly the practice of interring a single Beaker with an inhumation in a cist was current on the Isle of Man, as the example from Baroose illustrates (Quine 1925). In this respect the transition from the Late Neolithic seems to have entailed a considerable change in the status of pottery in relation to the burial rite. If the Baroose example is representative of Manx practices then the use of pottery as open receptacles for offerings, and in the rituals surrounding burial seems to have stopped, and been replaced by allocating ceramics as grave goods to individuals.

In the case of the single occupation site, Ballachrink (McCartan and Johnson 1992), vessel survival is too poor to allow accurate assessment of the role of Beakers in daily life. It does, however, seem fair to assume that if the Ballachrink assemblage really is from a domestic site then the vessels it includes will have covered a variety of shapes and sizes.

Part IV:

Conclusion and summary of research

Manx Neolithic pottery has now been analysed within the context of Neolithic society presented in Part II, and using the biographical framework established in Part I of this thesis. The purpose of this final part of the study is to summarise the insights this has given regarding Manx Neolithic pottery.

12. Conclusion and summary

This thesis has provided a detailed study of Manx Neolithic pottery based upon a re-evaluation of whole assemblages, which have only previously been summarised and the introduction of many unpublished examples (Appendices 4 and 6 provide the corpus on which the study is based). This evidence has been complemented by analyses of published Neolithic assemblages from adjacent parts of Britain and Ireland, and the first hand study of selected material in England, Ireland, Scotland and Wales. In combination these two levels of analysis have allowed the evaluation of Manx Neolithic ceramic practices in the context of those employed in neighbouring areas.

The framework within which these analyses have been situated is biographical. This approach has allowed the study of Neolithic pottery utilising, within a single framework many of the varied goals of study currently available (eg, analysis of production processes, decorative codes, exchange mechanisms, vessel function, and discard patterns). In order to present these analyses as a biography the individual analytical approaches have been arranged in a sequence correlating with the life history of the vessel from construction to discard, thereby forming a coherent picture of the material and its place in Neolithic life. The biographies which have resulted are composed of elements from the life histories of individual vessels presented collectively as general biographies of the ceramic tradition as a whole. This biographical approach to archaeological study can be seen as one branch of a trend current in Neolithic research towards multifaceted artefactual analyses (eg, Bradley and Edmonds 1993; Edmonds 1995; Pollard 1996). The origins of this movement can be found in the post-processual agenda of the late 1980s which in part argued for multiple approaches to the past (eg, Shanks 1992).

The biography of the archaeological subject does, however, differ considerably from a more traditional biography in its narrative structure, as this study has

doubtless shown. In an archaeological biography the narrative flow linking phases in a vessel's life history is disrupted by the academic practice of introducing a theoretical perspective or appropriate methodology prior to analysis, and in discussing the value of the results prior to a conclusion. In more traditional biographies these stages in the analysis are concealed behind a narrative structure designed to be read easily. In order to present a study which is both justifiable and testable the academic protocols are a necessary part of the discourse structure of this work. However, with this information already presented in the body of this thesis, the final summary presents an opportunity to adopt a more narrative approach to the subject.

12.1 Summary of the biography of Manx Neolithic pottery

Neolithic artefacts and monuments were introduced into the Irish Sea province around 4635cal BC, with pottery being one of the earliest of these. Not all parts of the Irish Sea province, however, took up these Neolithic monument and artefact types in the same manner: different regions employed different combinations. This suggests that the inhabitants of the province existed in small-scale societies making individual choices as to the manner in which material culture was deployed.

Interestingly, although pottery is the most widespread part of the Early Neolithic cultural package found in the Irish Sea province, it was not adopted on the Isle of Man. Indeed the Manx⁶² seem to have been late in accepting Neolithic practices generally, with Mesolithic flint forms being retained in use after their abandonment in other parts of the Irish Sea province.

Given that pottery offered revolutionary possibilities for food storage and cooking methods it is surprising that the Manx ignored it. The reason might be found in the

⁶² The term Manx is used here as a shorthand for 'the inhabitants of the Isle of Man' and is not meant to indicate a direct racial descent between the Neolithic and modern population.

possible roles of the first pottery style to be used in the British Isles: the Carinated bowl. Pots in this style are generally open in form and of a size suited to the needs of a group rather than the individual; their high quality also suggest a role in display. This suggests that Carinated pottery had connotations of cultural, or possibly even ritual, practices which the Manx were unable, or unwilling, to assimilate into their own lives.

By 4100cal BC the range and diversity of Neolithic material culture in the Irish Sea Province is striking. Of particular note are the large number of different tombs types which figured prominently in the monument repertoire of the Middle Neolithic, and the varied forms and decoration of the ceramics which are found at these and other sites. As with the Early Neolithic period, the adoption of these various monument and ceramic types was taken up on a local basis with the combination of types used varying between regions of the Irish Sea Province. Once again this suggests local communities operating independently. Two regions of the Irish Sea province do, however, begin to stand out at this time; Co Meath, where the elaborate design of Passage tombs suggests the emergence of a centralising society, and northeast Ireland which utilised an especially diverse range of site and ceramic types.

During this period the Manx also adopted a range of Neolithic practices such as megalithic burial sites, ceramics, lithic types, and the deliberate discard of artefacts. Presumably whatever factors had hindered their adoption in the preceding phase of the Neolithic had been overcome; indeed throughout the Middle Neolithic the inhabitants of the Isle of Man maintained a close cultural relationship with their neighbours. This is not to say, however, that the Manx did not adapt these presumably foreign influences into distinctive forms, as the individual nature of some of their megalithic sites, such as the Mull Hill Circle, and Ballaharra indicates.

In terms of their choice of ceramics the inhabitants of Man were curiously conventional, using only one ceramic type out of the five used by their various neighbours: Shouldered pottery. This ceramic type bears a close morphological relationship to the Carinated bowls of the Early Neolithic, having an open form, generally large size, and fine finish. What marks Shouldered pottery out as distinct from Carinated bowls is the presence of decoration. Alongside the large Shouldered bowls were used other forms such as simple bowls, and slack sided vessels, although all were of similar fabric. Despite the absence of Achnacree, Drimnagh, Peterborough and Sandhills vessels it is likely that there was sufficient variety in the size and shape of Manx pots to cater for most of the community's common needs.

For the first ceramic type produced by the inhabitants of Man, Shouldered pottery represents a considerable technical accomplishment. The ceramic was made from a clay which was free of large natural inclusions such as the slate lathes commonly found on the Island, and which would have protruded through the surface of the fine walled vessels. To this clay was added finely crushed granite, the mica from which coated the surface of the vessel in a reflective sheen, whilst the quartz component showed as small white lumps, although presumably only apparent to the potter before the vessel surface was smoothed over, or to whoever broke the vessel.

In building the bowls the potter probably constructed the round base upside down as a dome to prevent slumping of the damp clay coils, with the shoulder of the pot being added subsequently and the vessel being thinned by scraping away excess clay, or beating the vessel walls. In the case of the larger Shouldered bowls the surface was then carefully burnished to further enhance the reflective quality of the vessel and provide an attractive finish.

The actual decoration of the vessels focused in particular on the upper part of the vessel and the rim top, although the details of the decoration apparently depended

upon the care with which a surface had been burnished. On lightly burnished surfaces the choice of decoration was limited to incised lines arranged either radially around the rim top; as panels on the exterior above the shoulder; or horizontally around the upper interior of the vessel. Such close control over the use of incised decoration may have been maintained to prevent excessive incision which could easily have removed the smoothed surface effect. In contrast, on burnished surfaces where rippling was used as the decorative technique, there was a greater variety in the choice of designs and the locations at which they were applied. In general, it seems the effect which was aspired to in the decoration of Shouldered bowls was to draw the eye into the contents of the vessel through the use of radial decoration on the rim and patterning on the upper interior. This suggests a role for these large vessels in some form of display. Interestingly, the diversity of decoration on Manx Shouldered vessels and in particular the decoration of the interior of the vessel, is a practice which can be most closely paralleled in northeast Ireland and to a lesser extent, southwest Scotland, suggesting that Manx communities interacted closely with communities in these regions.

Also of interest is the role of these large and ornate Shouldered bowls in the ritual surrounding burial in the more distinctive Manx tombs such as the Mull Hill Circle and Ballaharra. Here the burial rite entailed the deposition of several of these large bowls. In contrast, at the more conventional Court tombs only a few of the less decorated slack sided, or simple bowls were used. In the context of the Irish Sea province as a whole, however, it is worth noting that the detail of the burial rite at megalithic tombs was in any case variable, with the only standardisation being found around the use of Drimnagh pottery at Linkardstown cists, and the Carrowkeel sub-style of Sandhills ware at Passage tombs.

The picture derived from study of the Manx Middle Neolithic evidence suggests the Isle of Man was well integrated into the cultural sphere of the Irish Sea Province with only minor expressions of individuality such as are also present in

such nearby islands as Anglesey, or Arran. This position seems to have changed considerably from 3120cal BC.

Around that time the rest of the Irish Sea Province apparently abandoned the use of megalithic tombs, and focused on the construction of more functionally ambiguous monument types such as Henges and Stone Circles. The colossal size of some of these sites in northern England and northeast and eastern Ireland, suggests the operation of centralising authorities. In the case of the Irish examples it is interesting to note that the Henges are largely positioned in areas where there was in any case evidence for a unique approach to monumental building, whilst in England the location may be related to the major stone axe factories of the region. Alongside this change in monument building, pottery styles also changed radically from the diversity of the preceding period to the use of a single style: Grooved ware.

The Manx do not seem to have followed these trends in their neighbour's material culture practices, with no evidence for monumental Henge building, but a flowering of their own unique ceramic and other cultural forms. In part this may have been a response to the adoption of practices elsewhere in the Irish Sea province in which Manx society was unwilling or unable to participate. One possible reason for this may have been that the small size of the Manx community precluded the practices associated with the major Henges of Britain and Ireland which seem to have acted as regional foci. In consequence the Manx responded by asserting their own identity through a distinctive culture. This did not, however, lead to an end of all interaction, as the presence on the Island of Grooved ware, and also British, and possibly Irish, stone axes indicates.

The foremost indicator of Manx cultural independence at this time is the Ronaldsway pottery style which cannot be paralleled effectively in form or decorative design anywhere else in the British Isles. The pottery is largely noted for

its massive collared jars, although these are also found alongside smaller examples, bowls, and miniature vessels.

In contrast to the pottery of the preceding period, Ronaldsway ware is heavy and coarse. This could be seen as a decline in the skill of the potter, although more likely it is a response to the unique technological requirements of the new Ronaldsway ceramic forms. In particular it seems as though the range of clays used was less stringently controlled, with larger natural inclusions being present, presumably since these would not protrude through the thicker ceramic walls. The choice of temper added to this clay was often quite specific, however, since although granites and sandstones were used, there was a clear preference for dolerites. This rock type is found throughout the Island but only occurs in dykes of limited extent. Possibly it was the characteristic form of these outcrops which attracted the potter rather than the properties of the rock itself, and it is interesting to note that Late Neolithic potters in Orkney also exhibited a similar preference. The fact that both the Isle of Man and Orkney utilised Grooved ware suggests the possibility that dolerites formed a part of a specific ceramic recipe associated with this style. The dolerites were added to the clay in large quantities, with grits frequently of considerable size, but it seems that loose size classes were present which correlated with the thickness of the vessel and hence with the size of the pot. The potter must therefore have had a good idea of the size of pot to be produced even before work began.

The limited extent of the dolerite outcrops naturally affected the locations from which it could be procured, and it seems that whilst potters were willing to travel up to 5km to gain a supply, they were not adverse to the use of other resources in its place if there were too many obstacles to its procurement. Clays also seem to have been collected from a local area, although with little evidence for a consistent approach to procurement. It seems likely that at some sites potters used the same clay, whilst at others more than one source was utilised.

In building the often large Ronaldsway vessels the potter faced mechanical difficulties in the timing of production to avoid either excessive drying, or the slumping of wet clay. In part this may have been combated by building vessels in more than one stage, with jars being composed of round bases and cylinders made separately and only later joined. Indeed, to construct the entire range of Manx forms, the potter would only have needed to have known how to build four basic shapes: a round base, a cylinder, a flat base, and a pinchpot. The first two shapes were constructed by coiling, whilst the last was made from moulding a single piece of clay in the hand; it is likely that flat bases were also made in this way. With the form of the vessel complete, the potter smoothed the surface of the pot, probably using wetted hands, in order to conceal the coil joins, to smooth over protruding grits, and also to reinforce the link between any separate components of the vessel. Following drying some vessels were left plain whilst others were decorated prior to firing.

The decoration of Ronaldsway vessels was carried out using a simple grammar which entailed the definition of a horizontal zone around the upper part of the vessel, whether as a collar or cordon of clay, or a simple incised line. If further decoration was added it was influenced by the size of the vessel, with the decoration on collared bowls being more varied than that on collared jars or simple rimmed vessels. The style of decoration on Ronaldsway pottery forms a continuum with the Grooved ware style suggesting that the two design styles did not always sit separately in the minds of the potters. Of particular note also is the striking unity of the Ronaldsway design style, since even though Manx pottery was made on a local basis with little exchange taking place, the style was applied practically identically across the whole island. Having decorated the pots they would have been left to dry to ensure that excess water did not explode the pot during firing.

It seems likely that the production of Manx pots was carried out at a local level as a cottage industry, with little evidence for the finished vessels being distributed around the island. The diversity of vessel size and shape indicates that these local potters produced a variety sufficient to cater for most of the needs of the community, with pottery being used in a wide variety of ways. Most distinctive was the burial of large collared jars up to their necks and apparently unassociated with other artefacts, a practice which cannot be paralleled elsewhere in the Irish Sea province. The meaning of this practice represents one of the most significant unanswered questions of the Manx Late Neolithic. Also distinctive was the burial of what appear to have been household pot assemblages, accompanied by other artefacts such as flints, and occasionally carved slate plaques, and stone axes. It is possible that these deposits resulted from the ritual destruction of possessions, maybe upon the death of their owner. In the known instances of this practice the quality of the goods buried and the detail of the burial practice vary, suggesting that it was the act rather than the detail of burial itself which was of prime importance. A similar impression can be gained from the burial sites of the Manx themselves. These focus upon cremation and are unusual in the detail of their ritual practices which again cannot be paralleled in the rest of the Irish Sea province. Pottery at these sites is used in a very varied manner. Every one produces a new detail regarding the role of pottery, from offering jar, to cremation urn, to gift with the dead, and possibly the residue of feasting. The impression to be gained is one of a bricolage of themes uniquely assembled in every instance.

It has already been noted that throughout this period of cultural independence the Manx still interacted with their neighbours. However, with practices which differed so strikingly from those used elsewhere in the Irish Sea province it seems unlikely that such interaction was entirely comfortable, and it is hard not to imagine the Isle of Man as culturally isolated at this time. The introduction of Beaker pottery and the varied artefact and ritual suite which accompanied them may therefore have

presented something of a relief to Manx communities in allowing them to return to the mainstream of cultural life in the Irish Sea province.

Certainly throughout the rest of the British Isles, the introduction of Beakers around 2500cal BC seems to have coincided with a decline in the use of the large ritual centres, and a rise in the importance of the individual as an authority. Such an ethos may have been better suited to the Manx community which appears to have endorsed the new ceramic type and its accompanying burial practices to the exclusion of almost every cultural practice that they had developed during the preceding period.

Although presumably reflecting dramatic changes at all levels of society, the adoption of the Beaker 'package' must have had specific implications for Manx potters. The new style of pot used a form which would have been difficult to make using their existing skills, and may have required the adoption of new tools such as the wrap, as well as a new approach to the building of the pot. Furthermore, the decoration on the Beaker style differed not just in content but also conceptually from that of the preceding period. Whereas Ronaldsway pottery could be produced using only a simple grammar, Beaker pottery seems to have entailed the combination of a variety of motifs with the objective being the production of a recognisably 'Beaker' result rather than a grammatically correct one. With such a considerable change required in the potter's art it seems unlikely that all those involved could have made the transition to the production of the new style and doubtless there was some alteration in the manner of production and supply of this new ceramic type.

To examine the detail of the Manx response to this innovation will require several more finds of Beaker pottery from the island - as will doubtless appear over the next decades; along with further finds from the Middle and Late Neolithic. These additions will necessitate change in the biographies presented in this study,

particularly where negative evidence has been used, eg, in the discussion of the absence of Early Neolithic pottery on the Island; or in analyses based on small assemblages, eg, in the Middle and Latest Neolithic. Nonetheless, what has been aimed for in this work has been the presentation of biographies which reflect our current understanding, rather than definitive accounts. To this end all the available Manx evidence has been collated and summarised; and in consequence this thesis provides a framework against which future finds, and the biographies derived from them, can be compared and contrasted.

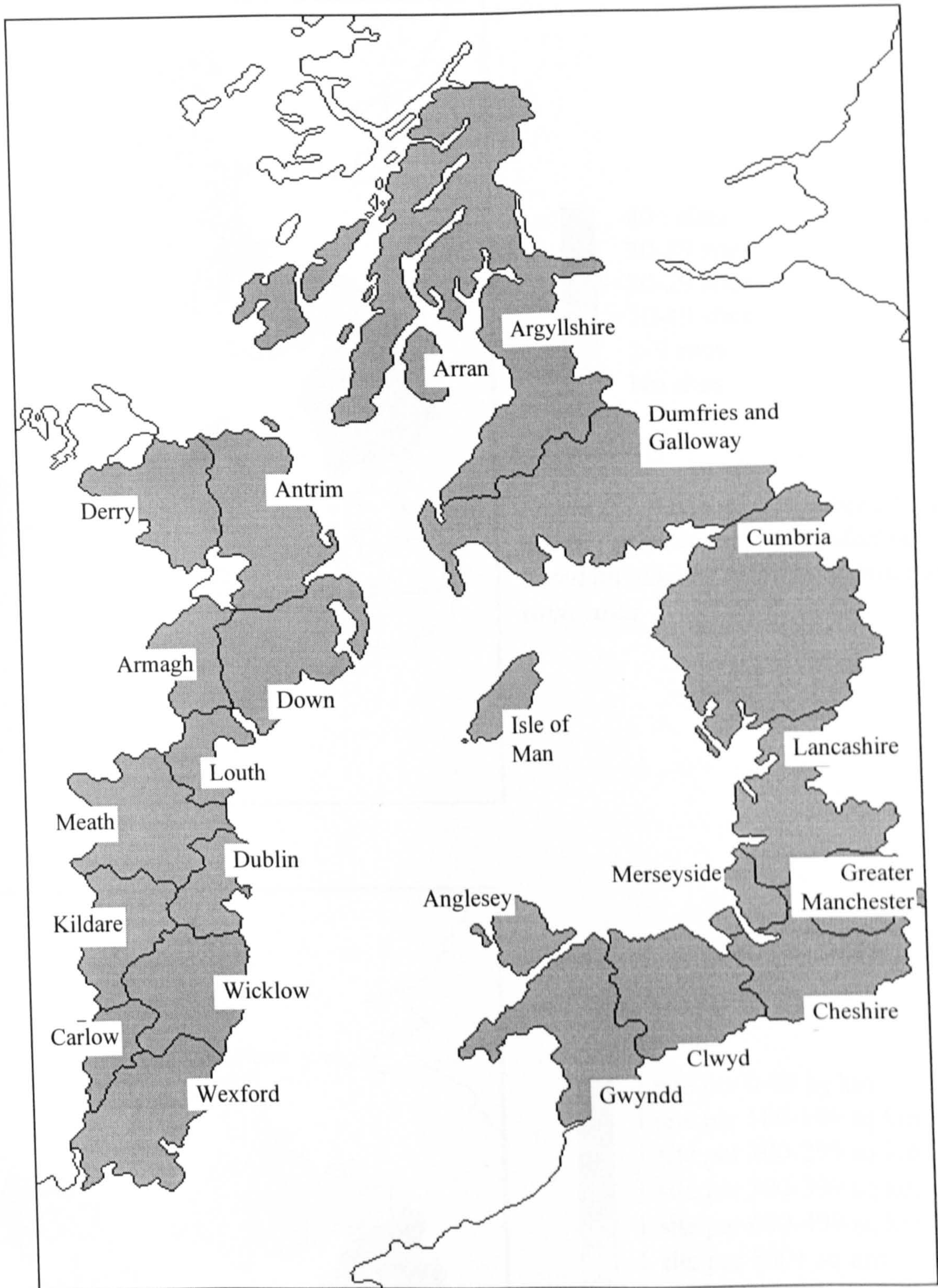


Figure 2.1 Counties included within the Irish Sea province as defined within this study.

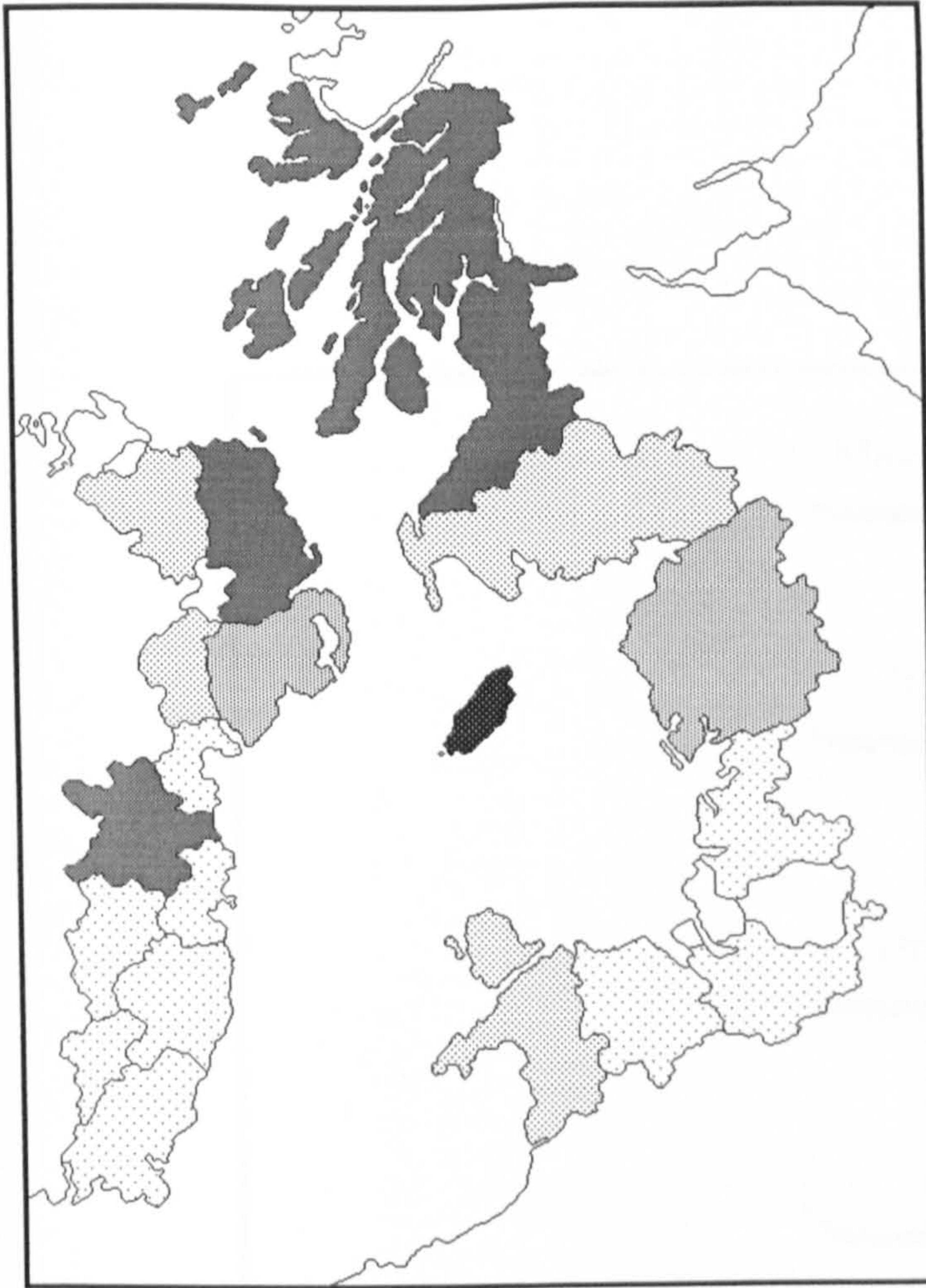


Figure 2.2 (Upper): Number of sites within the study area. Calculations based on modern counties within the study area

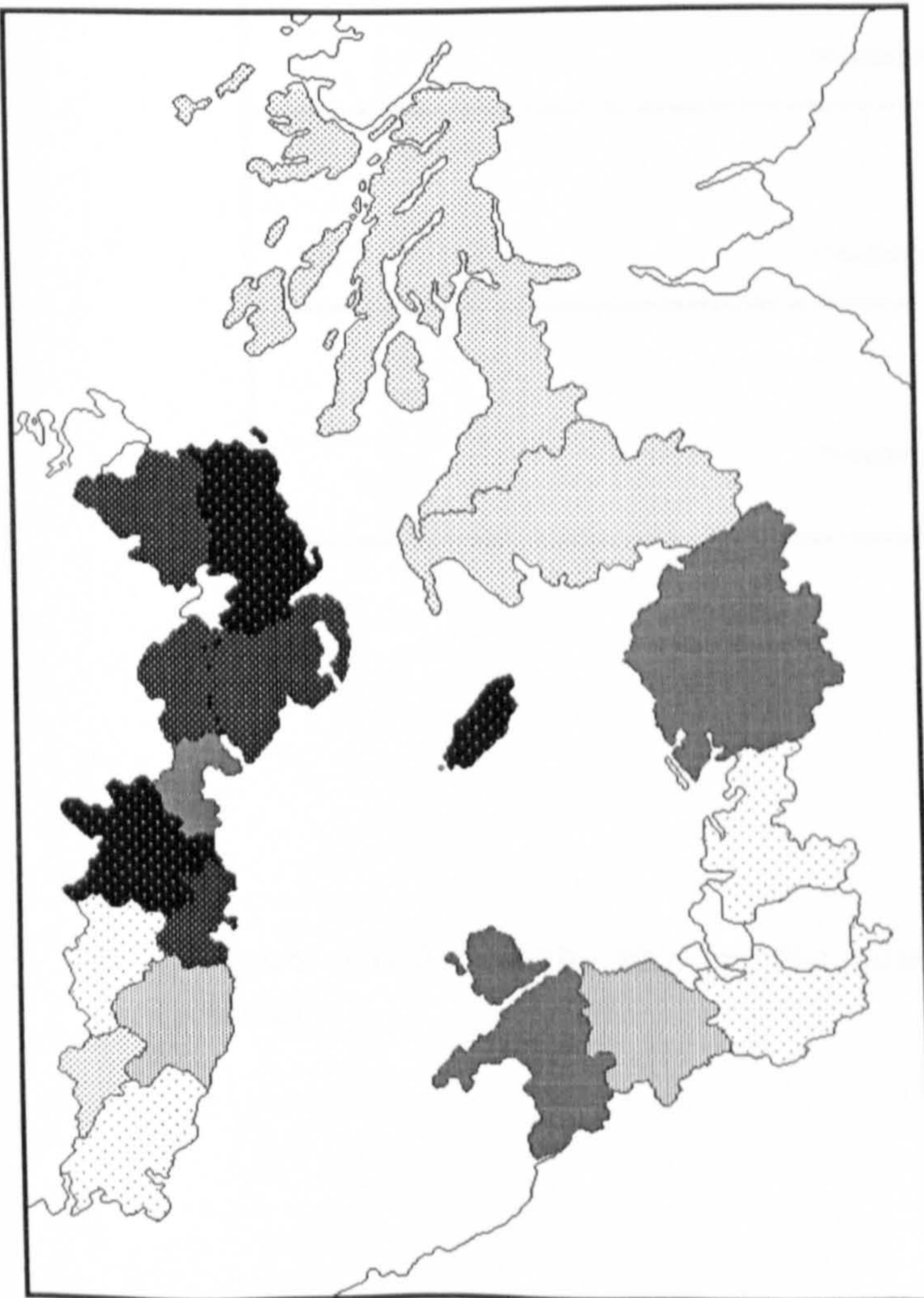


Figure 2.2 (Lower): Density of sites as a ratio of county size. Calculations based on modern counties within the study area

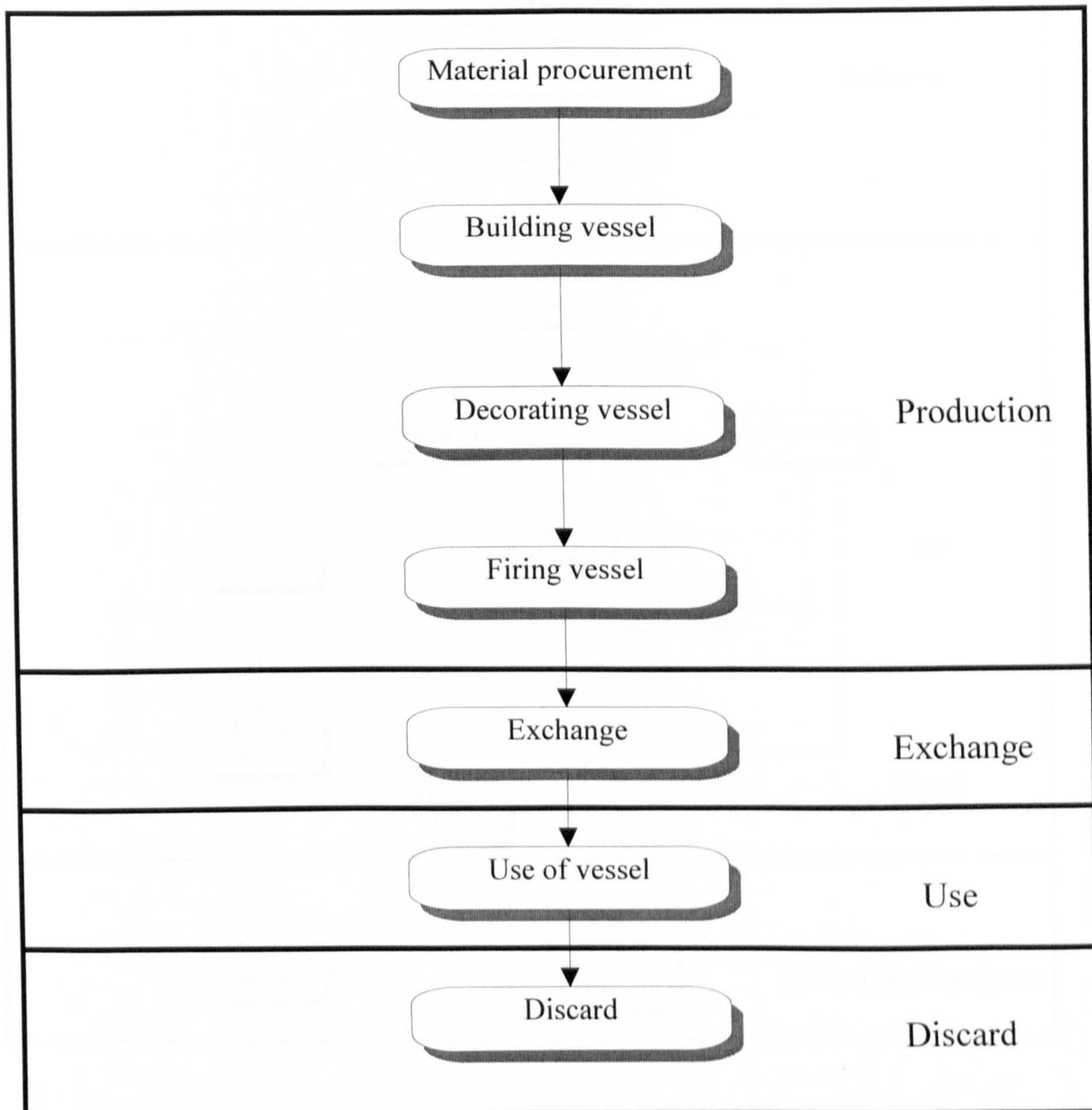


Figure 3.1: Schematic showing the major stages in the life history of a prehistoric vessel

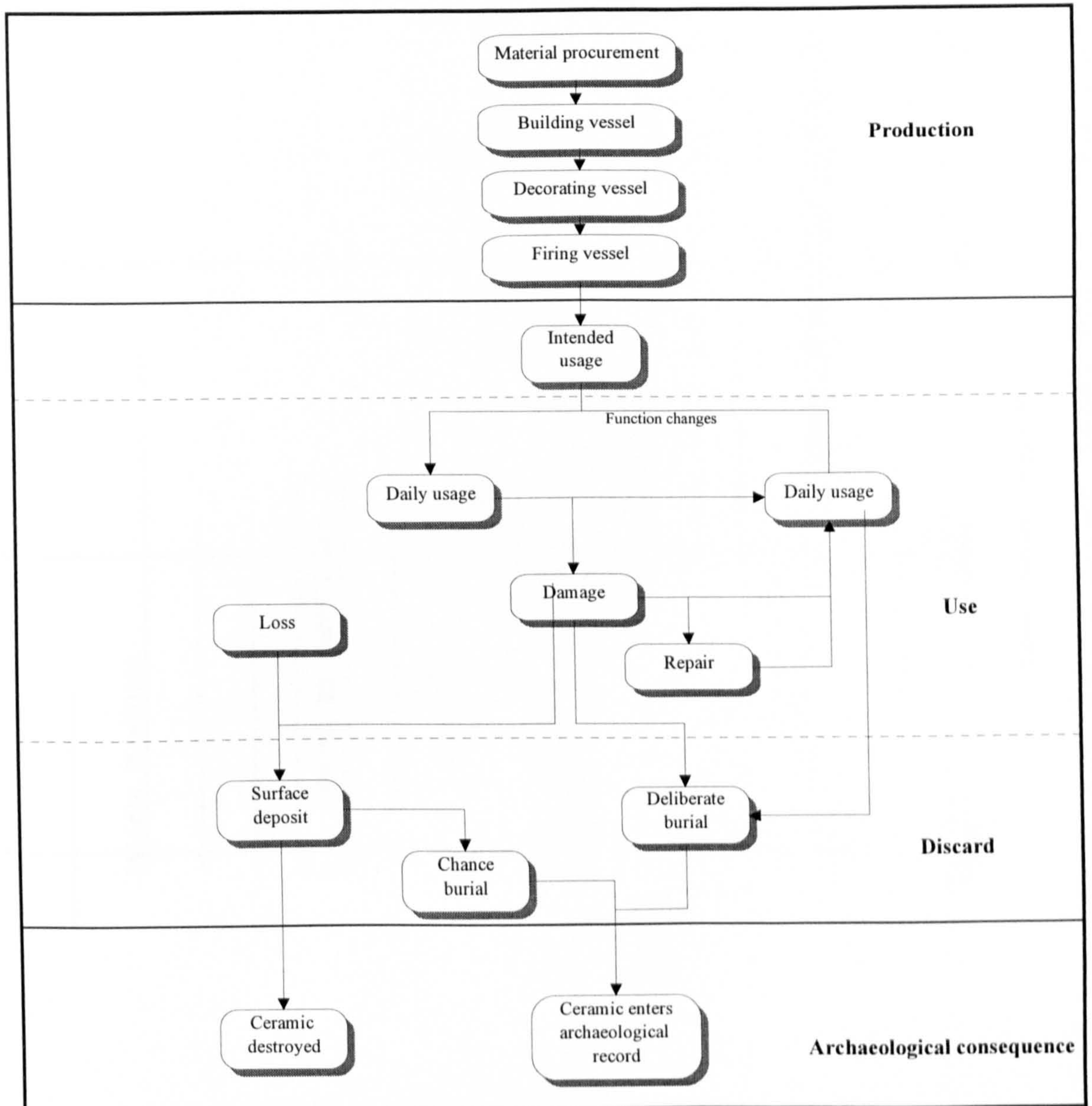


Figure 3.2: Schematic showing the major stages in the life history of a prehistoric vessel, when considered from an archaeological perspective.

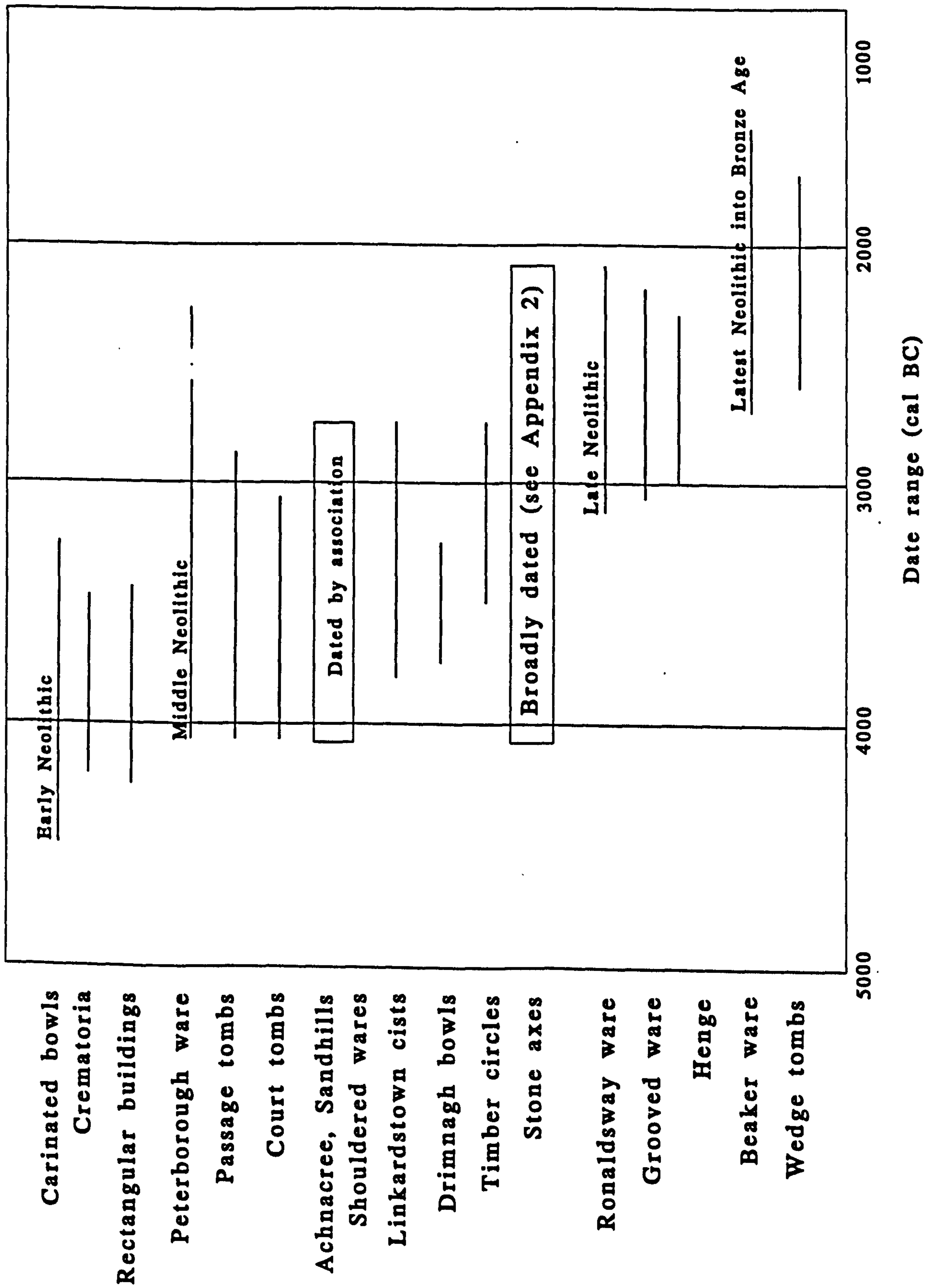


Figure 4.1: Chronology of the major site and artefact types used in this study

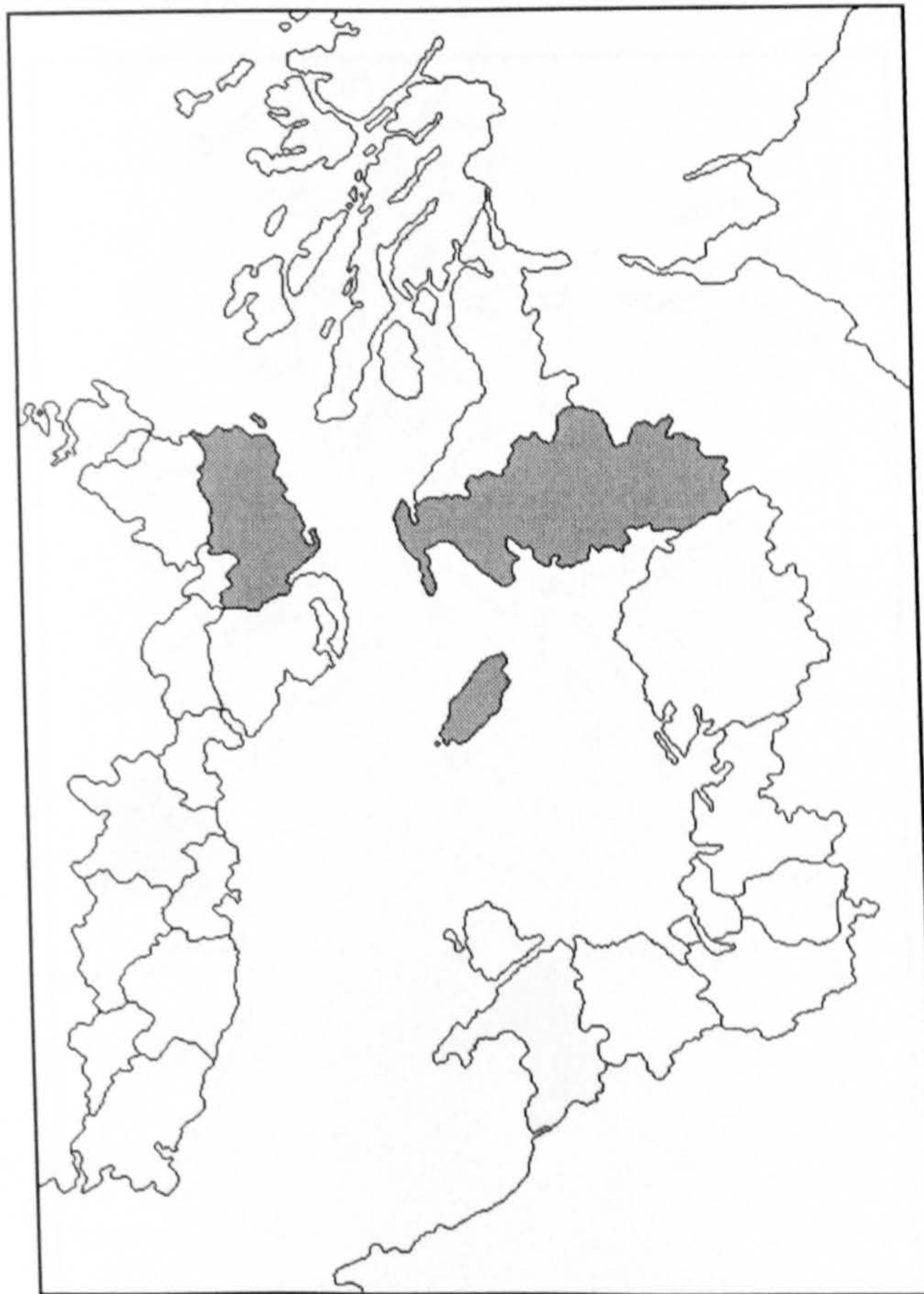


Figure 4.2 Upper. Distribution of Crematoria throughout the British Isles (shaded in black). Includes long barrows with fired facades

Figure 4.2 Lower. Distribution of Crematoria throughout the Irish Sea province by county (shaded in grey).



Figure 4.3 Upper. Distribution of rectangular timber buildings (with slot trenches) throughout the British Isles (shaded in black)

Figure 4.3. Lower. Distribution of rectangular buildings in Irish Sea province by county (shaded in grey).

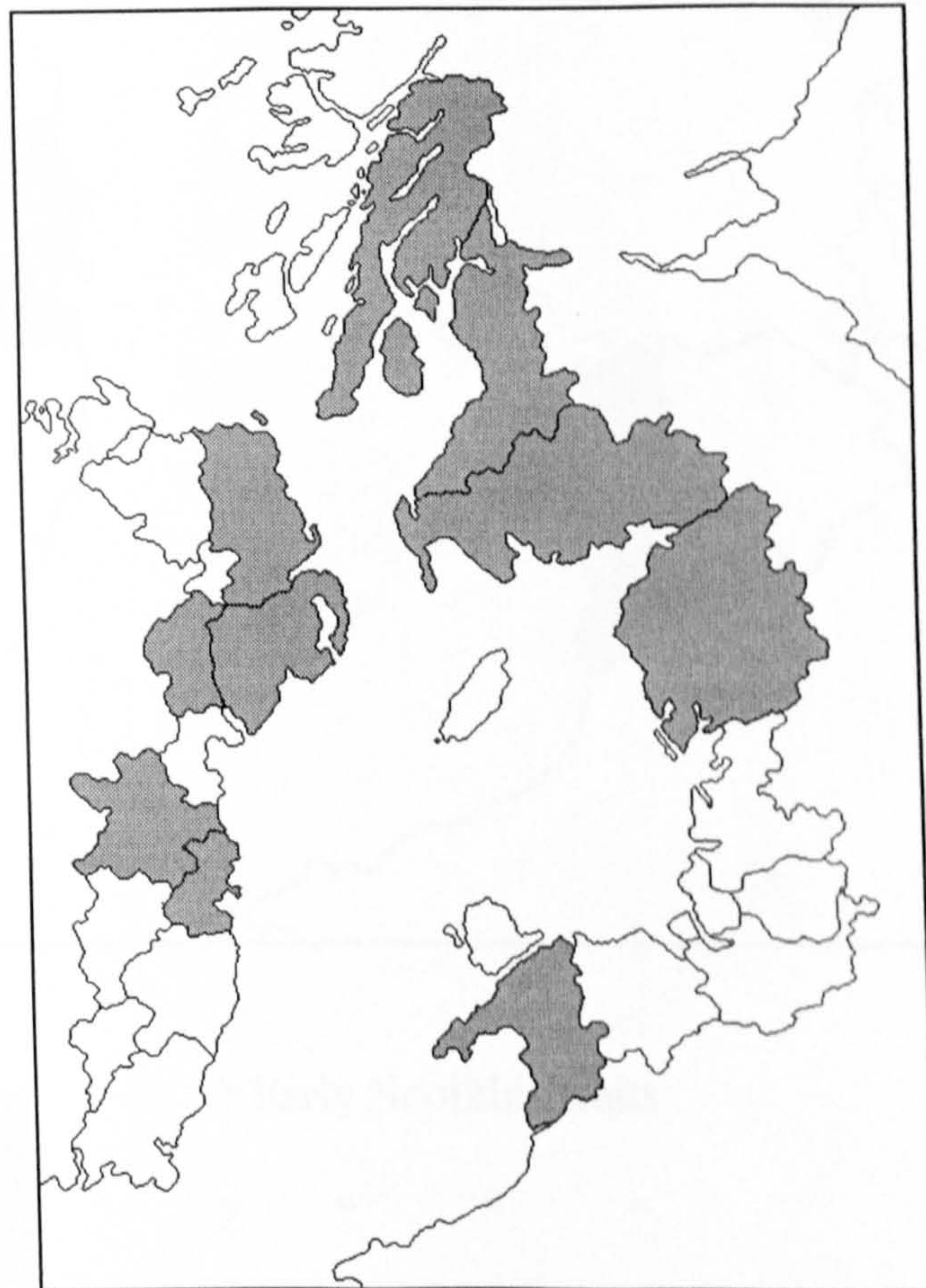
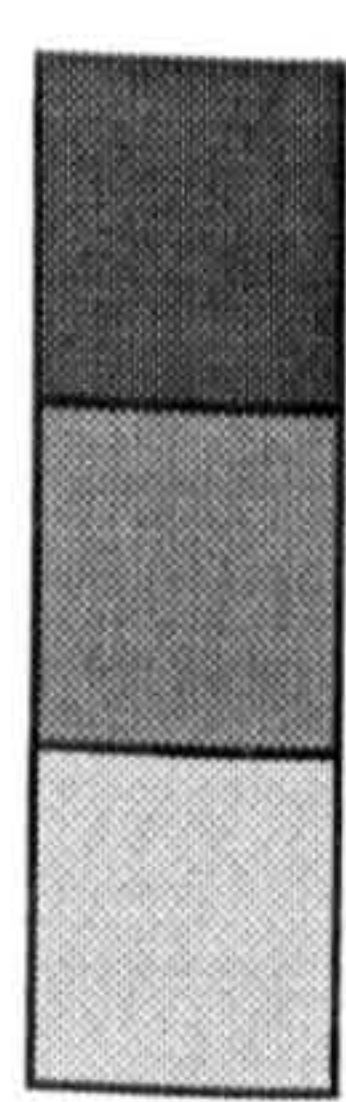
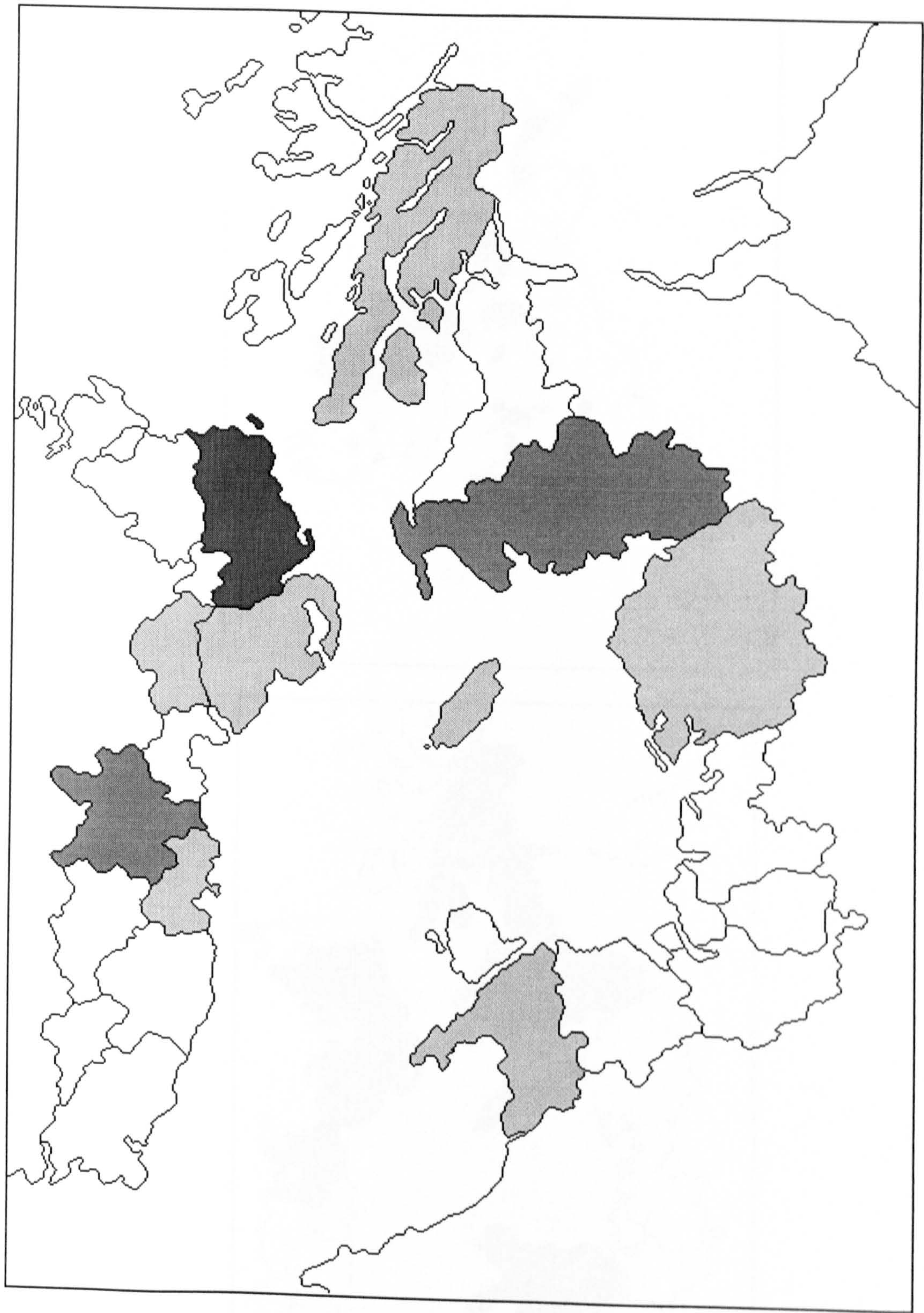


Figure 4.4 Upper. Distribution of Carinated pottery throughout the British Isles (shaded black) (based on data in Herne 1988 with amendments).

Figure 4.4 Lower. Distribution of Carinated pottery throughout the Irish Sea province by county (shaded grey).



3 Early Neolithic traits

2 “ “ “

1 “ “ “

Figure 4.5: Quantification of widespread Early Neolithic site and ceramic types current throughout the study area by county.

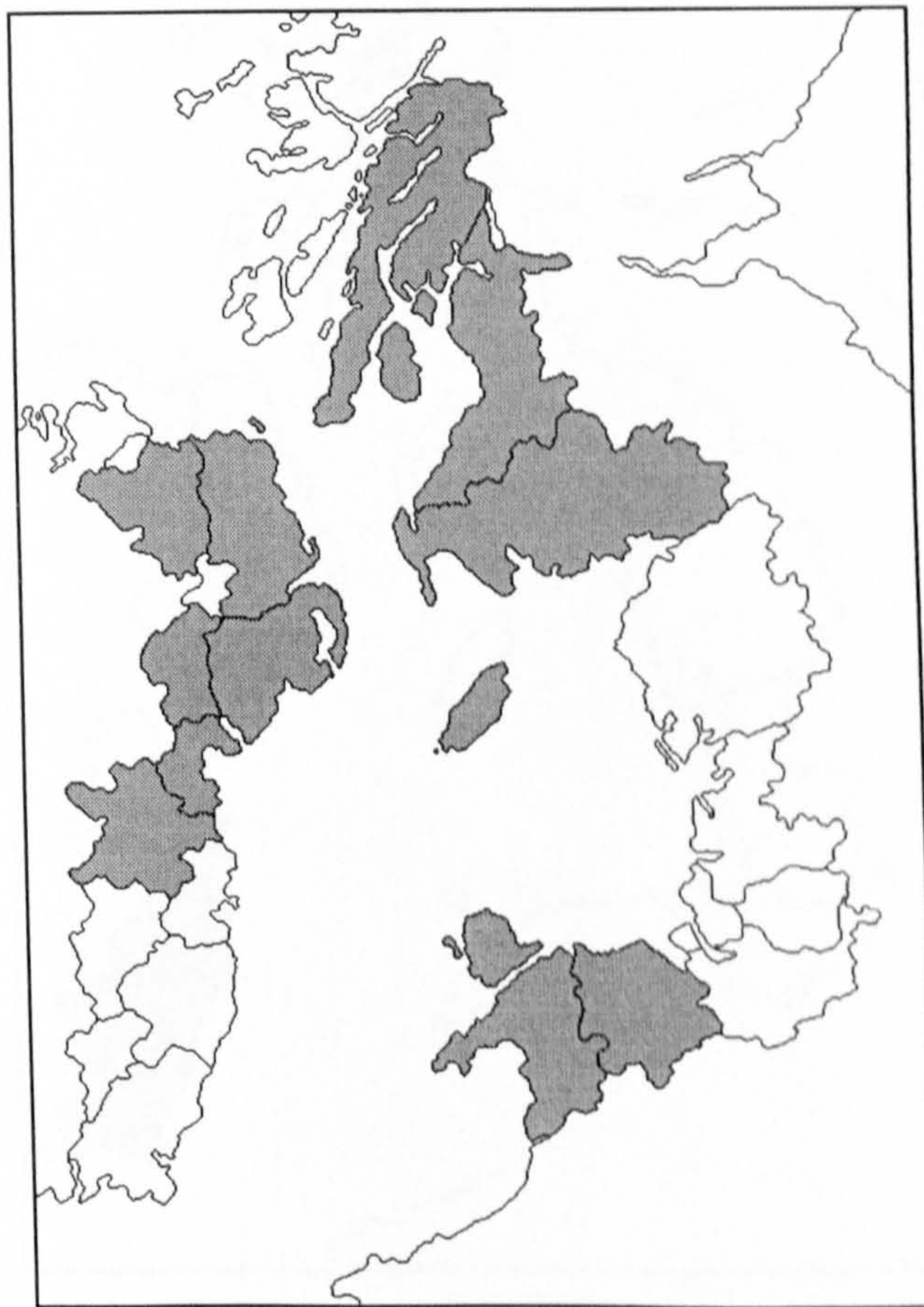


Figure 4.6 Upper. Distribution of Court tombs and allied structures throughout the British Isles (shaded in black (based on Shee Twohig 1990, and Kinnes 1992 with amendments).

Figure 4.6 Lower. Distribution of Court tombs and allied structures in the Irish Sea province by county (shaded grey).



Figure 4.7 Upper. Distribution of Linkardstown cists in the British Isles (shaded in black).

Figure 4.7 Lower. Distribution of Linkardstown cists in the Irish Sea province by county (shaded in grey).

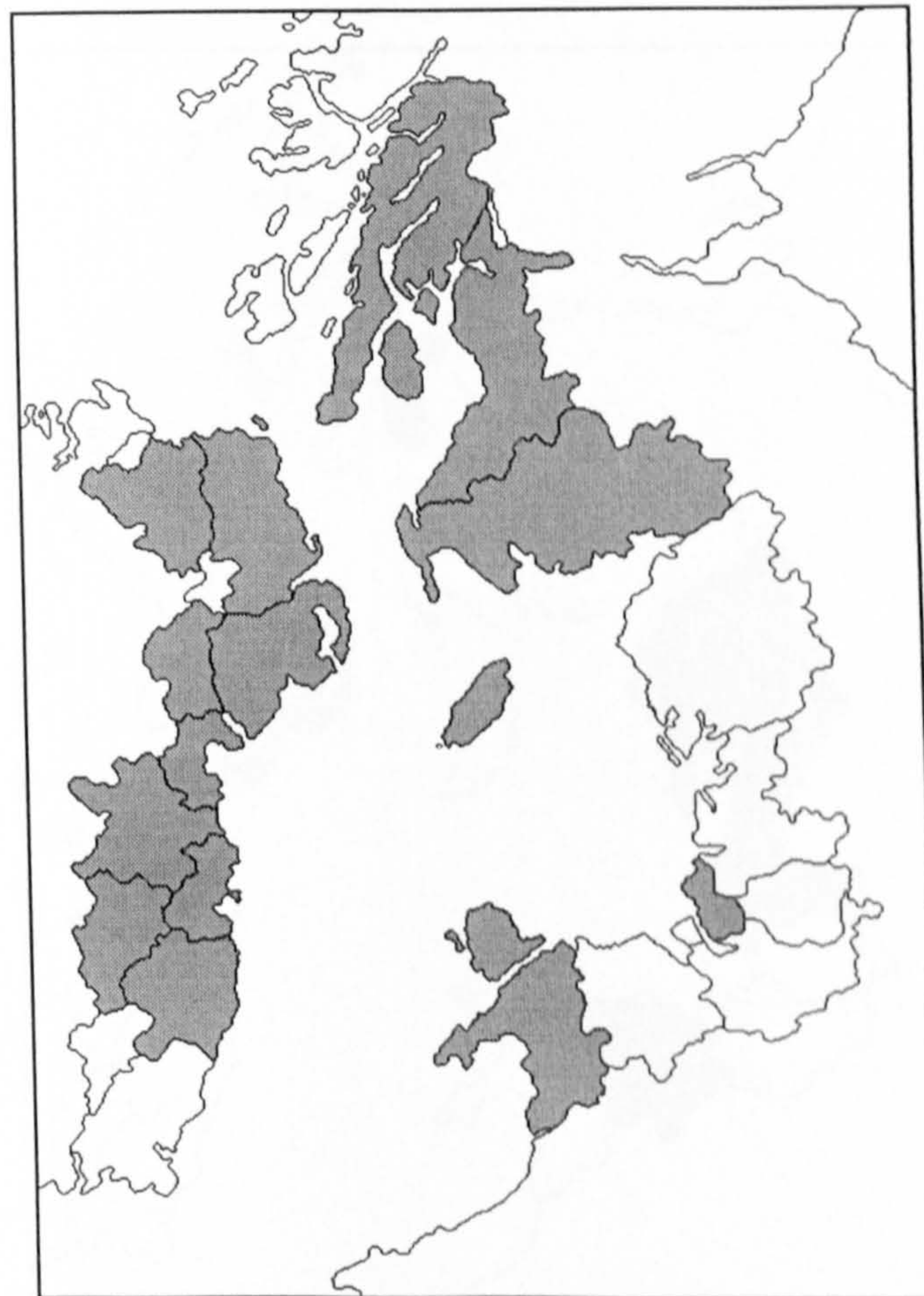


Figure 4.8 Upper. Distribution of Passage tombs throughout the British Isles (shaded in black) (based on Lynch 1969, Henshall 1972, and Shee Twohig 1990, with amendments).

Figure 4.8 Lower. Distribution of Passage tombs in the Irish Sea province by county (shaded in grey).

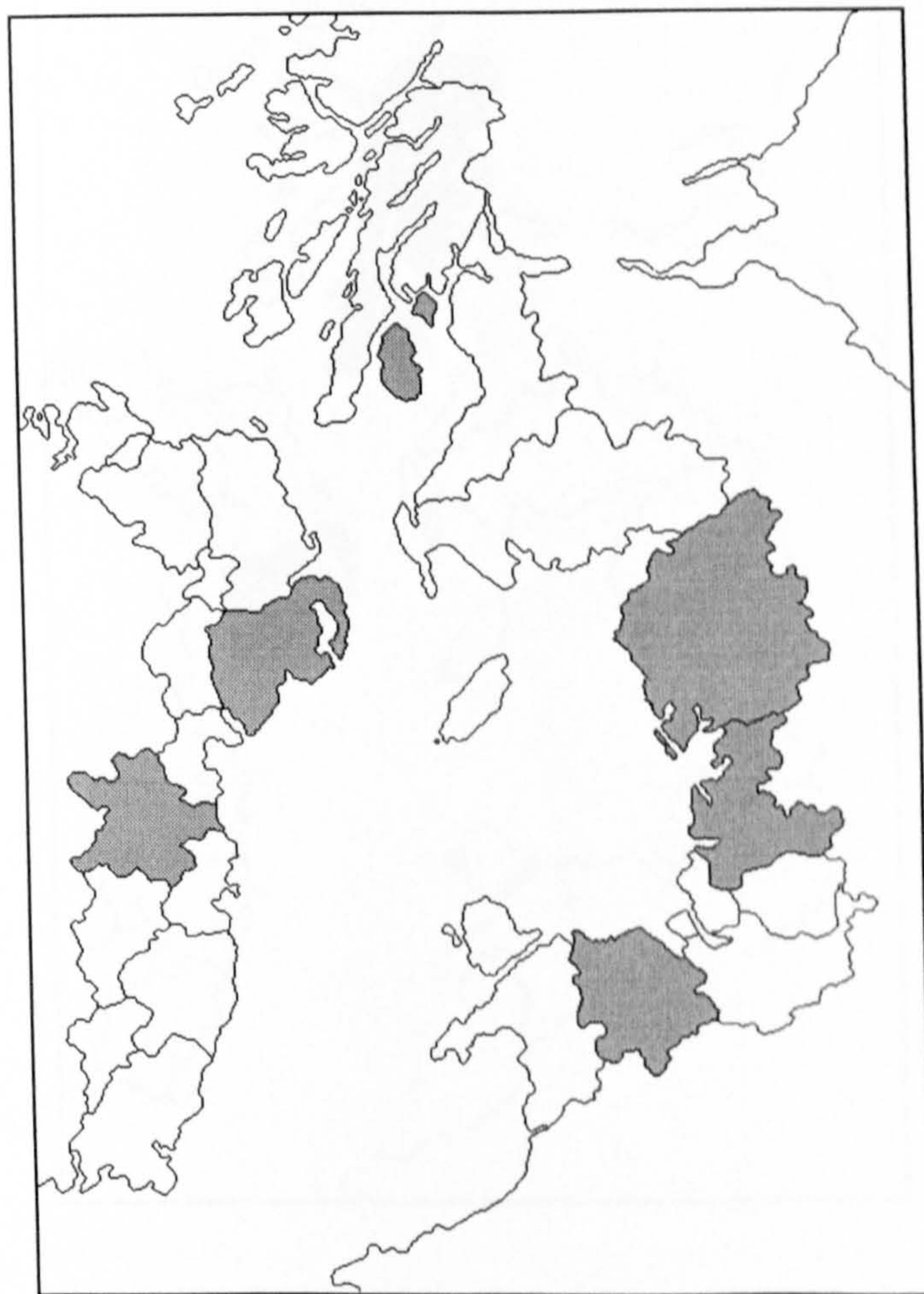


Figure 4.9 Upper. Distribution of Timber circles in the British Isles (shaded in black) (based on Gibson 1994, with amendments).

Figure 4.9 Lower. Distribution of Timber circles in the Irish Sea province by county (shaded in grey)

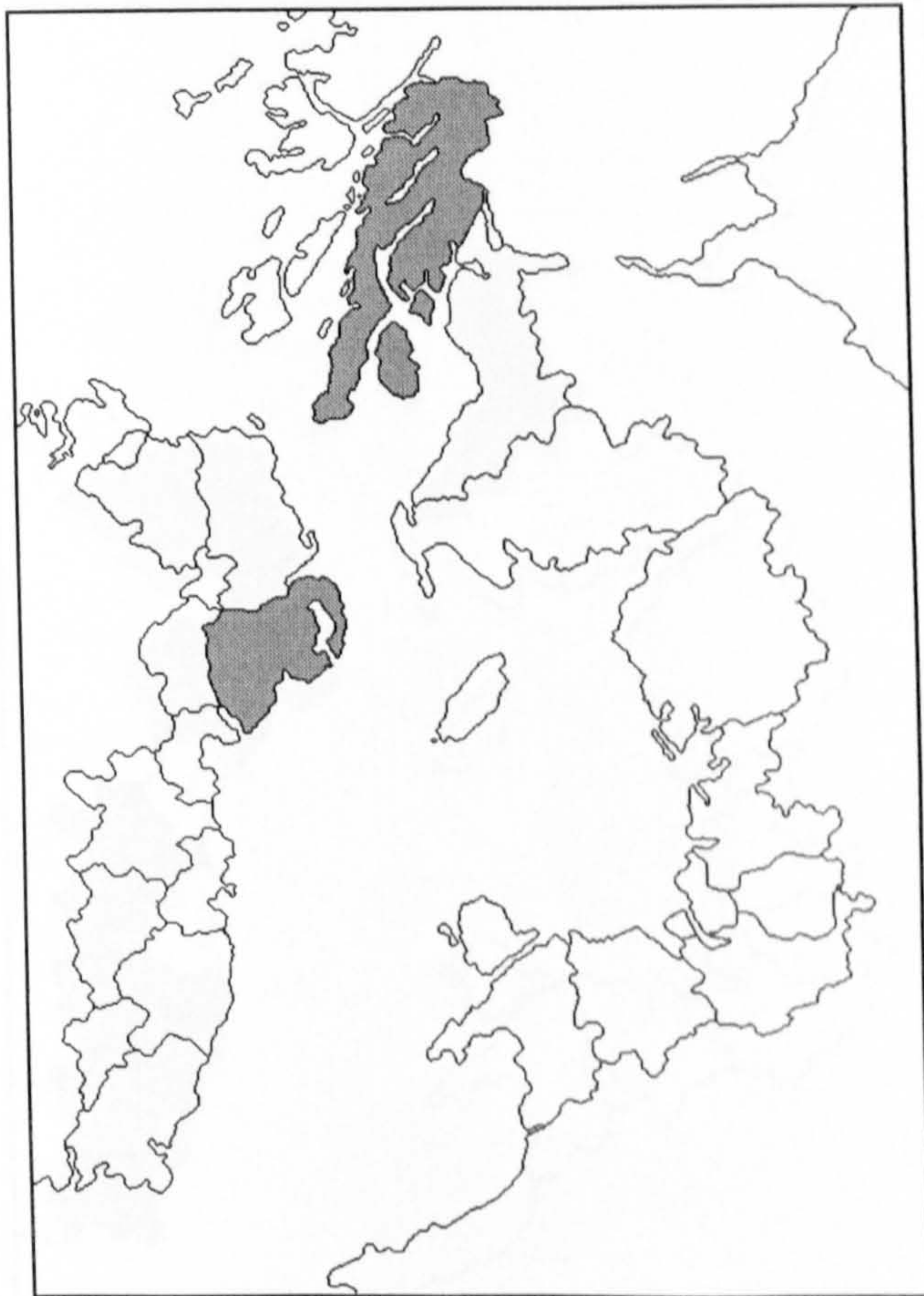


Figure 4.10 Upper. Distribution of Achnacree ware throughout the British Isles (shaded in black)

Figure 4.10 Lower. Distribution of Achnacree ware in the Irish Sea province by county (shaded grey).

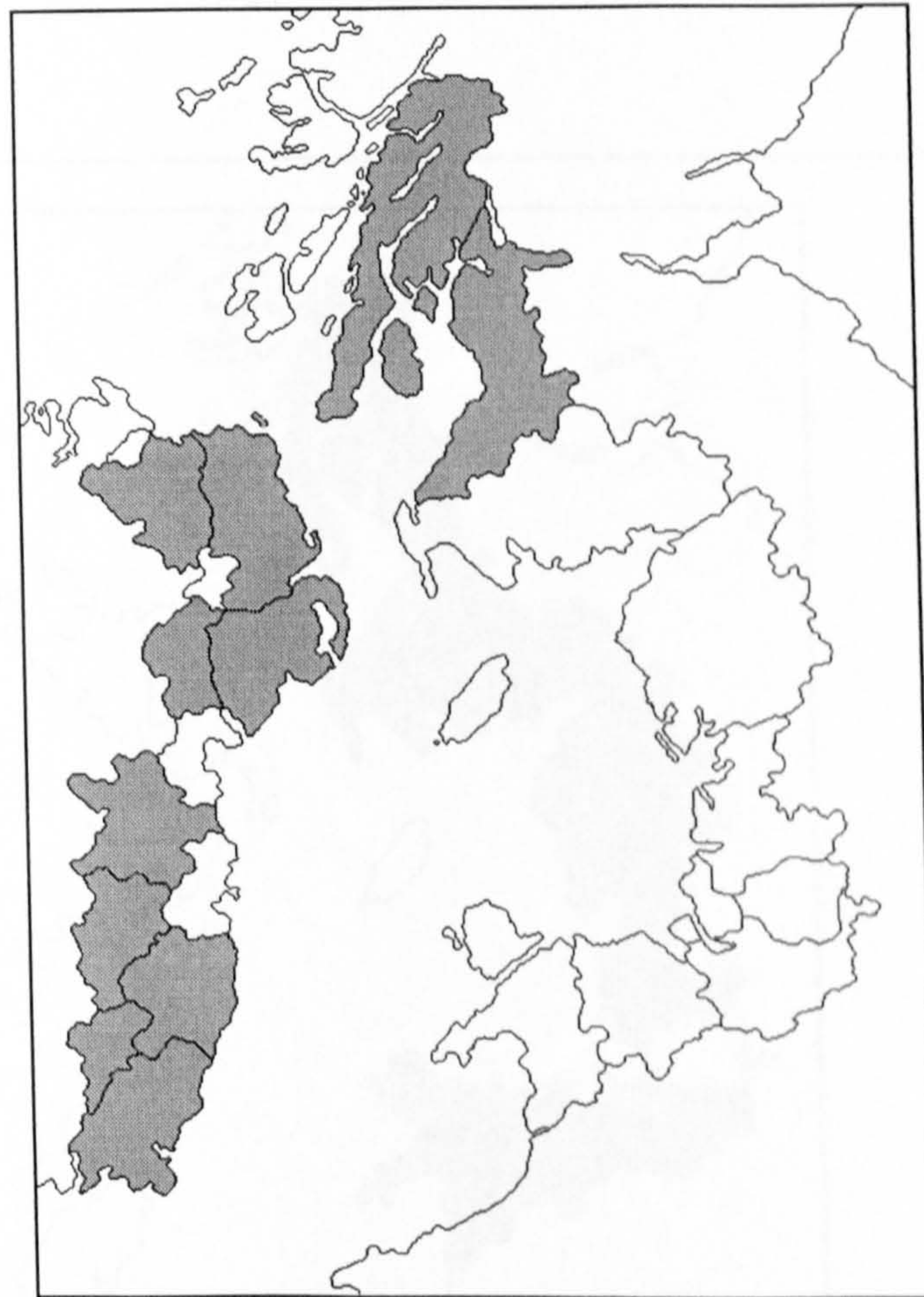


Figure 4.11 Upper. Distribution of Drinnagh bowls in the British Isles (shaded in black).

Figure 4.11 Lower. Distribution of Drinnagh bowls in the Irish Sea province by county. (shaded in grey).

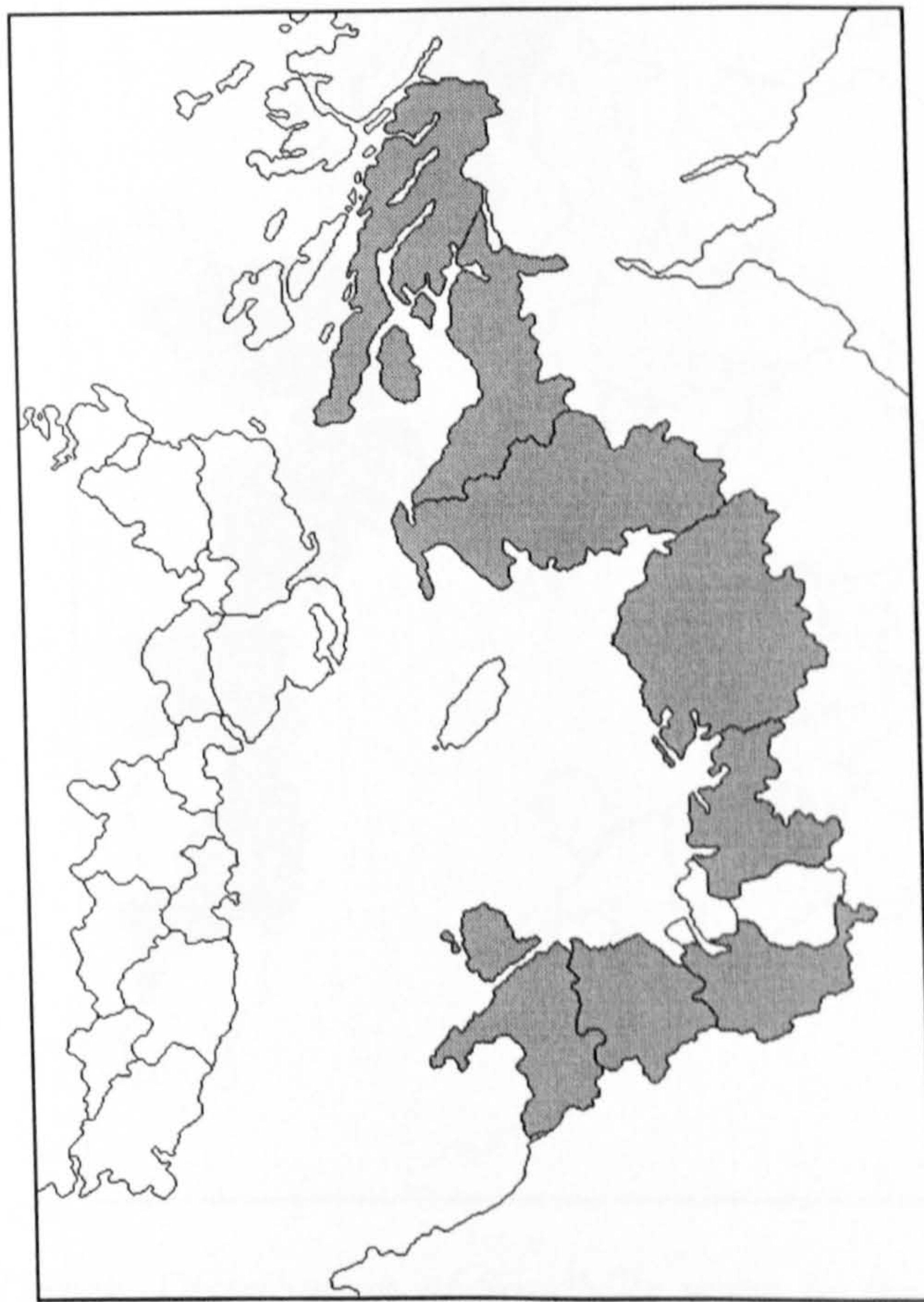


Figure 4.12 Upper. Distribution of Peterborough ware in the British Isles (shaded in black).

Figure 4.12 Lower. Distribution of Peterborough ware in the Irish Sea province by county (shaded in grey).

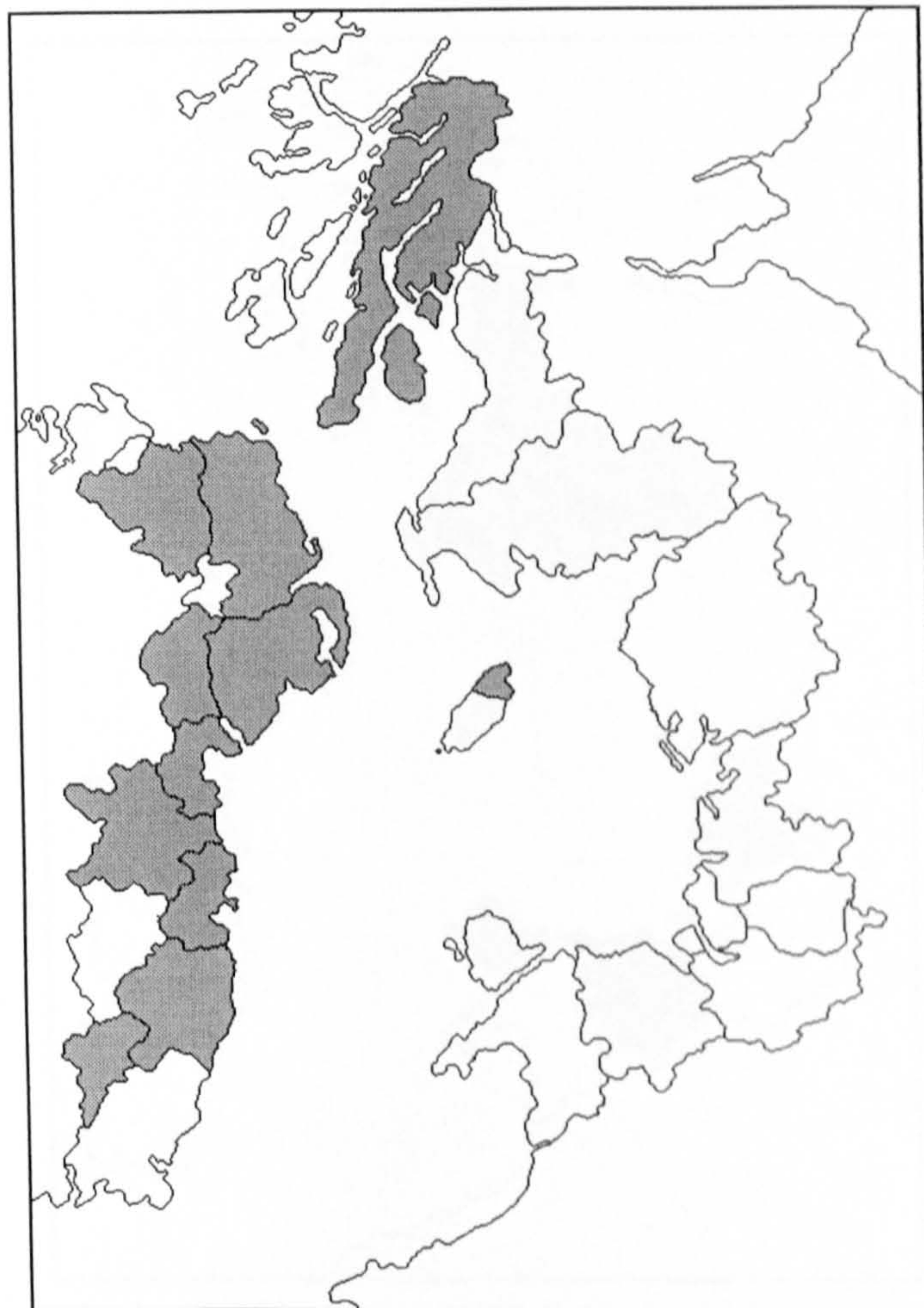


Figure 4.13 Upper. Distribution of Sandhills ware in the British Isles (shaded in black).

Figure 4.13 Lower. Distribution of Sandhills ware in the Irish Sea province by county (shaded in grey).

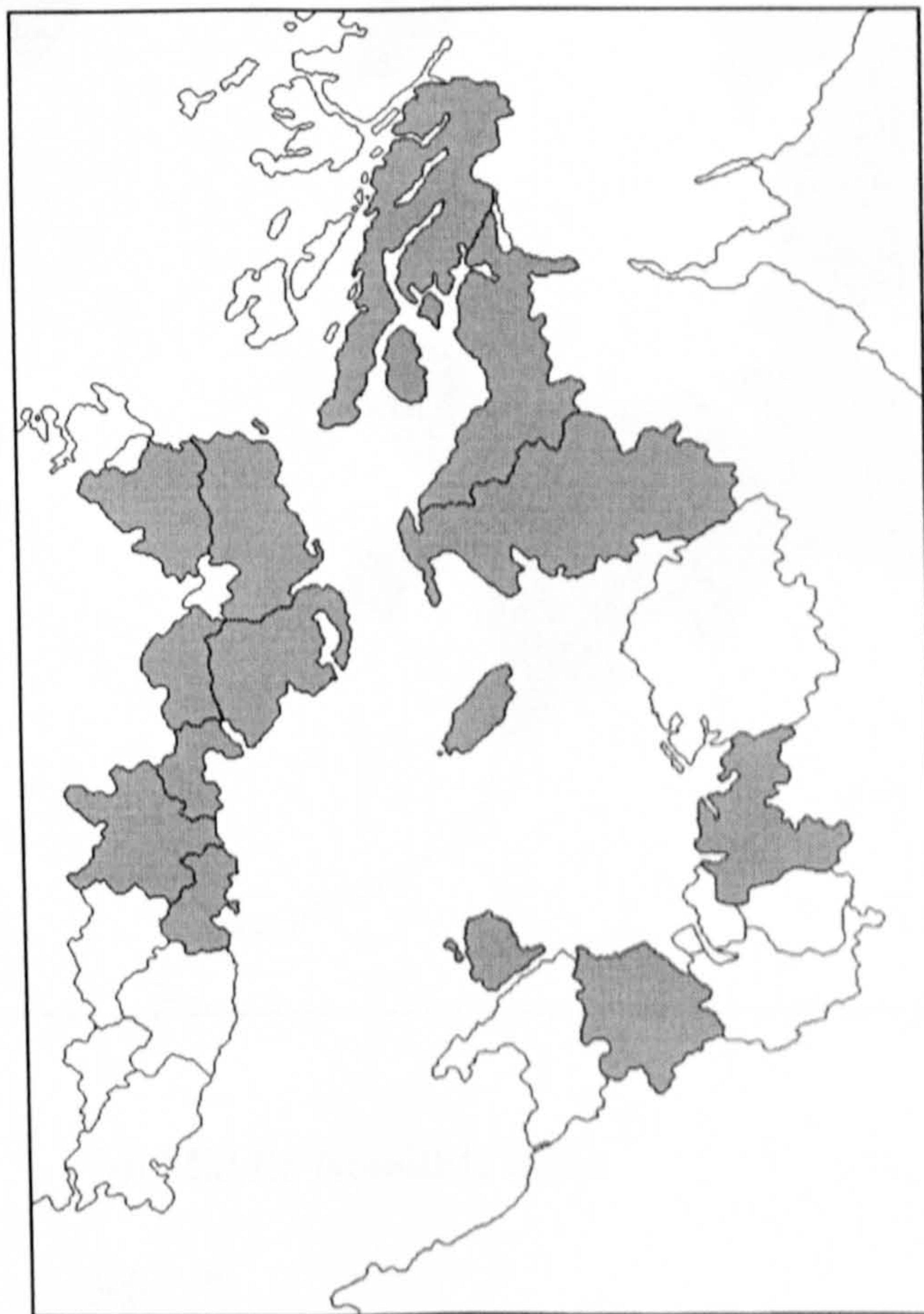


Figure 4.14 Upper. Distribution of Shouldered pottery in the British Isles (shaded in black).

Figure 4.14 Lower. Distribution of Shouldered pottery in the Irish Sea province by county (shaded in grey).

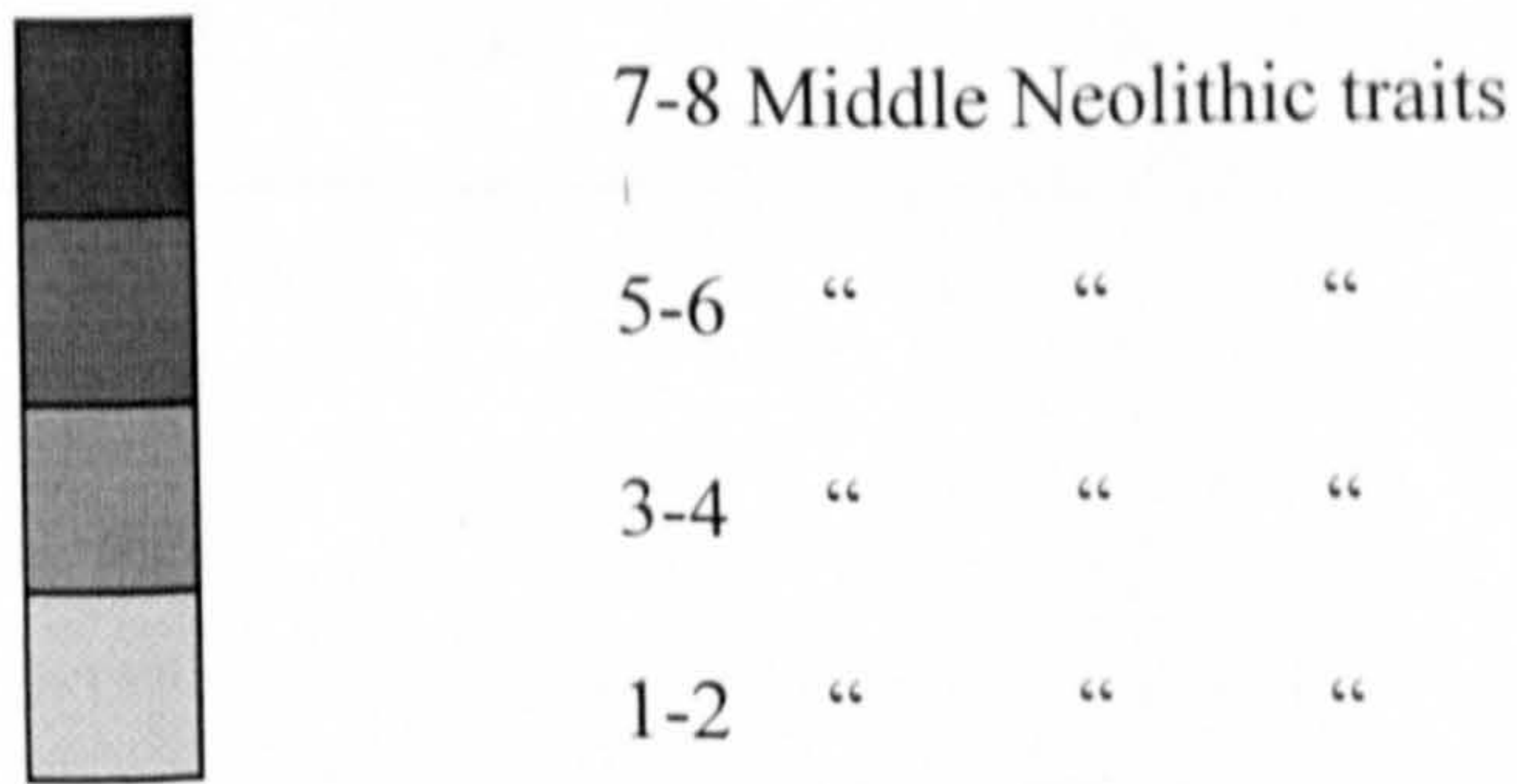
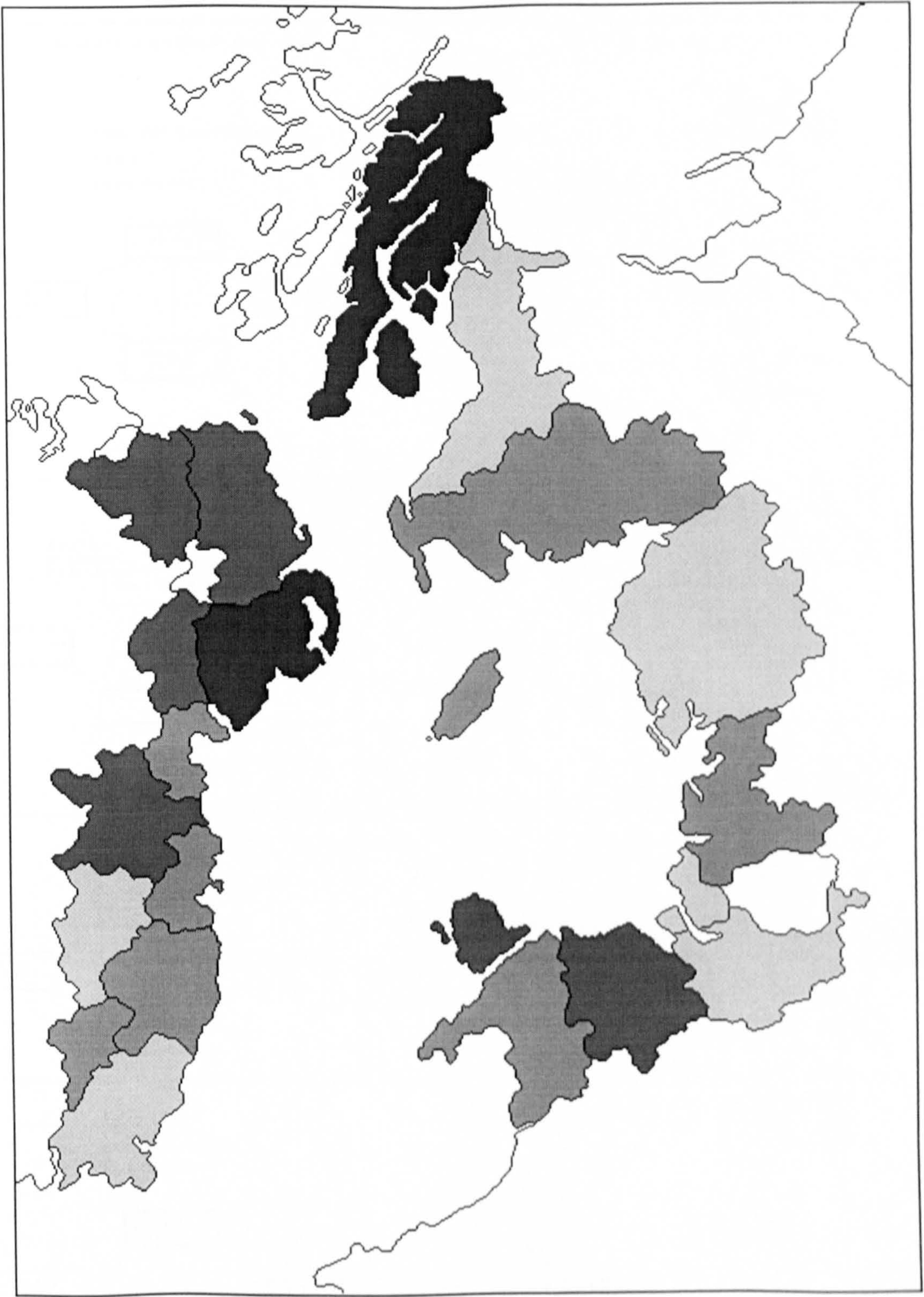


Figure 4.15: Quantification of widespread Middle Neolithic site and ceramic types current throughout the study area by county.

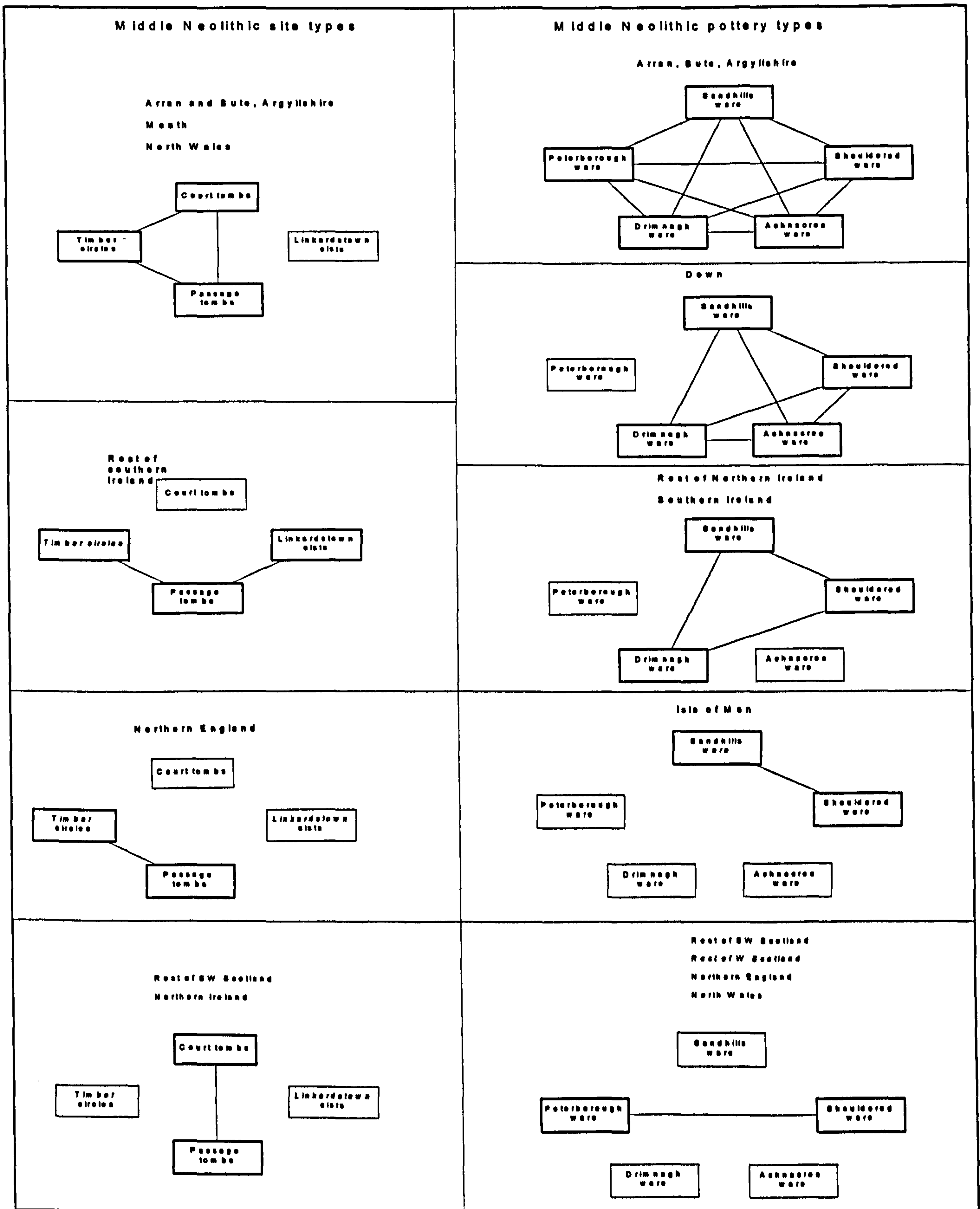


Figure 4.16: Co-occurrence of major Middle Neolithic site and ceramic types throughout the Irish Sea province by regions.

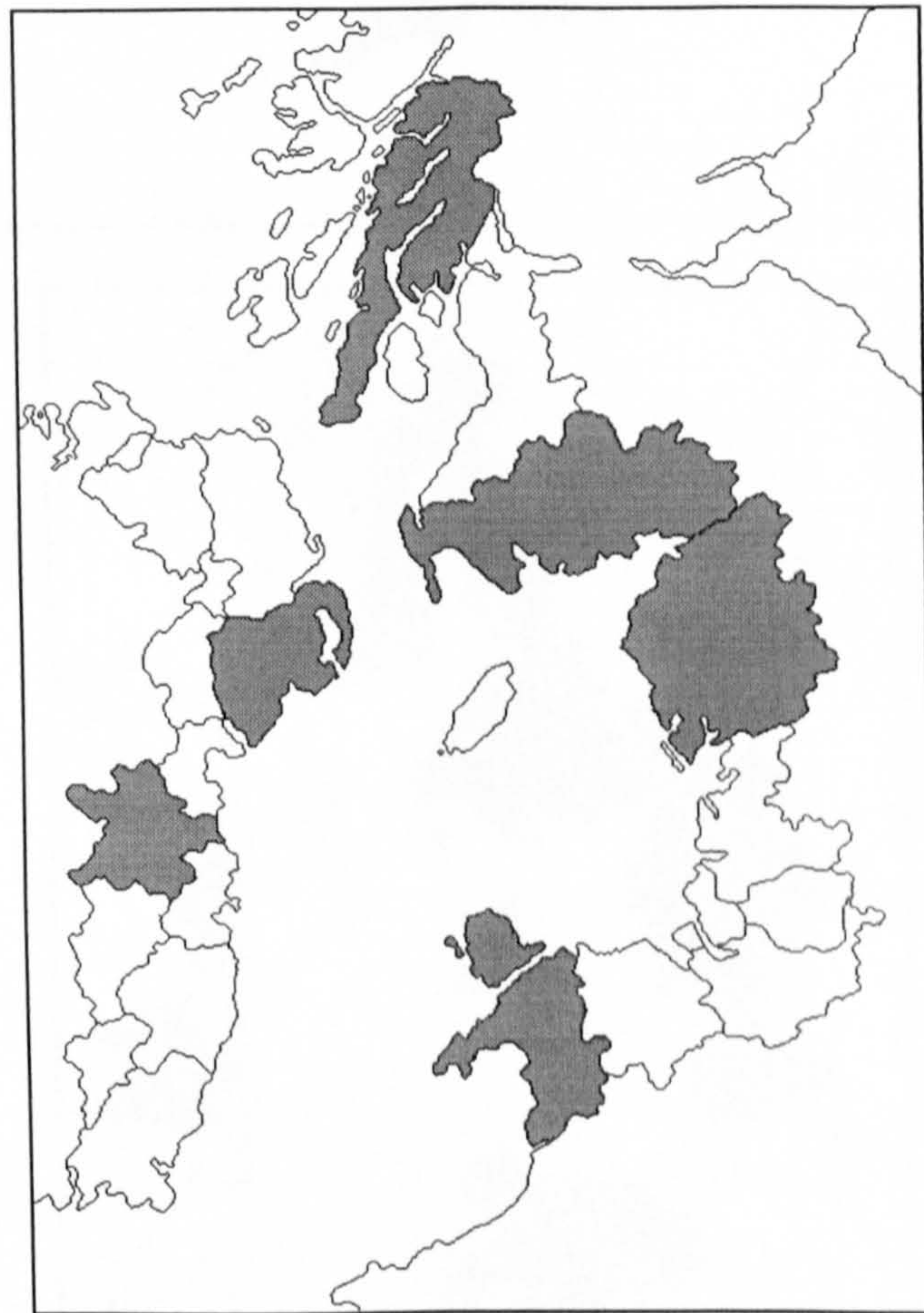
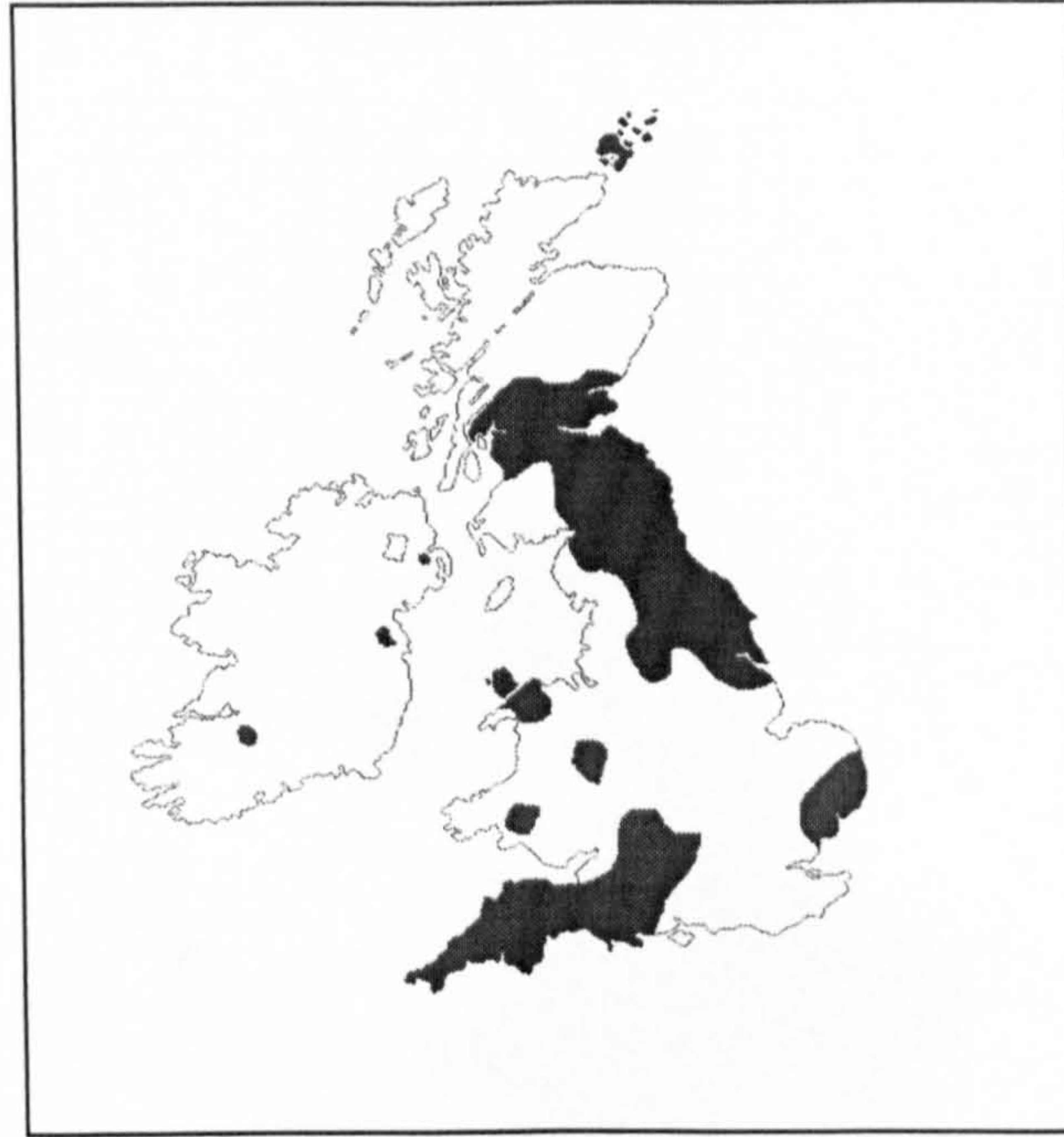


Figure 4.17 Upper. Distribution of Henges in the British Isles (shaded in black) (based on Harding and Lee 1987, with amendments).

Figure 4.17 Lower. Distribution of Henges in the Irish Sea province by county (shaded in grey).

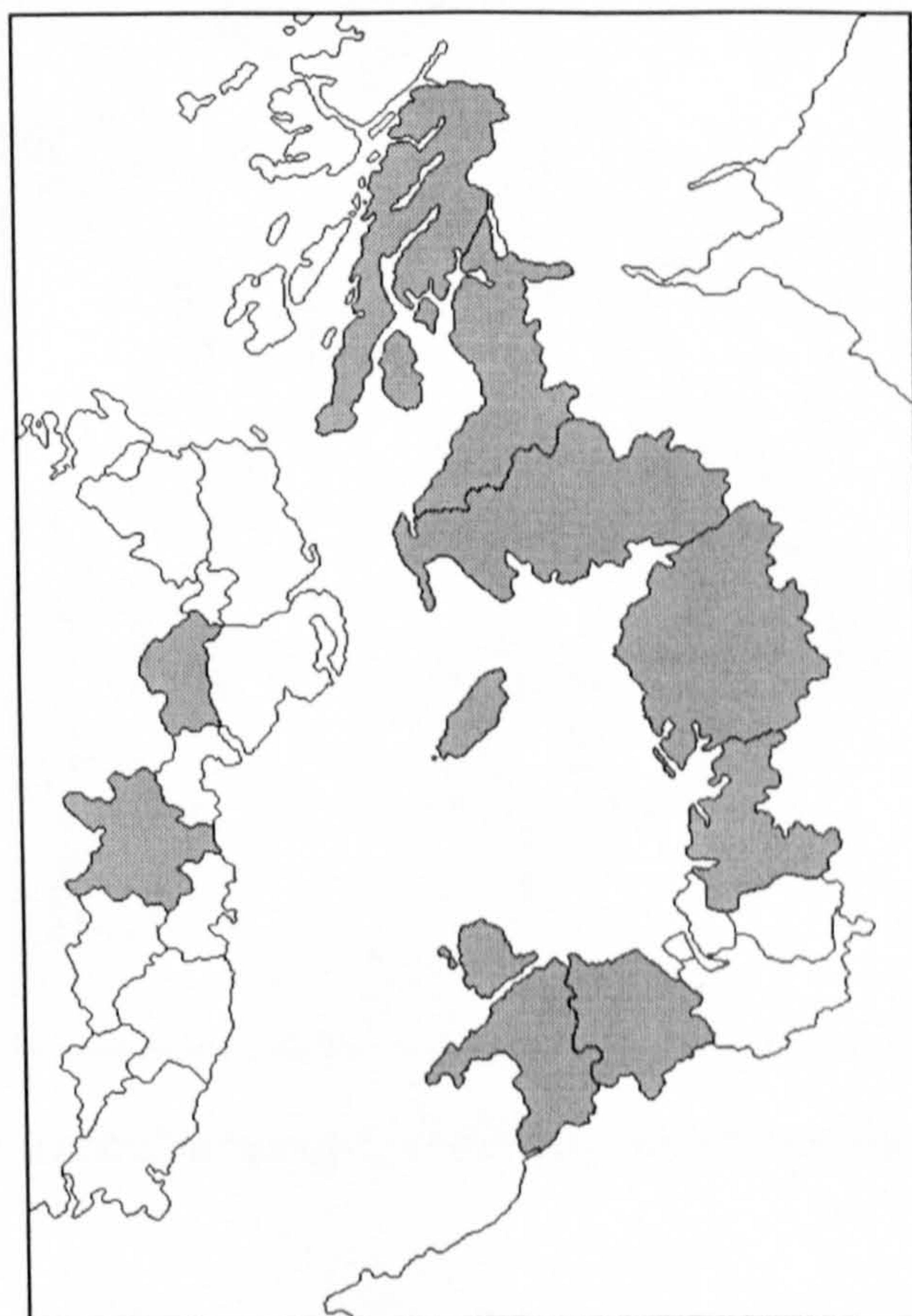
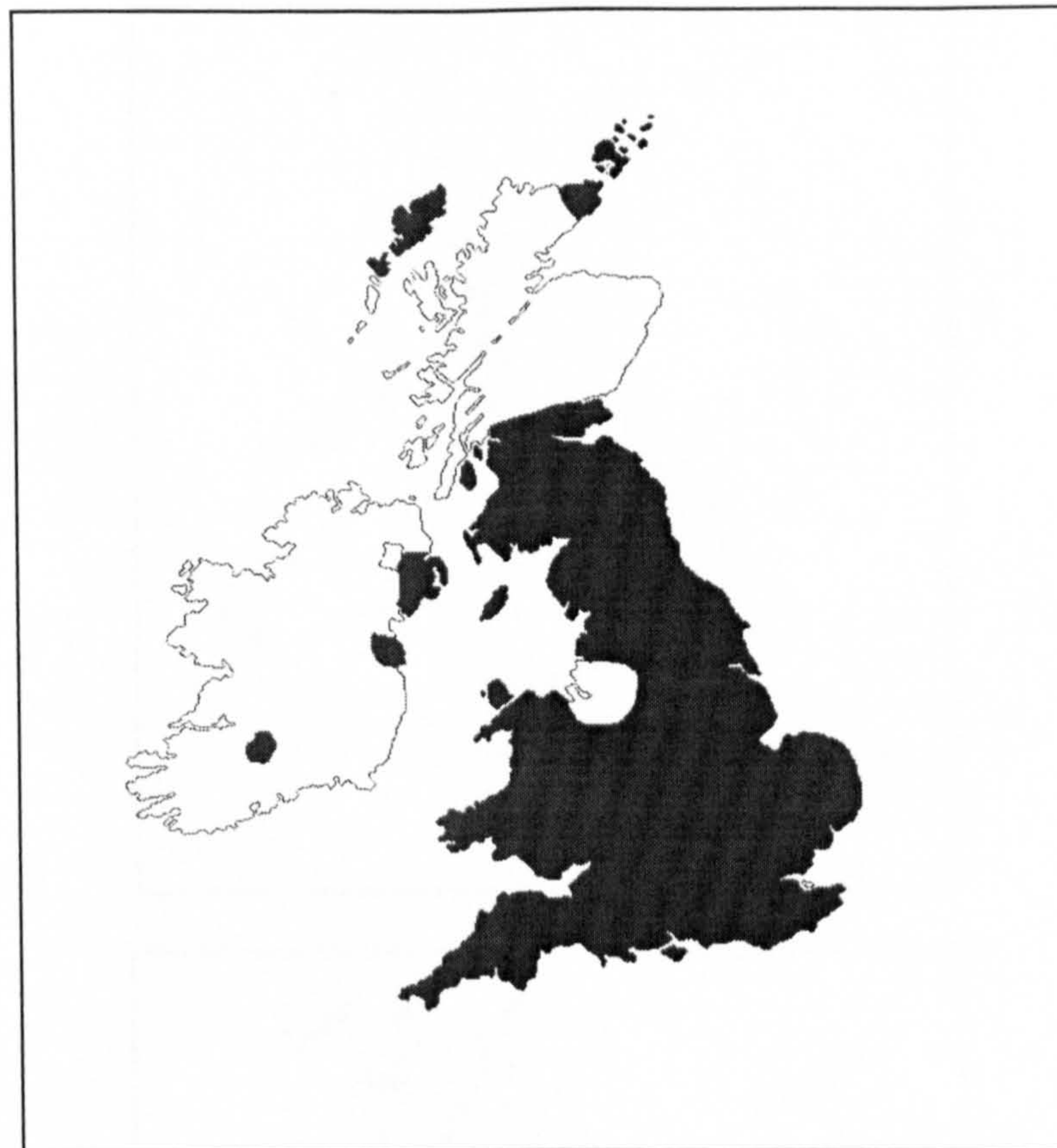


Figure 4.18 Upper. Distribution of Grooved ware in the British Isles (shaded in black) (based on Wainwright and Longworth 1971, with amendments).

Figure 4.18 Lower. Distribution of Grooved ware in the Irish Sea province by county (shaded grey).



Figure 4.19 Upper. Distribution of Ronaldsway pottery in the British Isles (shaded in black).

Figure 4.19 Lower. Distribution of Ronaldsway pottery in the Irish Sea province by county (shaded in grey).

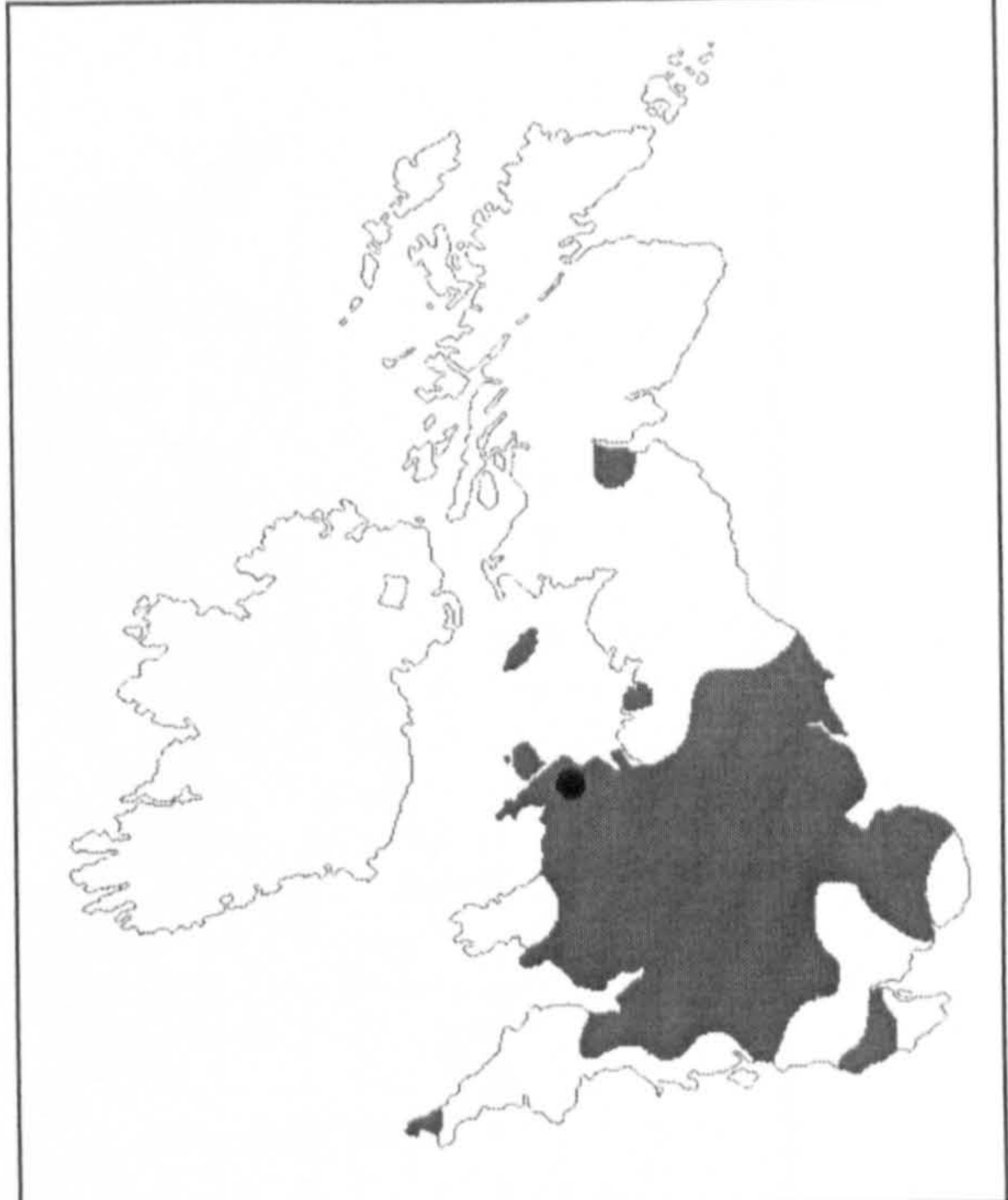
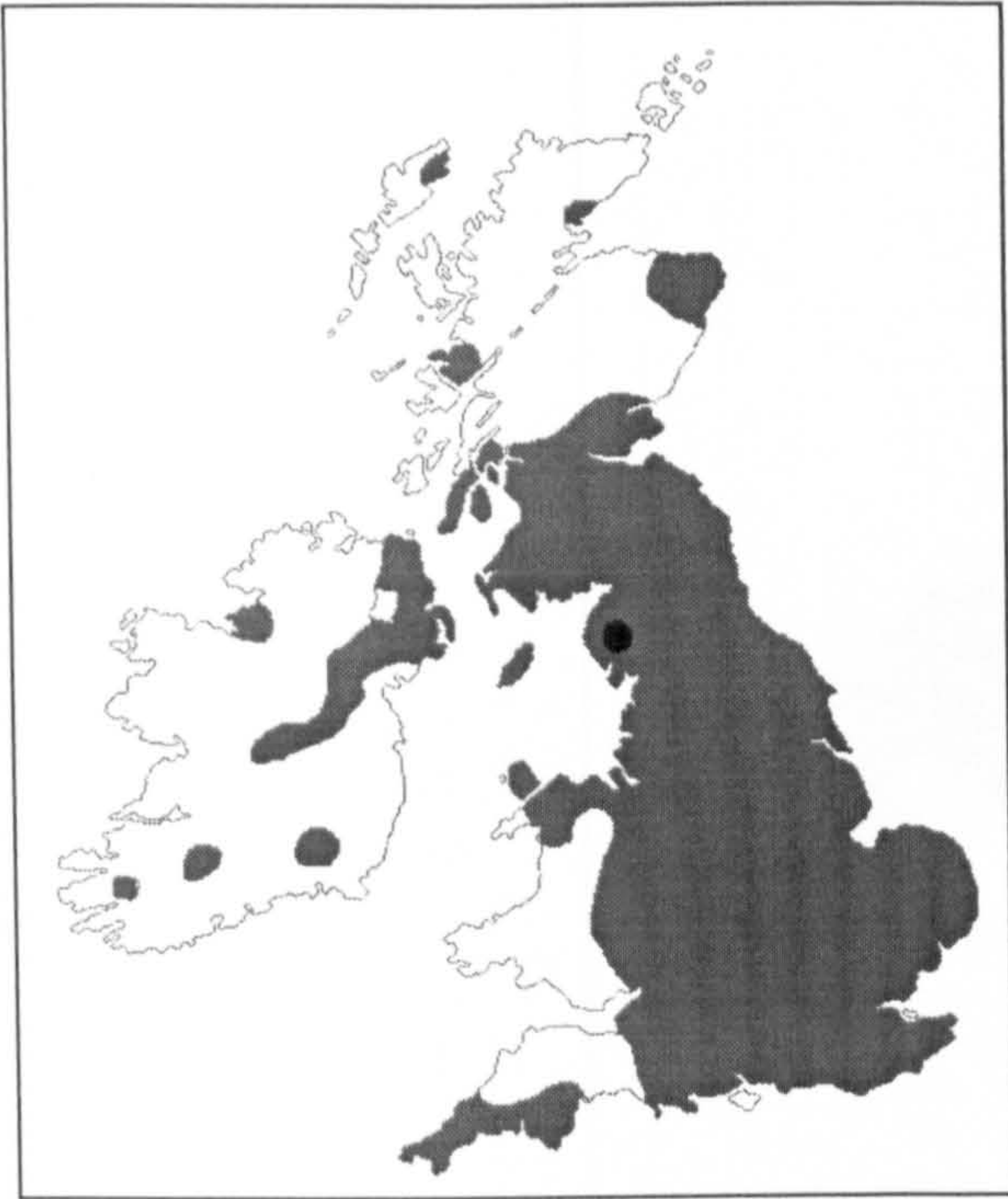


Figure 4.20: Distribution of stone axes in the British Isles. (Sources marked as black dots)
 (based on Clough and Cummins 1988)

Top left. Group VI. Top right. Group VII.
 Bottom left. Group IX. Bottom Right Group XV.

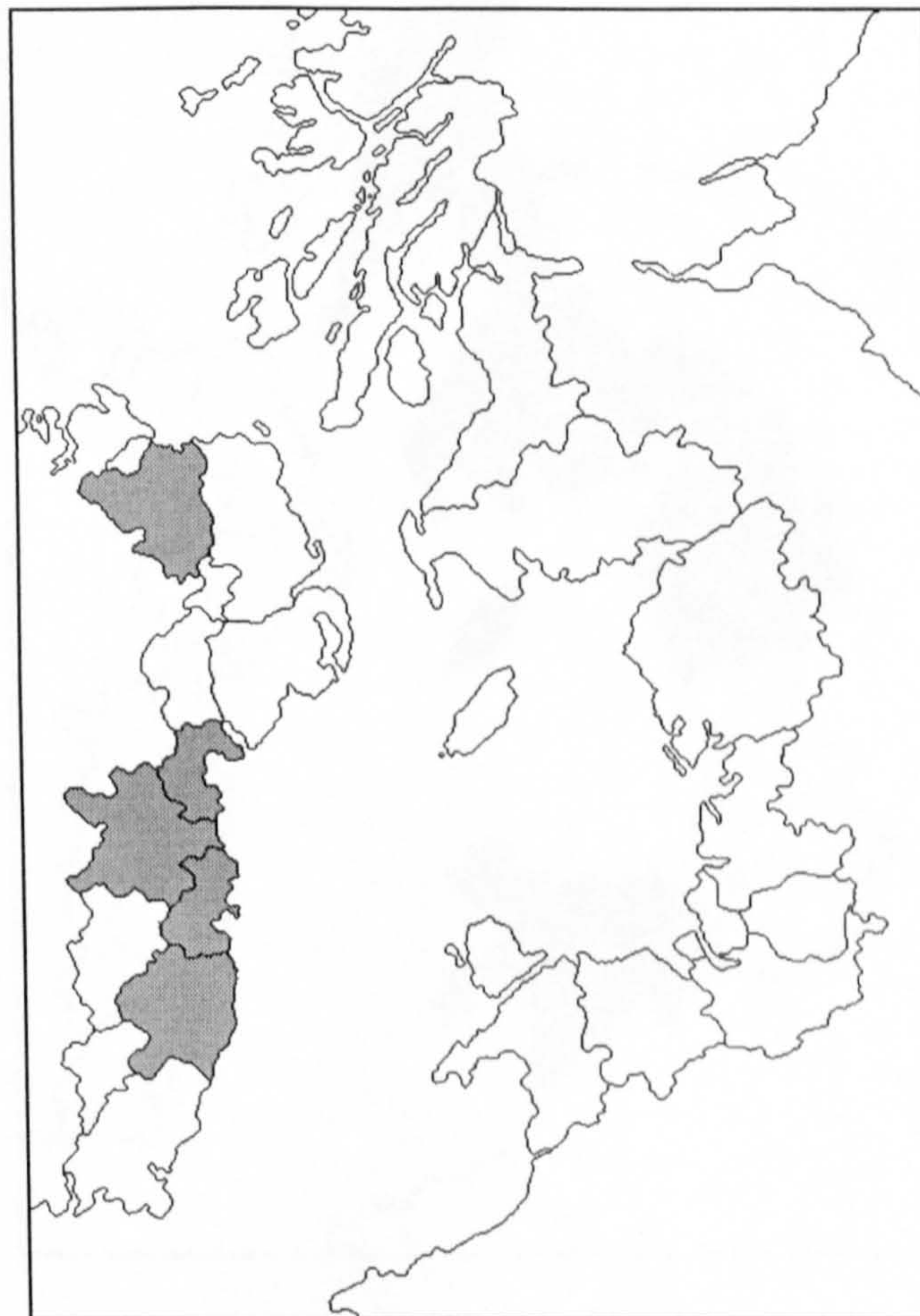


Figure 4.21 Upper. Distribution of Wedge tombs throughout the British Isles (shaded in black) (based on Shee Twohig 1990, with amendments)

Figure 4.21 Lower. Distribution of Wedge tombs in the Irish Sea province by county (shaded grey).

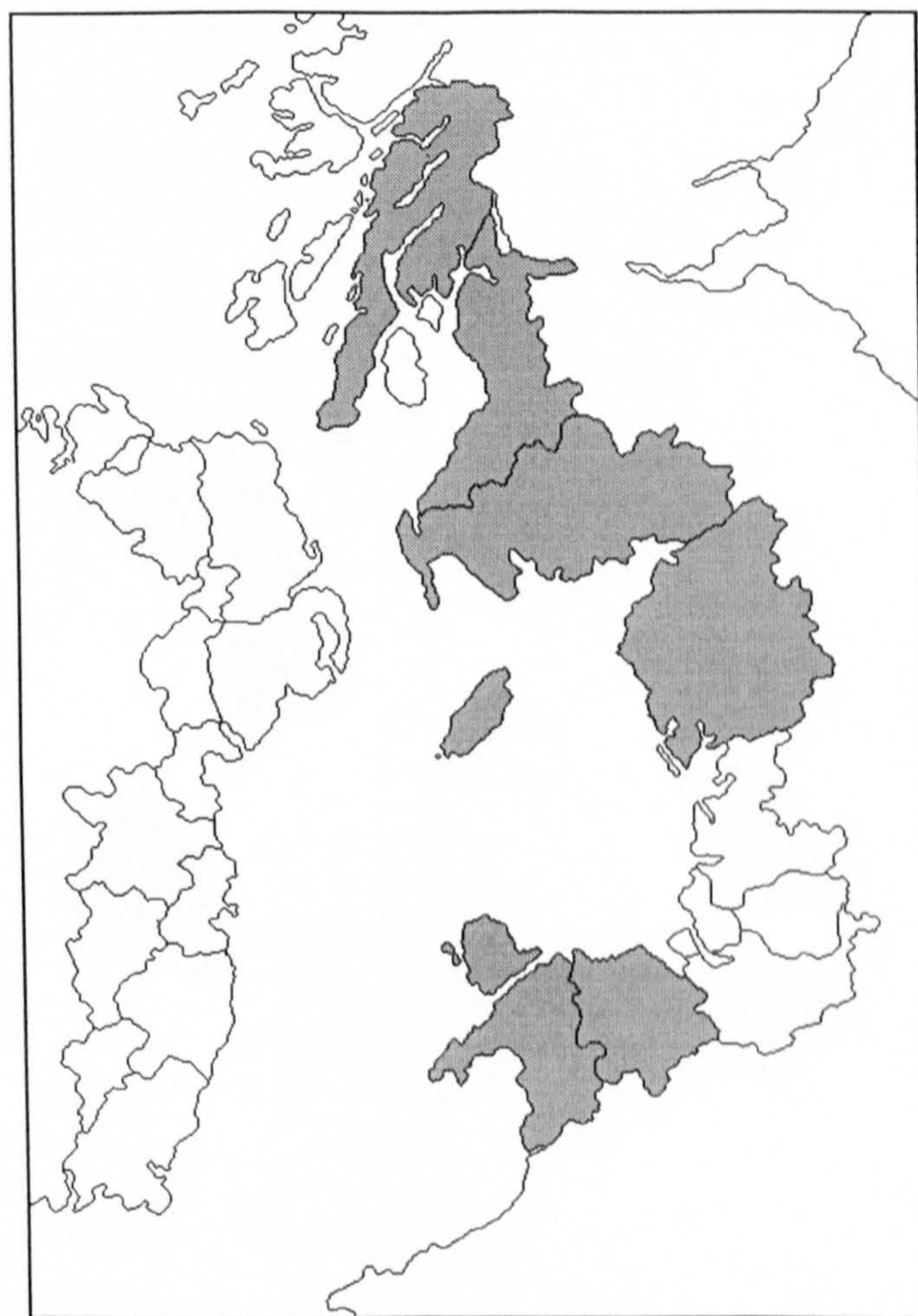


Figure 4.22 Upper. Distribution of cists in the British Isles (shaded in black).

Figure 4.22 Lower. Distribution of cists containing Beakers in the Irish Sea province by county (shaded in grey).

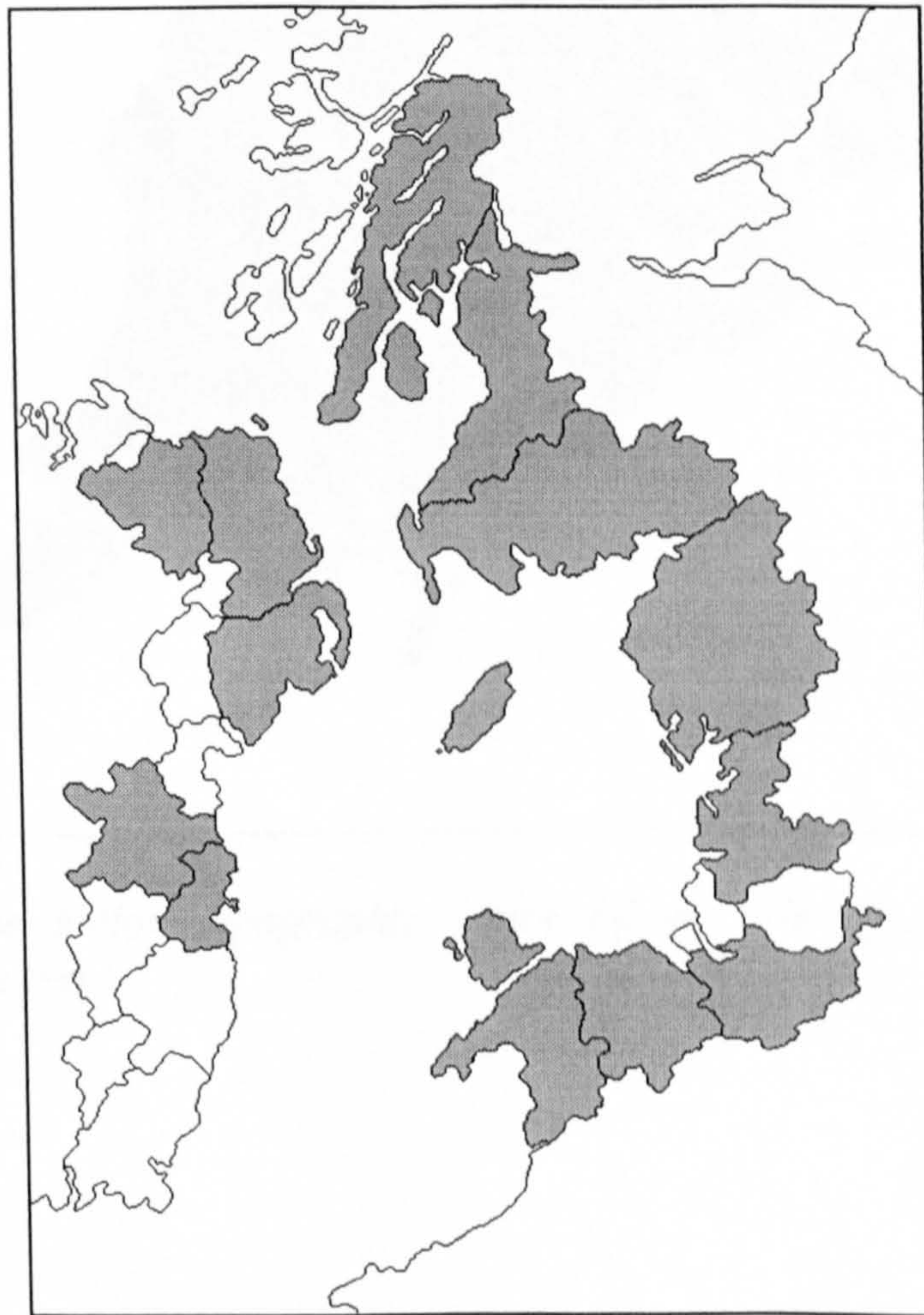


Figure 4.23 Upper. Distribution map of Beaker pottery in the British Isles (shaded in black) (based on Clarke 1970, with amendments).

Figure 4.23 Lower. Distribution of beaker pottery in the Irish Sea province by county (shaded in grey).

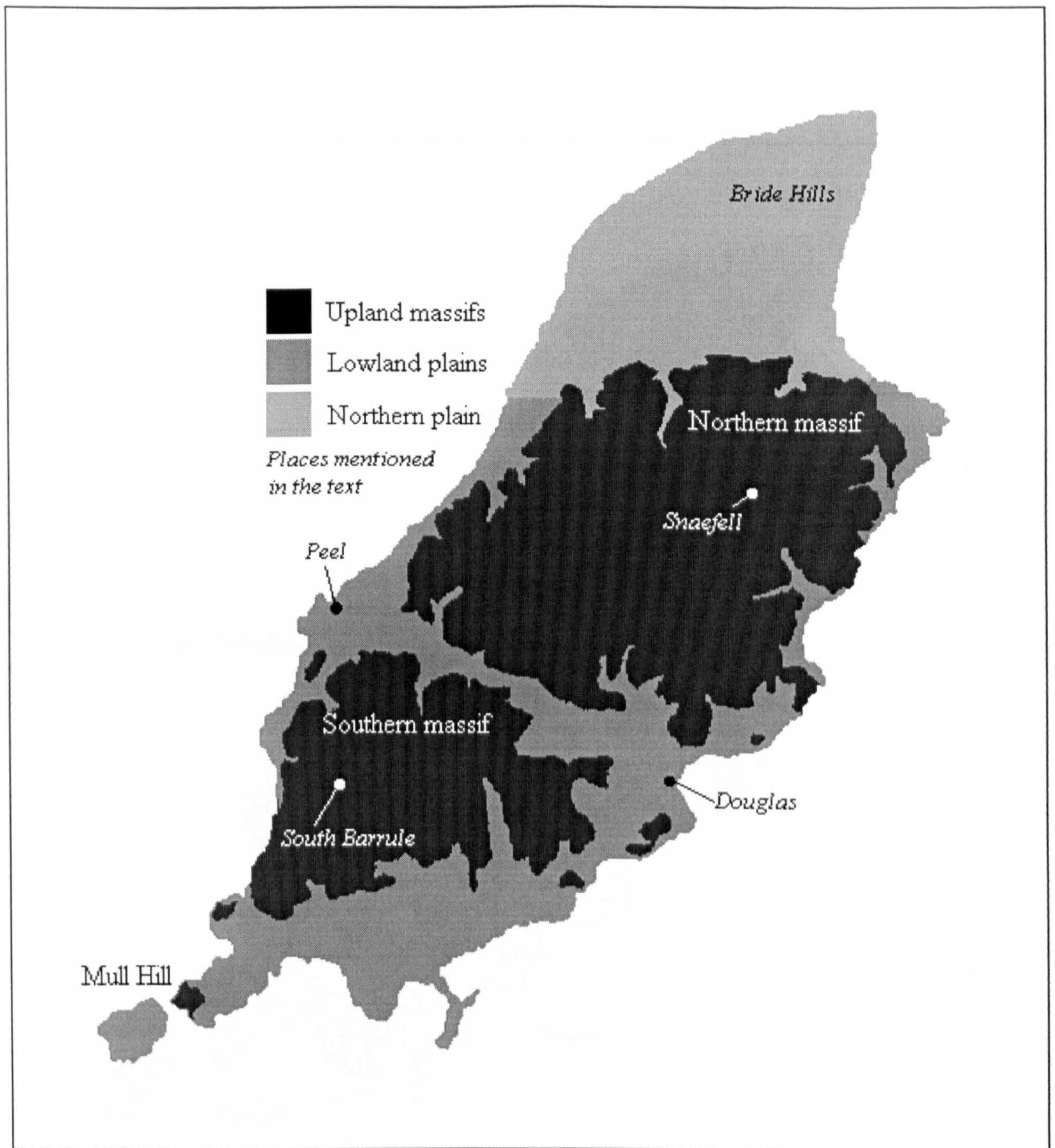


Figure 5.1: The major topographic zones of the Isle of Man, and places mentioned in the text

Figure 5.2: The major topographic zones of the Isle of Man, and places mentioned in the text

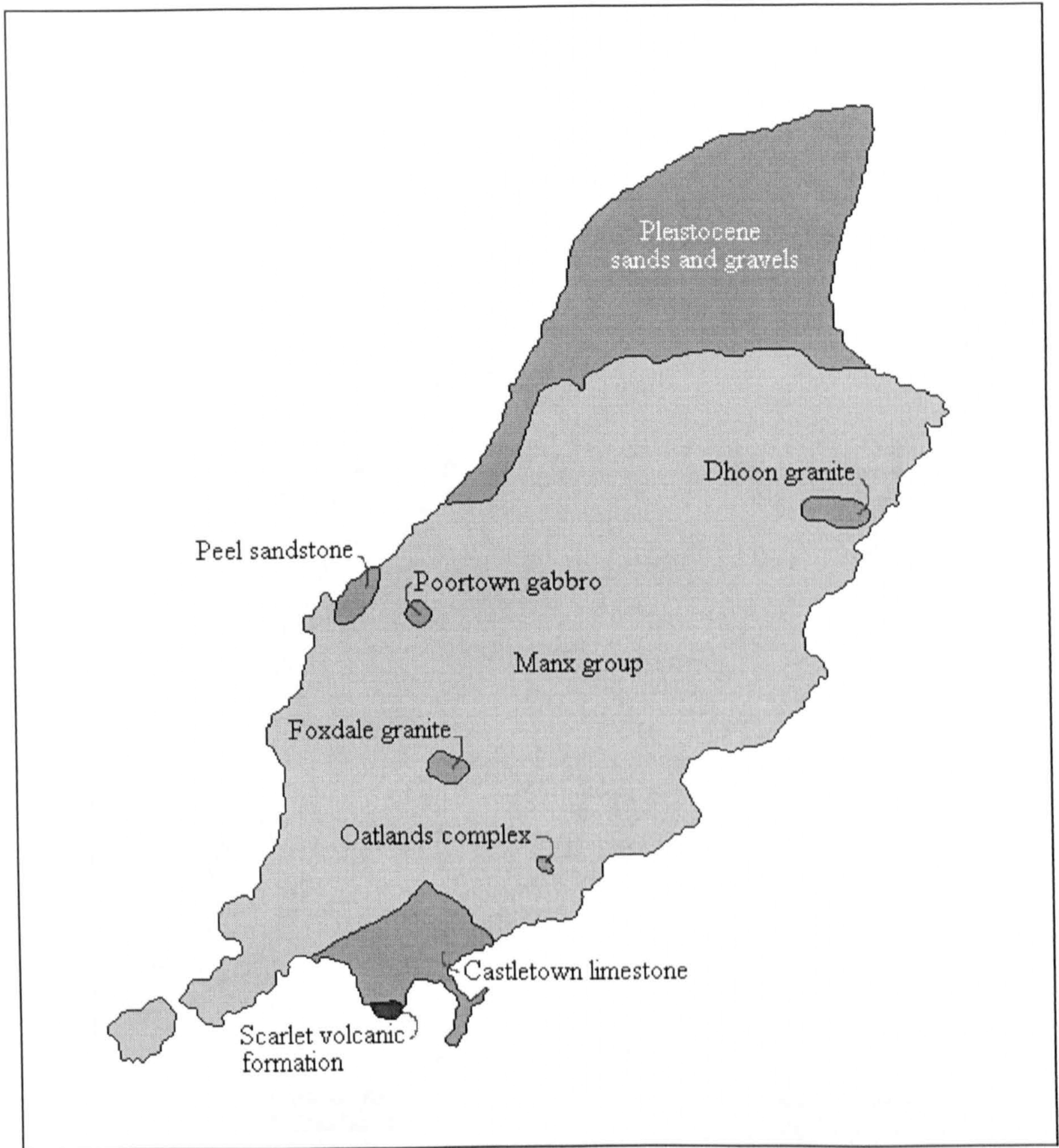
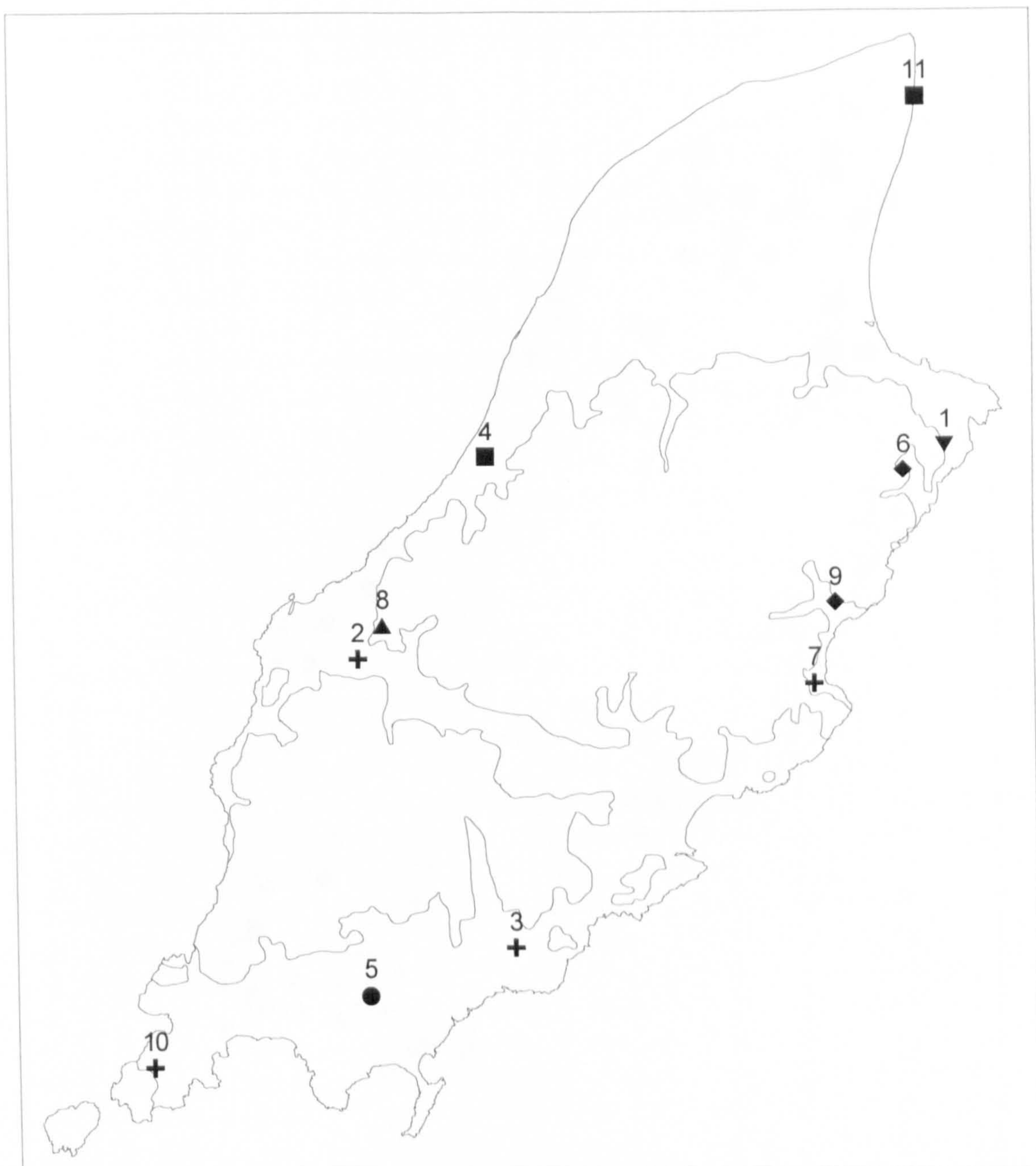


Figure 5.2: *The major geological formations of the Isle of Man*



- 1 Ballafayle
- 2 Ballaharra
- 3 Ballakelly
- 4 Berk
- 5 Billown Quarry 1
- 6 Cashtal yn Ard

- 7 Cloven Stones
- 8 King Orry's Grave
- 9 The Kew
- 10 Mull Hill Circle
- 11 Phurt

⊕ Unclassified tomb

◆ Court tomb

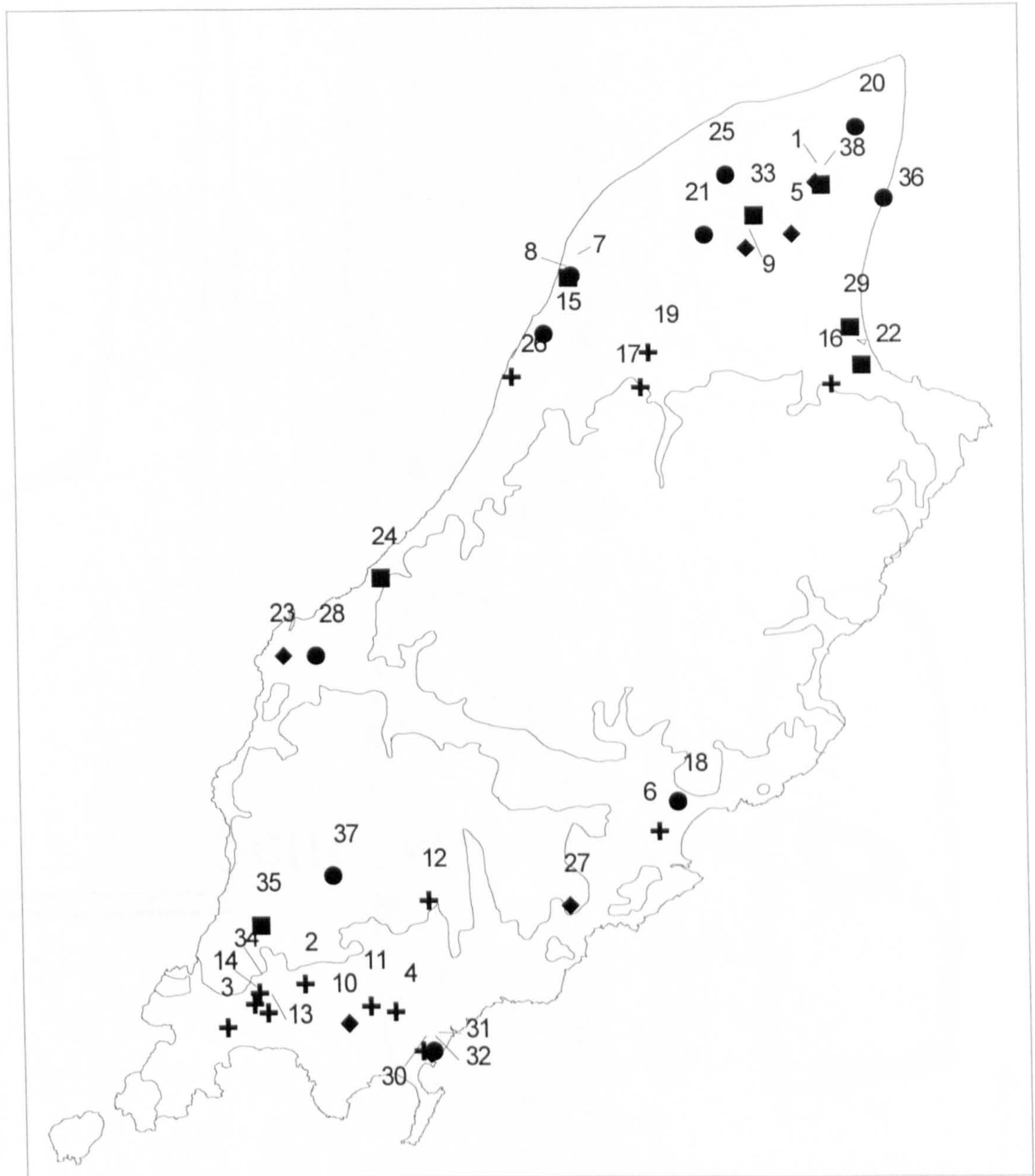
■ Stray find

● Occupation

▲ Passage tomb

▼ Crematoria

Figure 5.3: The distribution of Middle Neolithic sites on the Isle of Man (with the 400m contour shown)



- | | | |
|-------------------------|----------------------|-----------------------|
| 1 Ballacottier | 14 Colby Mooar | 27 Park Farm |
| 2 Ballacross | 15 Cronk Coar | 28 Peel School |
| 3 Ballagawne | 16 Crossag | 29 Ramsey Brooghs |
| 4 Ballahot | 17 Earybedn | 30 Ronaldsway Airport |
| 5 Ballalheaney | 18 Glencrutchery | 31 Ronaldsway 'House' |
| 6 Ballquayle | 19 Gob y Volley | 32 Ronaldsway Village |
| 7 Ballateare Dutch Barn | 20 Greenlands | 33 Round Ellan |
| 8 Ballateare | 21 Guilcagh | 34 Scholaby |
| 9 Ballavarry | 22 Killeaba | 35 Scard |
| 10 Billown Circle | 23 Knockaloe Beg | 36 Shellag |
| 11 Billown Quarry 2 | 24 Knocksharry | 37 South Barrule |
| 12 Cleigh Rouyr | 25 Leodest | 38 West Kimmeragh |
| 13 Colby | 26 Orrisdale Brooghs | |

- | | |
|---|------------|
| + | Stray jar |
| ◆ | Occupation |

- | | |
|---|---------------------|
| ■ | Unclassified burial |
| ● | Stray find |

Figure 5.4: Distribution of Manx Late Neolithic sites (with 400m contour shown)

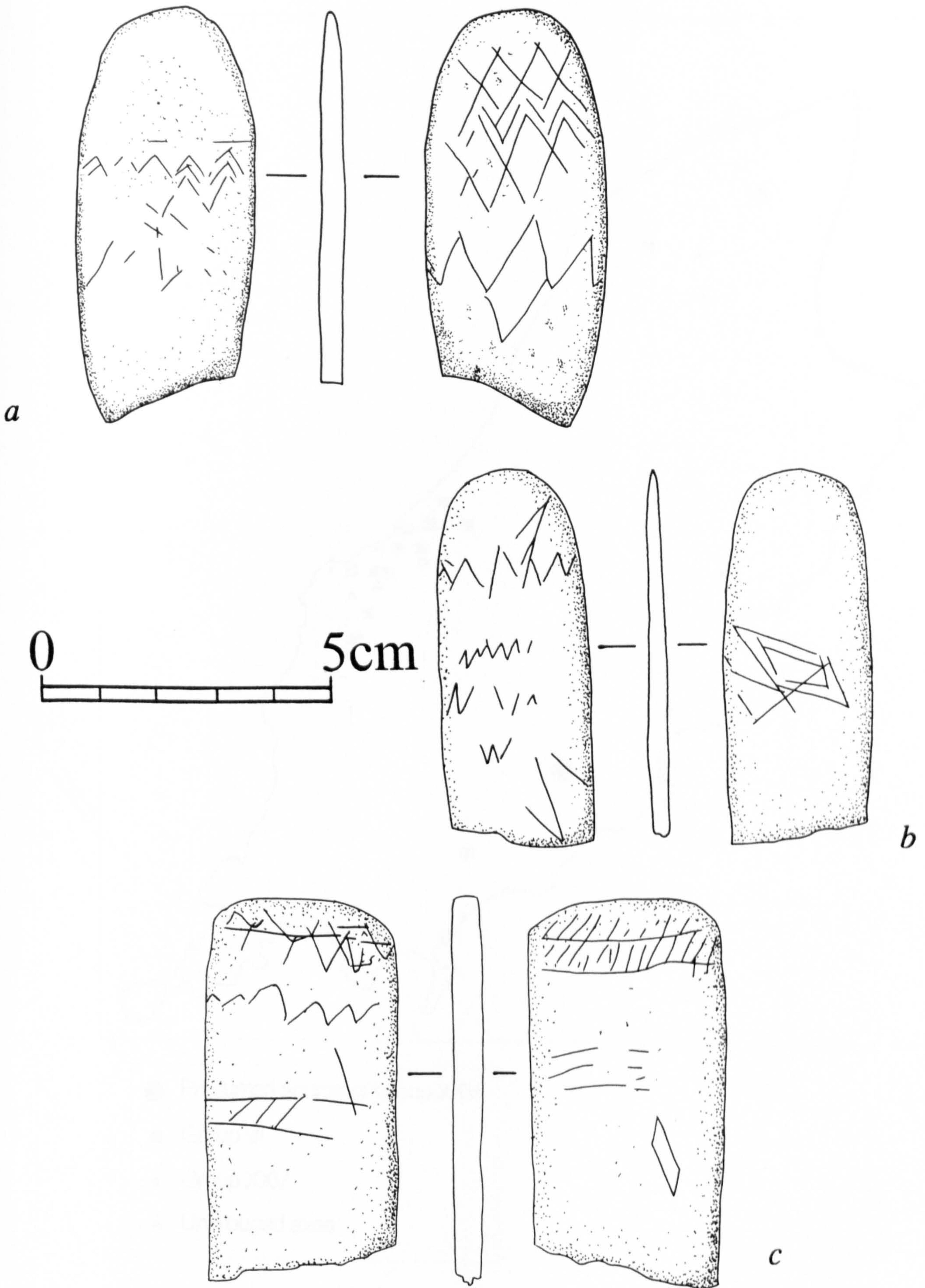
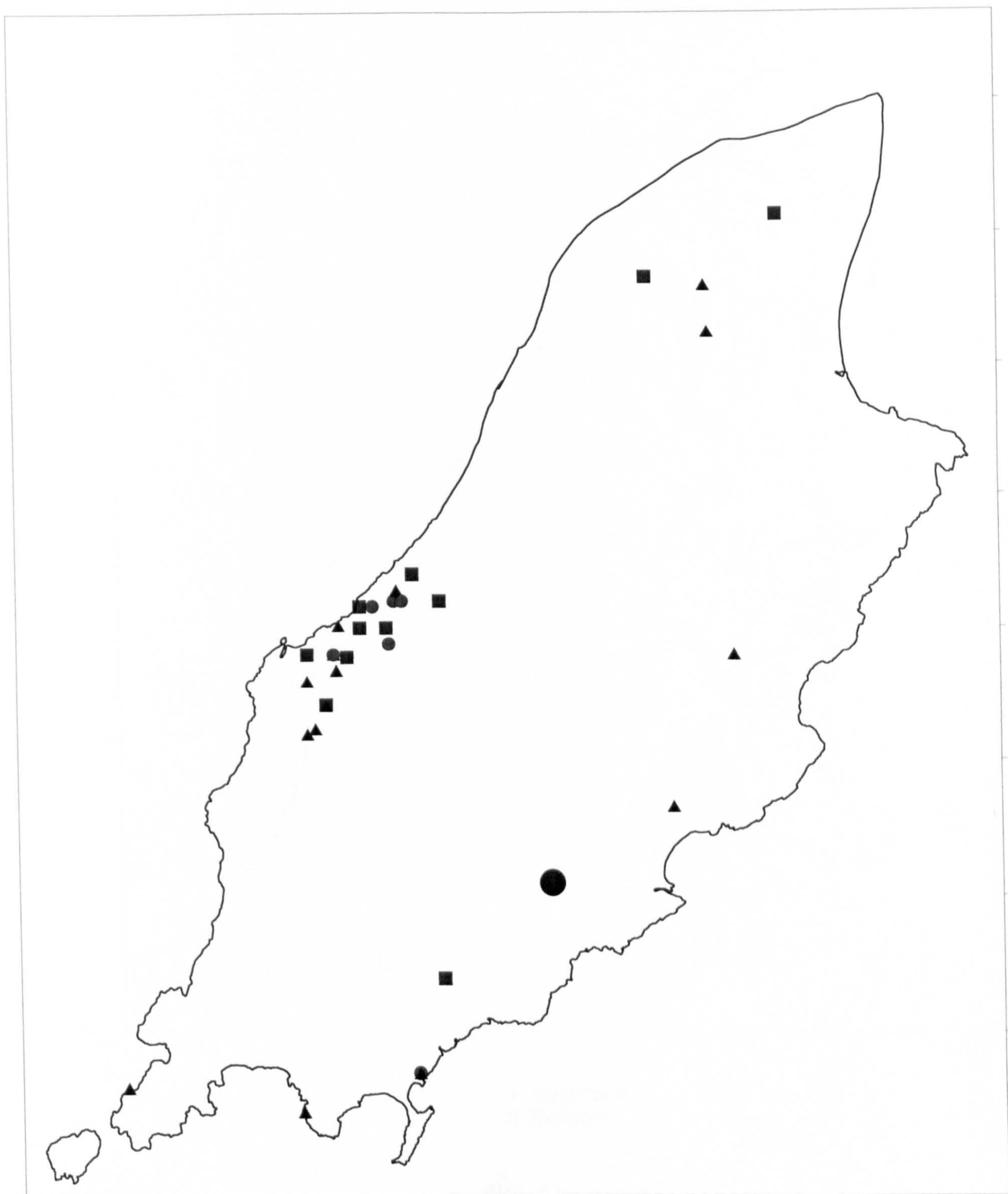
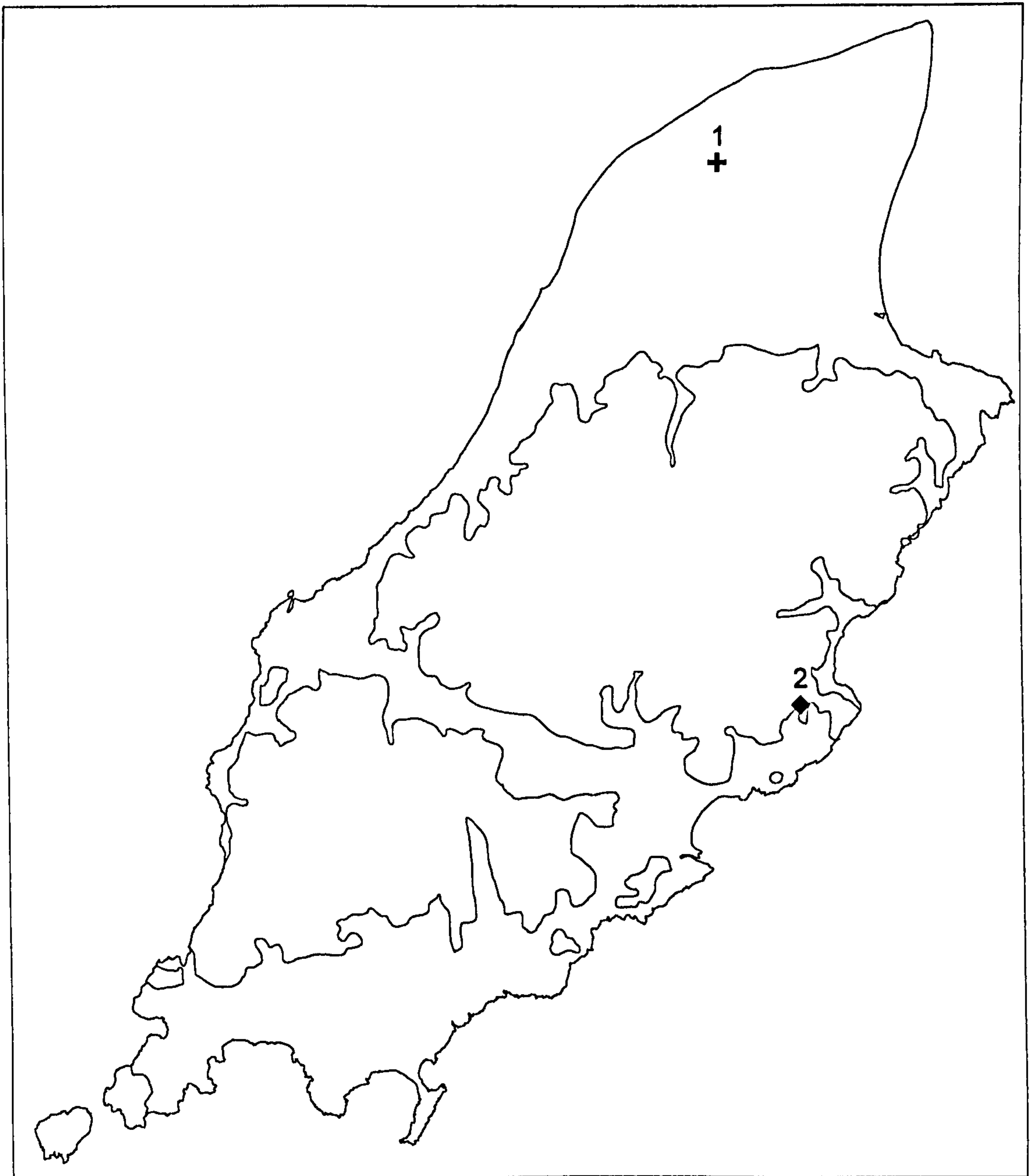


Figure 5.5: Decorated slate plaques from Manx Late Neolithic sites, a) and b) Ronaldsway 'House', c) Ballavarry



- Presumed source of Group XXV
- Group VI
- Group XXV
- ▲ Ungrouped axes

Figure 5.6: Distribution of petrologically grouped stone axes on the Isle of Man



1 Ballachrink
2 Baroose

⊕ Occupation
◆ Cist

Figure 5.7: Distribution of Latest Neolithic sites on the Isle of Man (with 400m contour)

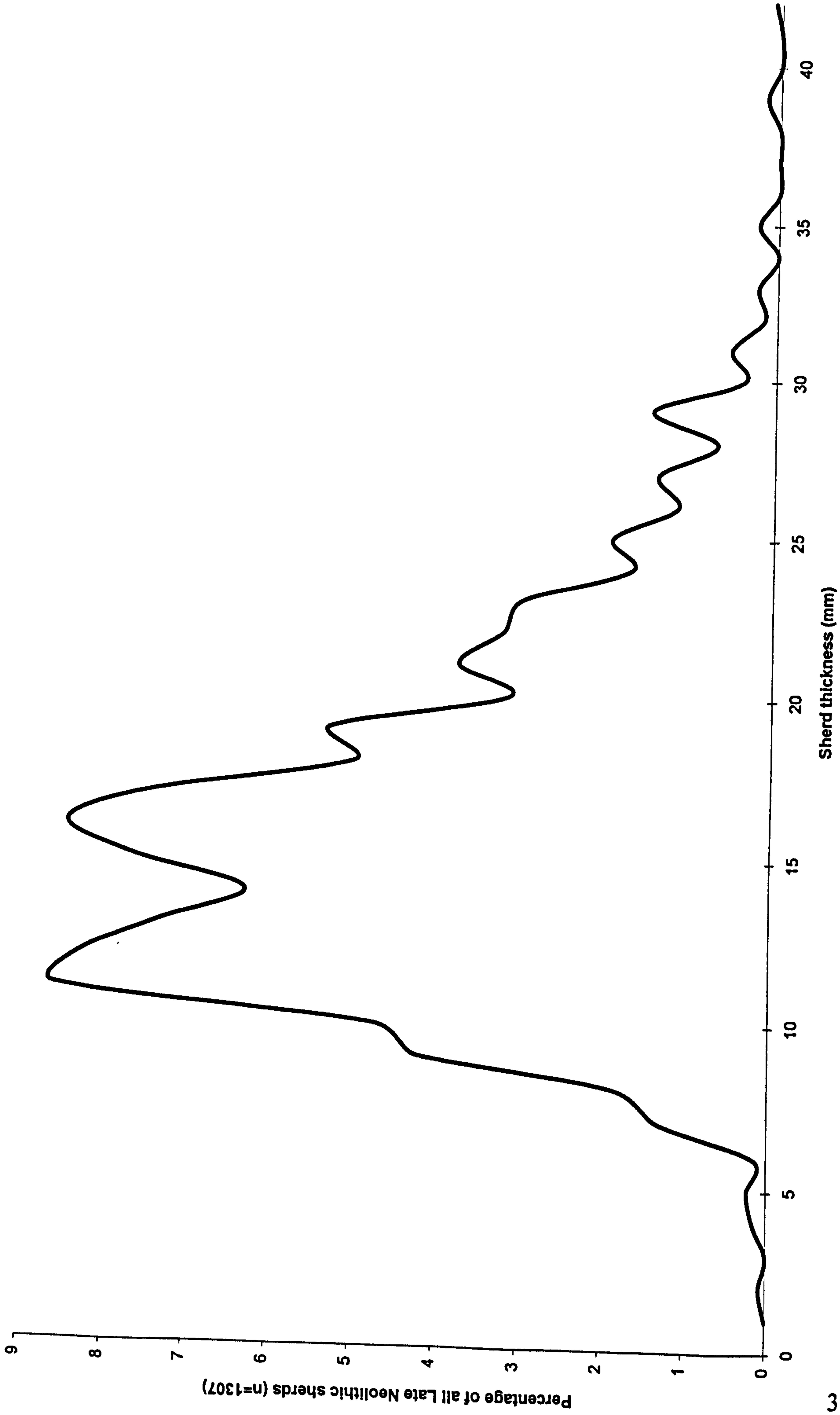


Figure 6.1: Distribution of sherd thickness of Manx Late Neolithic pottery

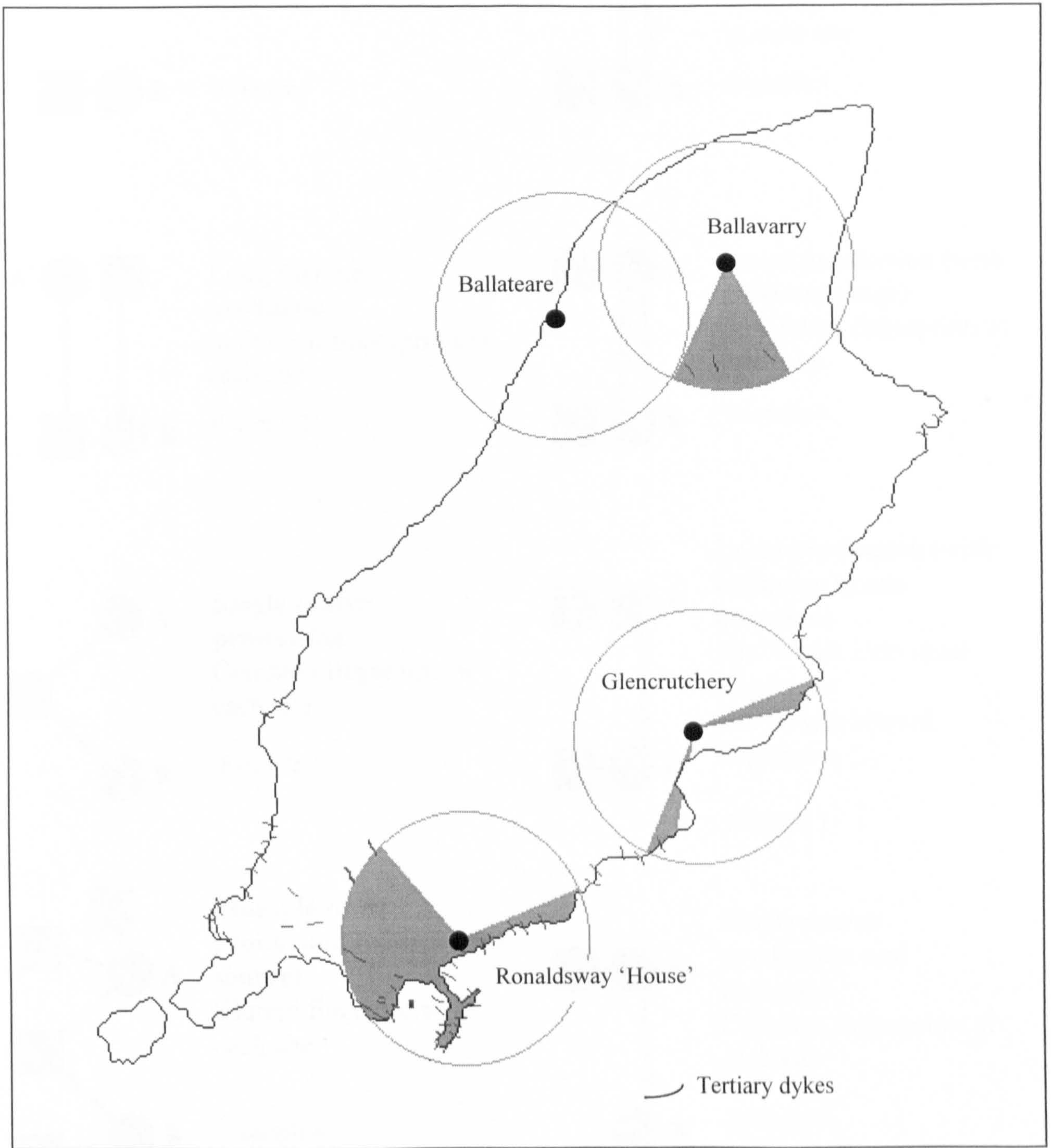


Figure 8.1: Location of sites used in chemical and petrological study. Also shown are the 5km procurement zones surrounding each site, and the distribution of tertiary dykes on the Isle of Man

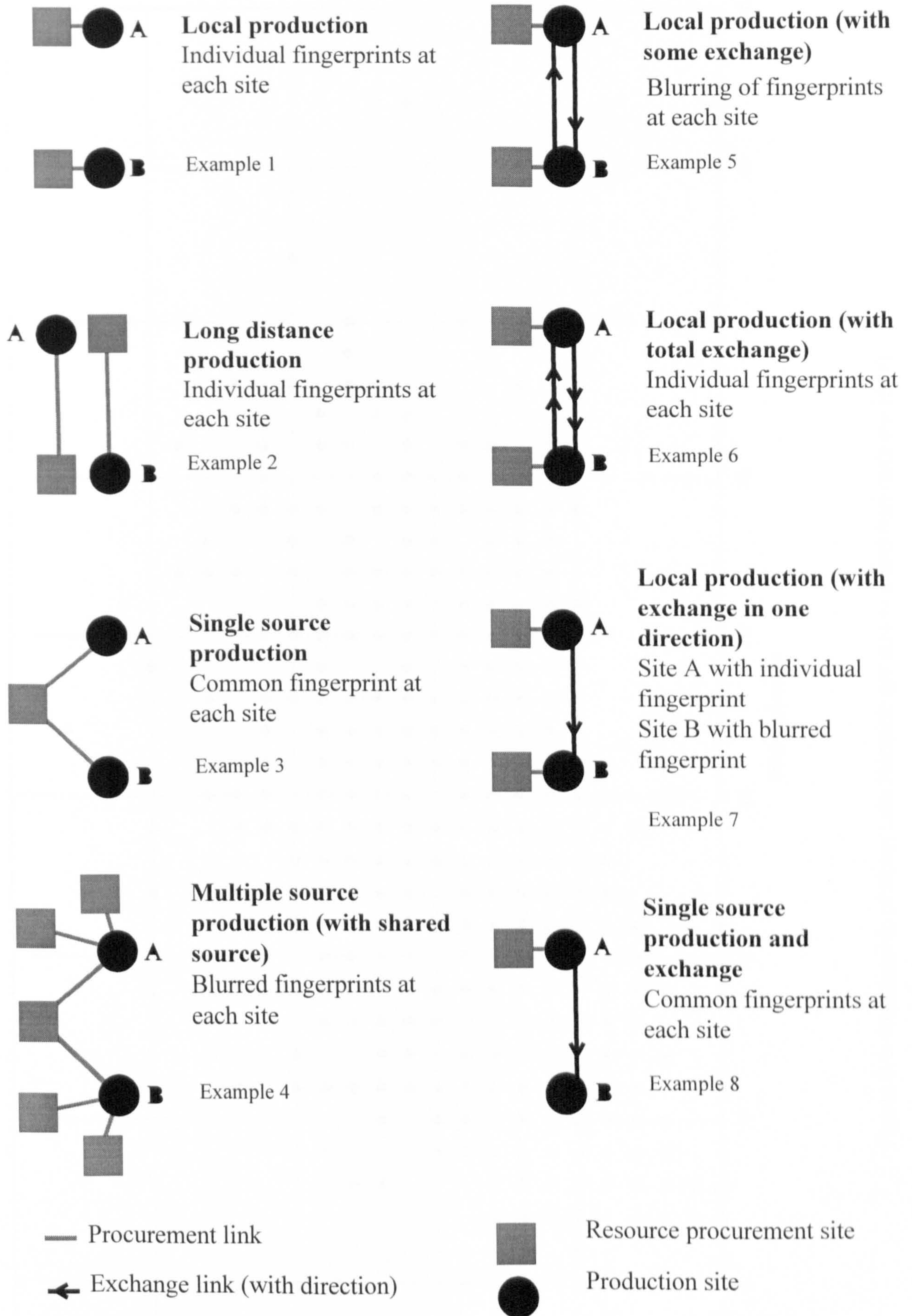


Figure 8.2: Effect of different procurement and exchange patterns on the distinctiveness of the chemical signature from a ceramic producing site

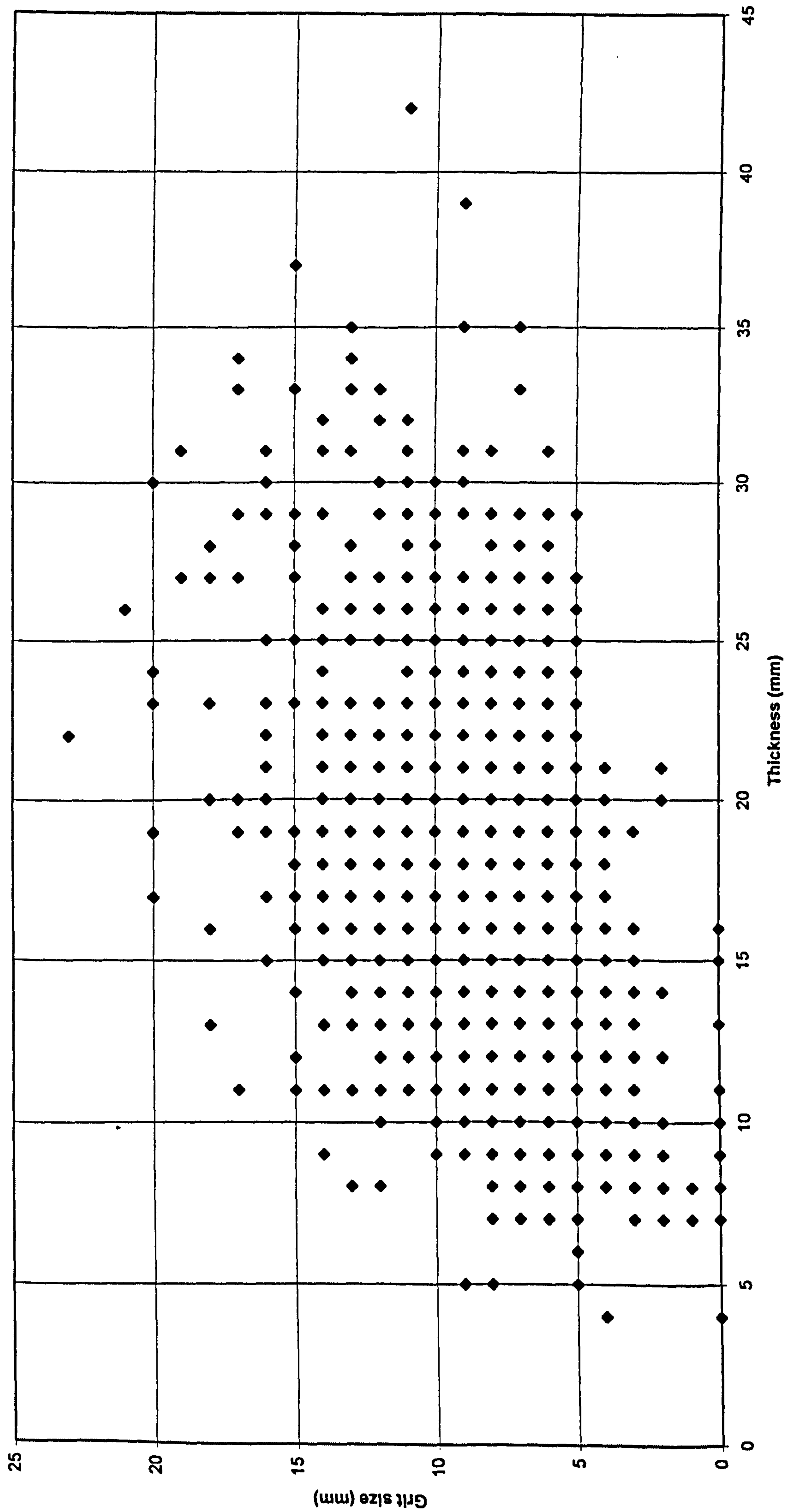


Figure 9.1: Relationship of Manx Late Neolithic grit size to sherd thickness (n=1851)

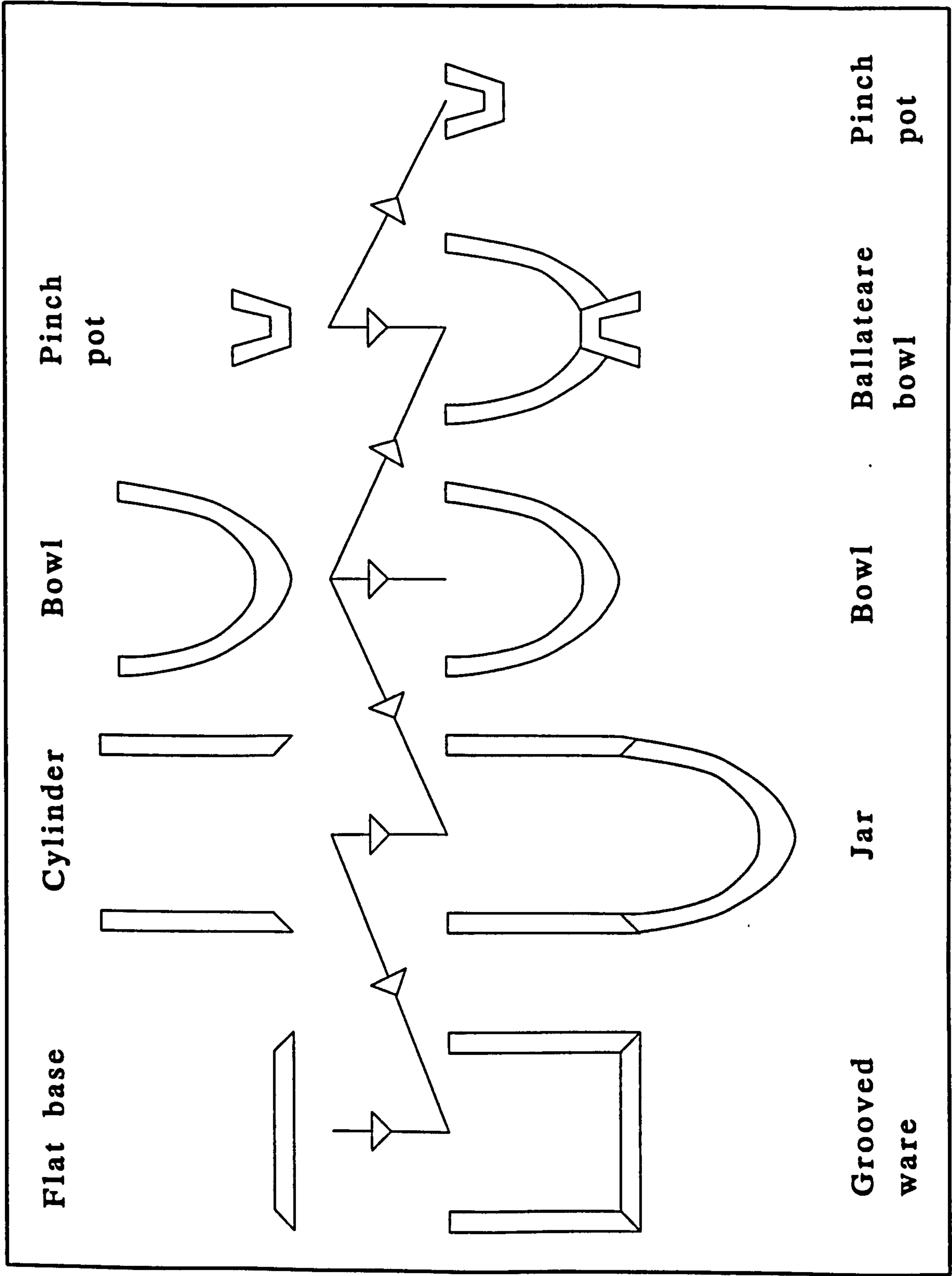


Figure 9.2: The relationship between the four basic units of Manx Late Neolithic pottery and the resultant vessel forms

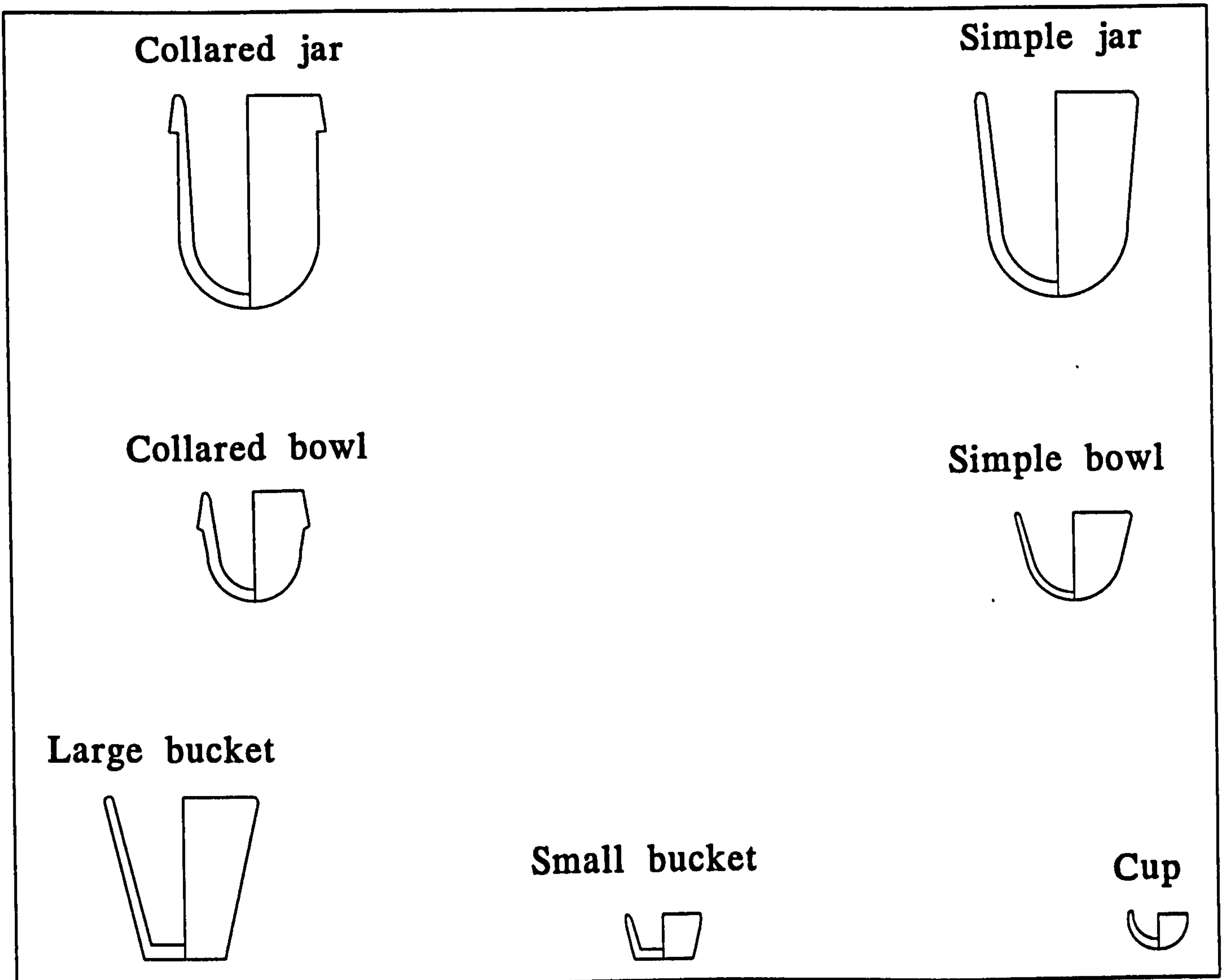


Figure 9.3: The major forms of Manx Late Neolithic pottery once applied decoration has been added

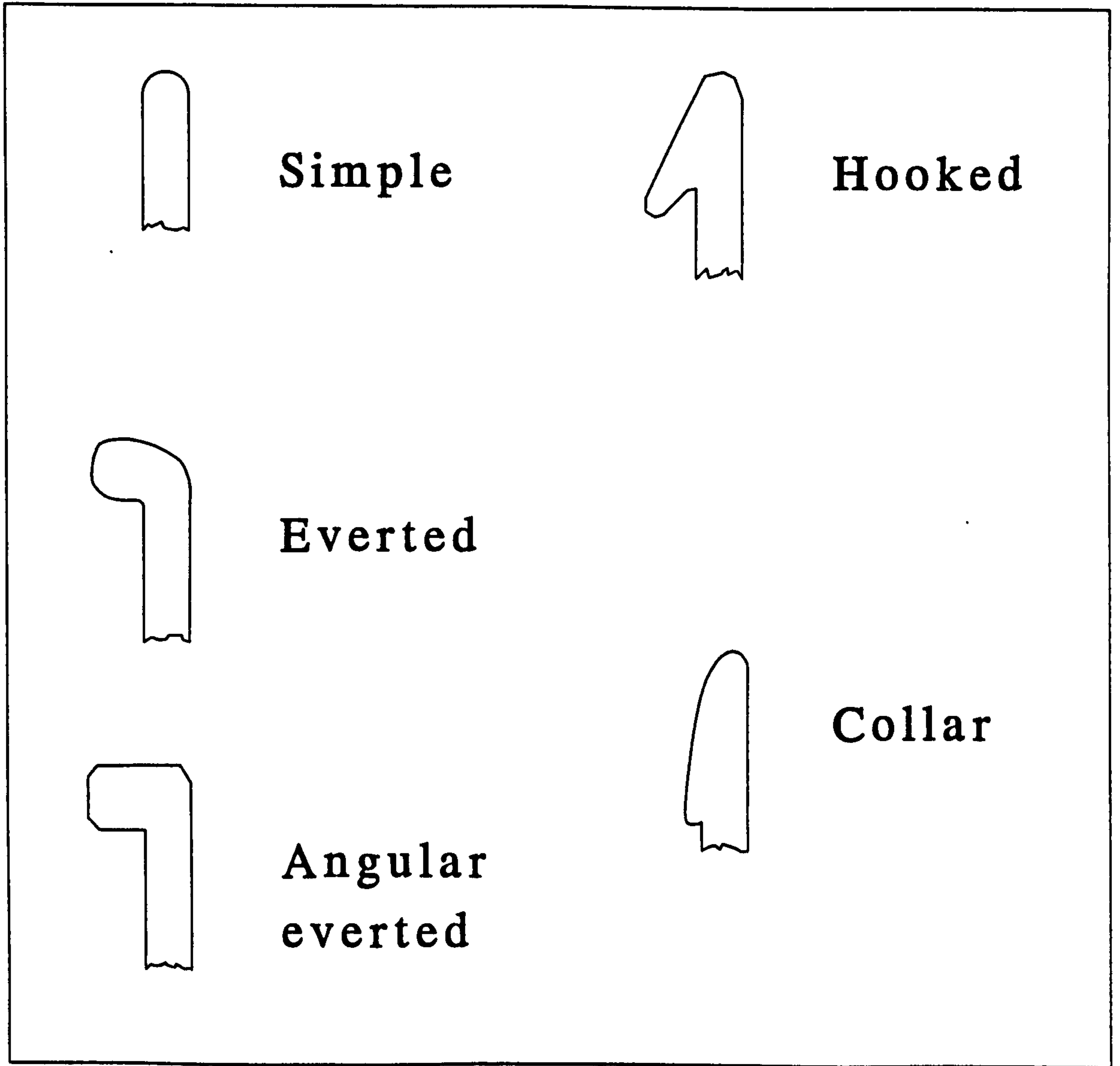


Figure 10.1: The classification of rim forms used in this study

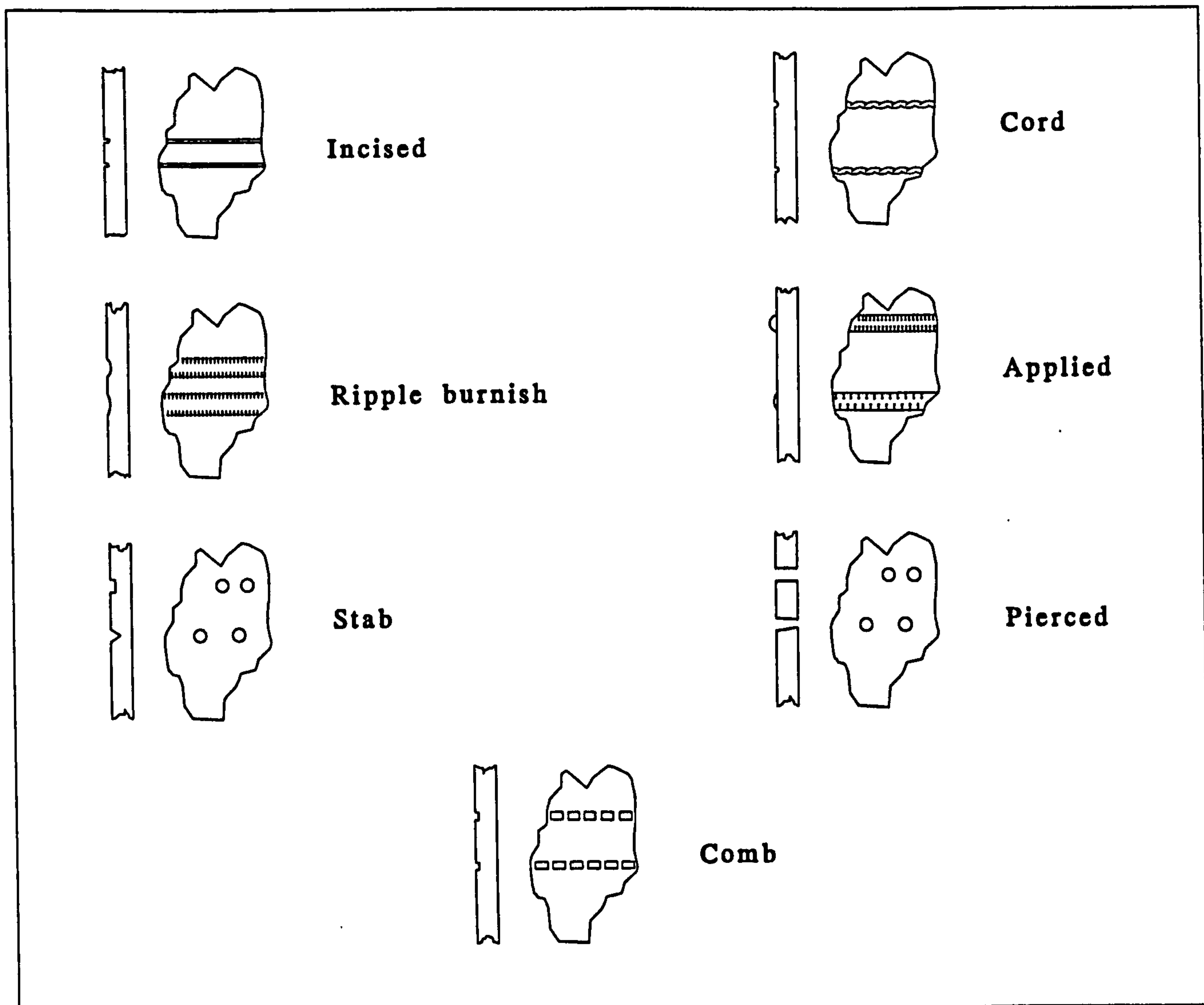


Figure 10.2: The classification of decorative techniques used in this study

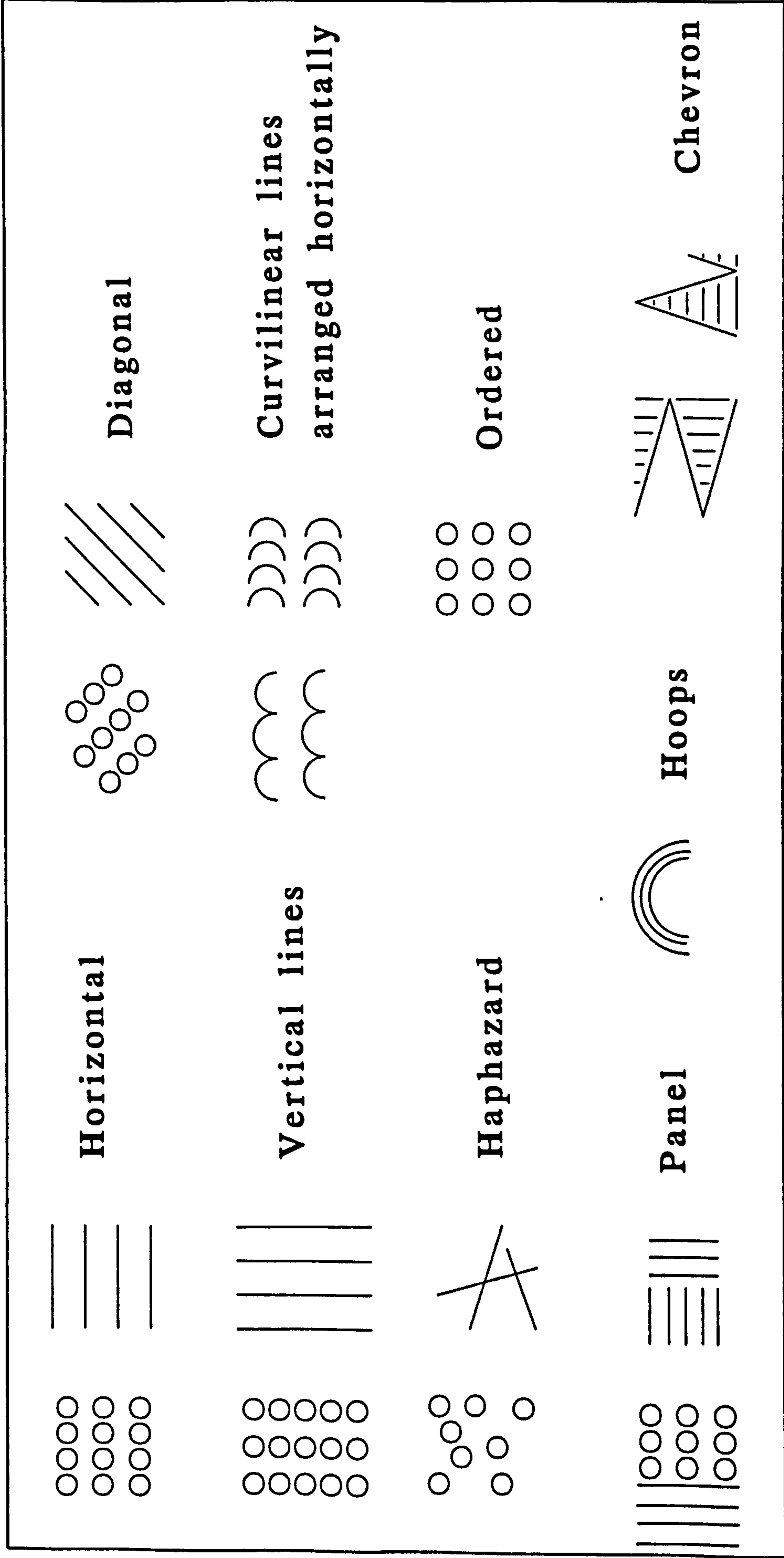


Figure 10.3: Classification of ceramic designs used in this study

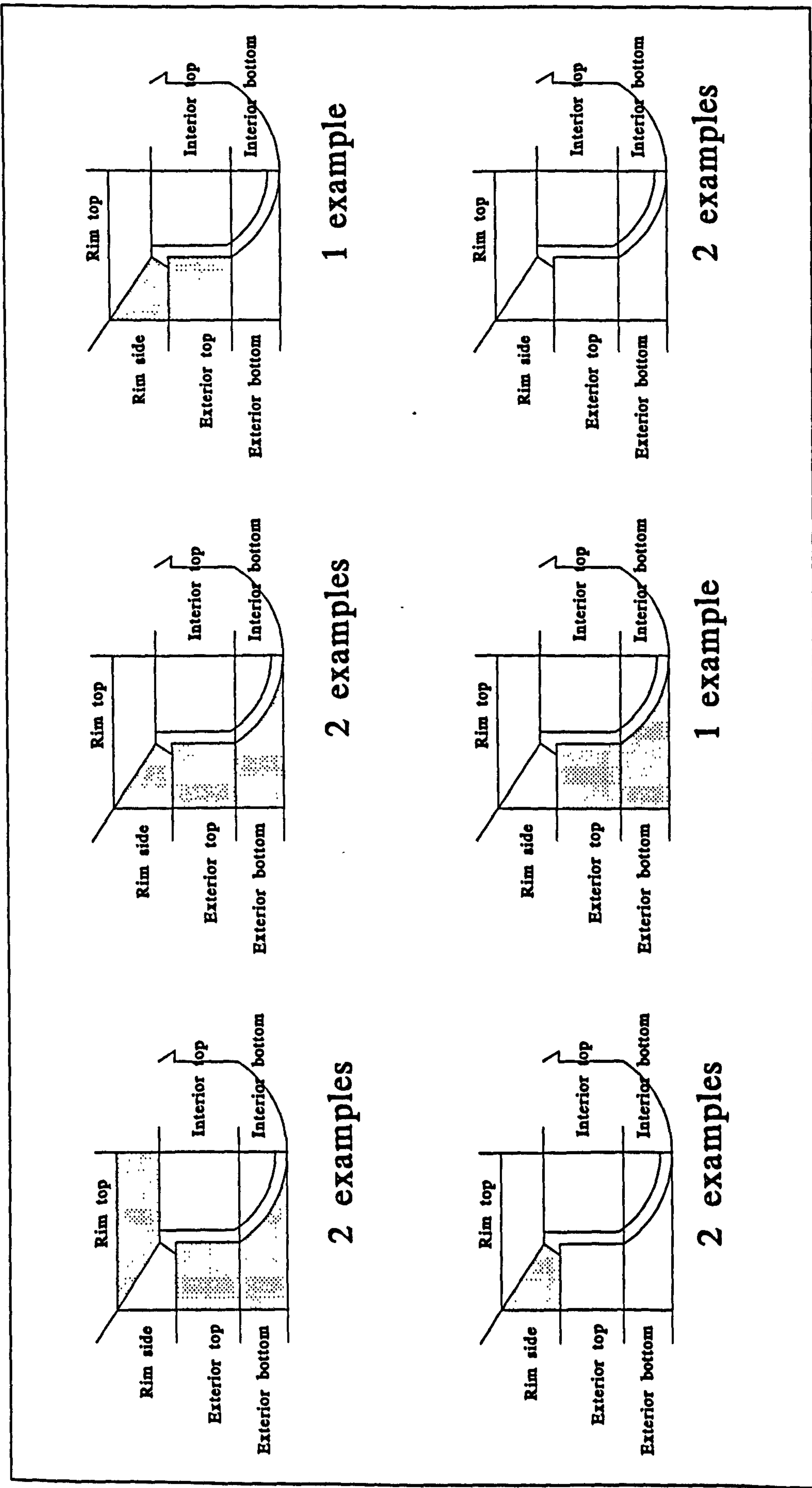


Figure 10.4: The location of decoration on whole Achnacree bowls

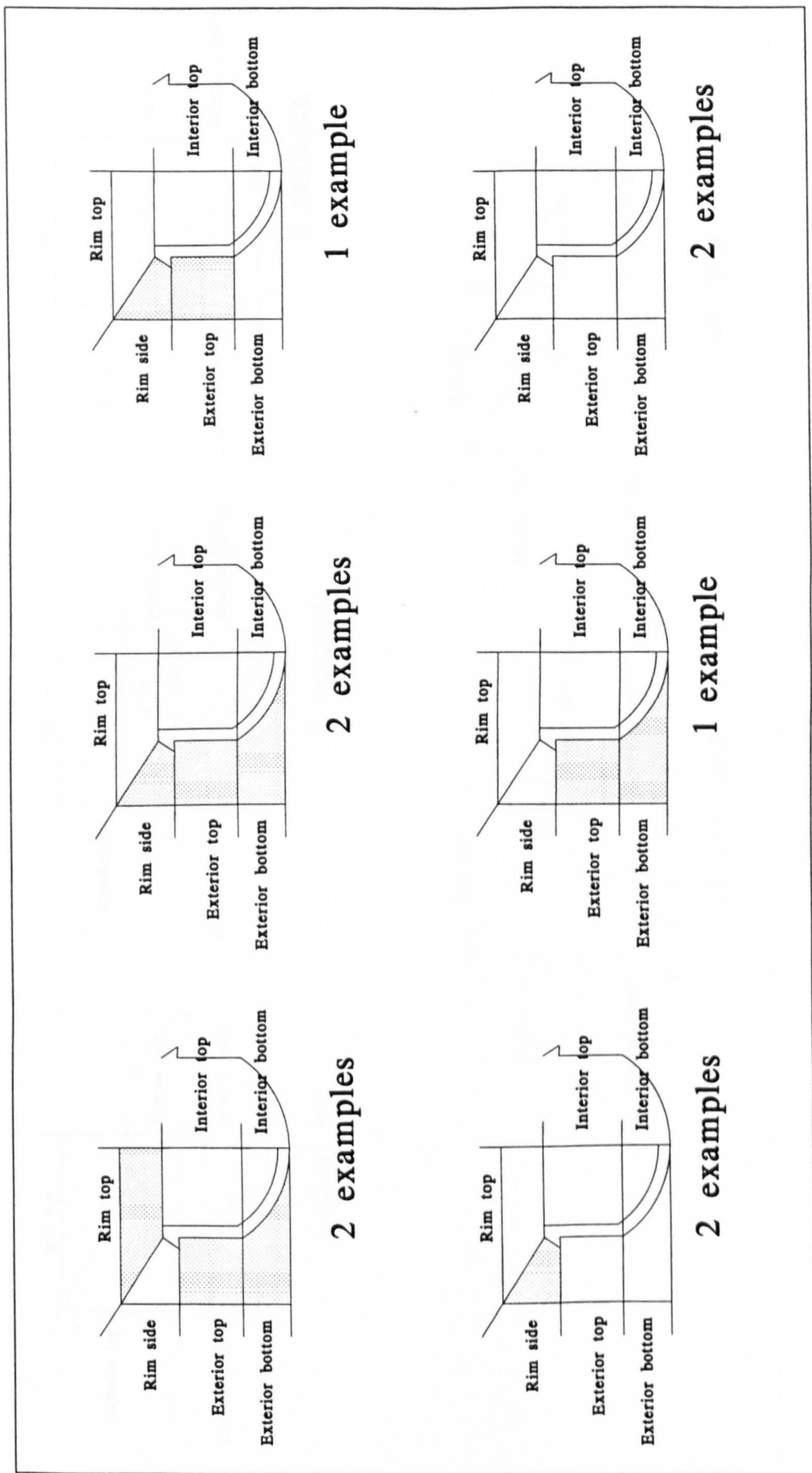
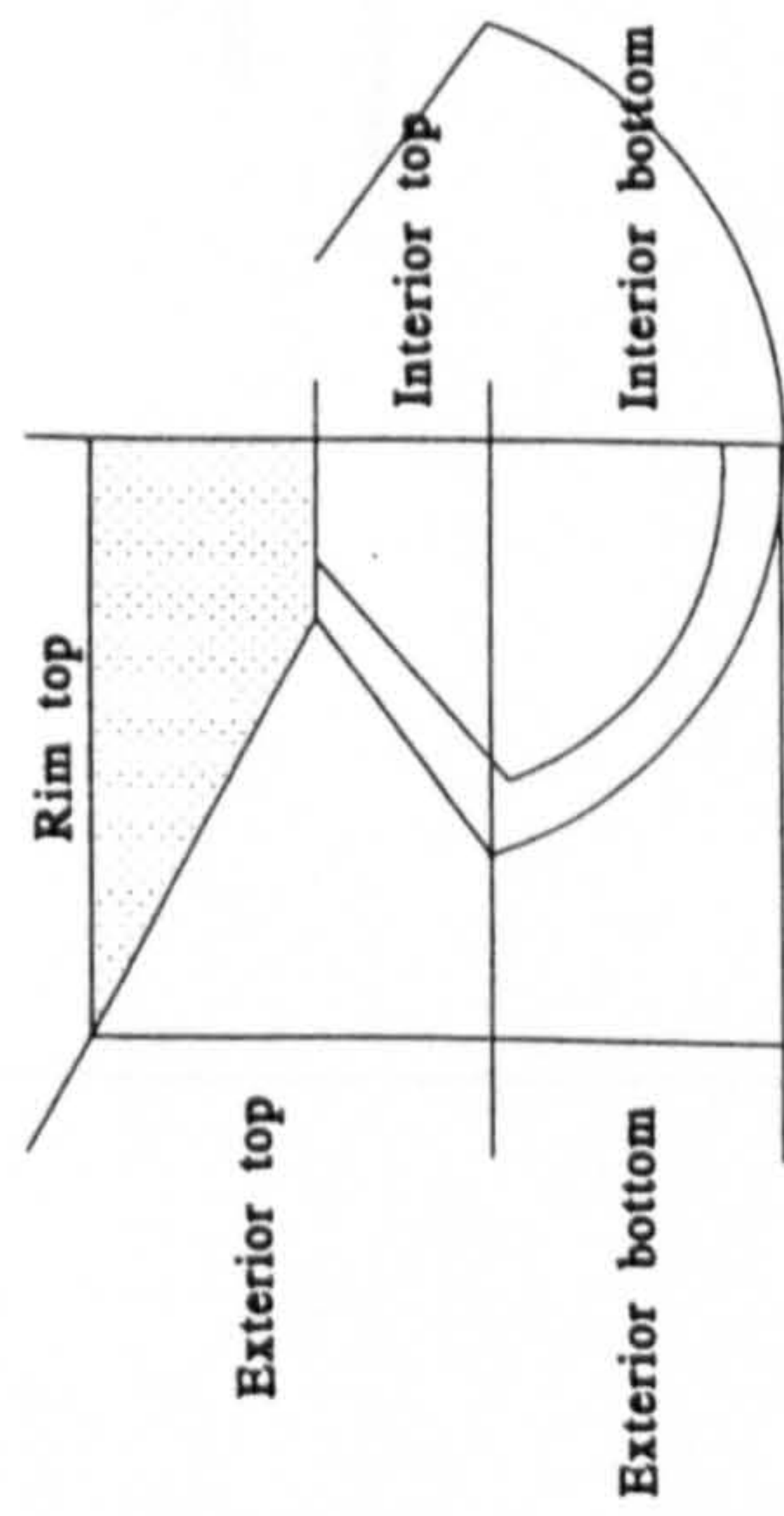
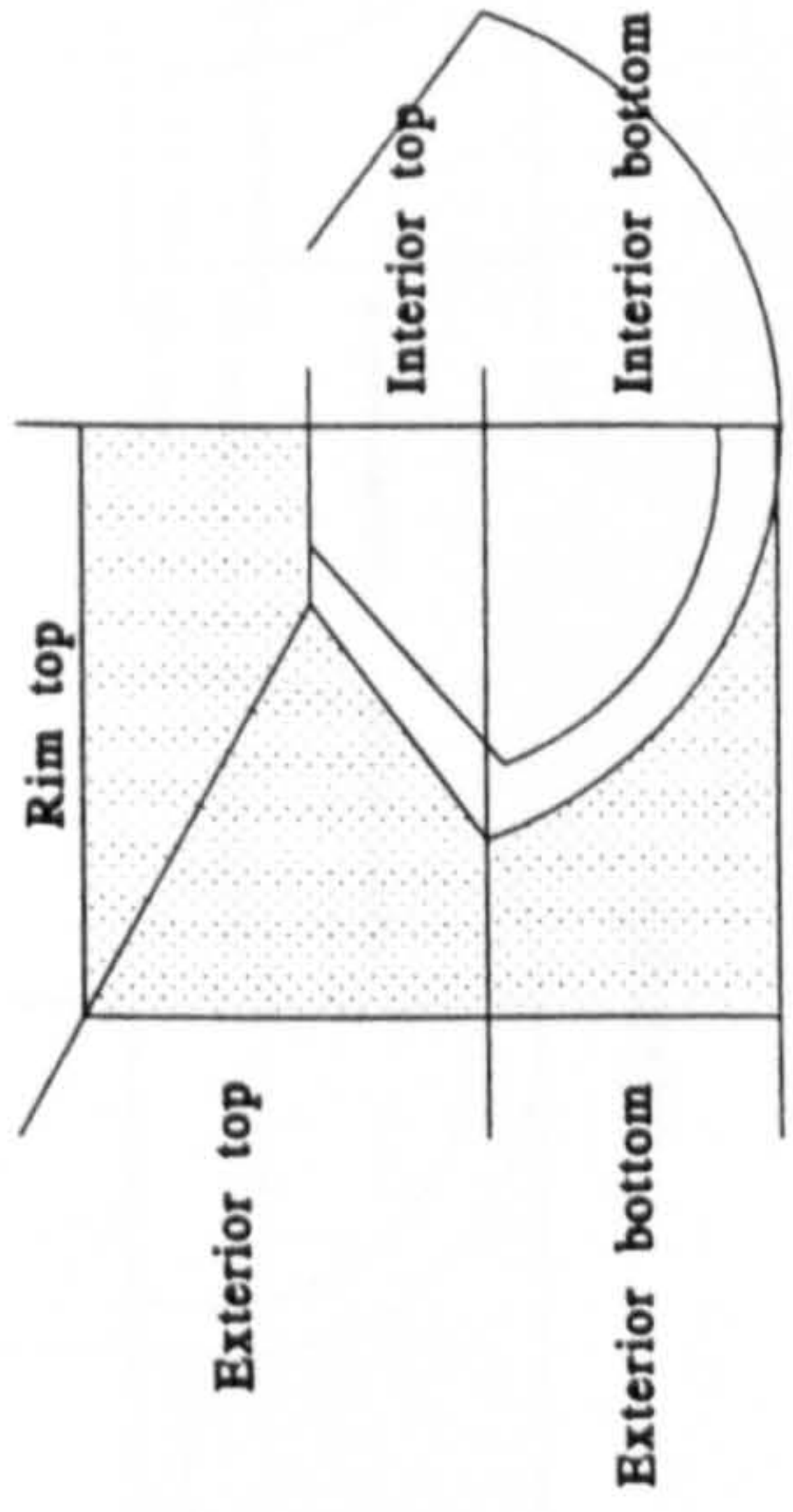


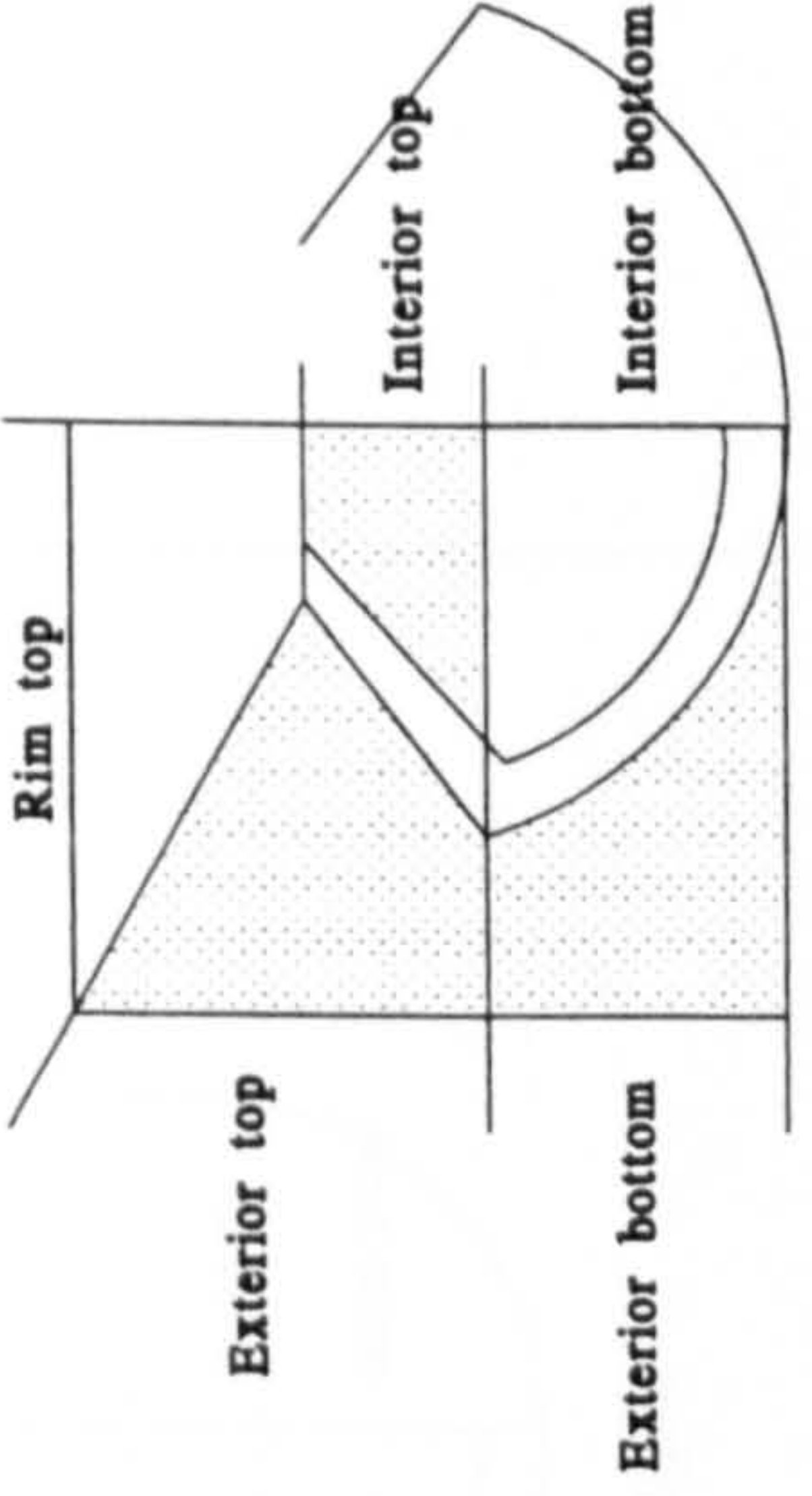
Figure 10.4: The location of decoration on whole Achnacree bowls



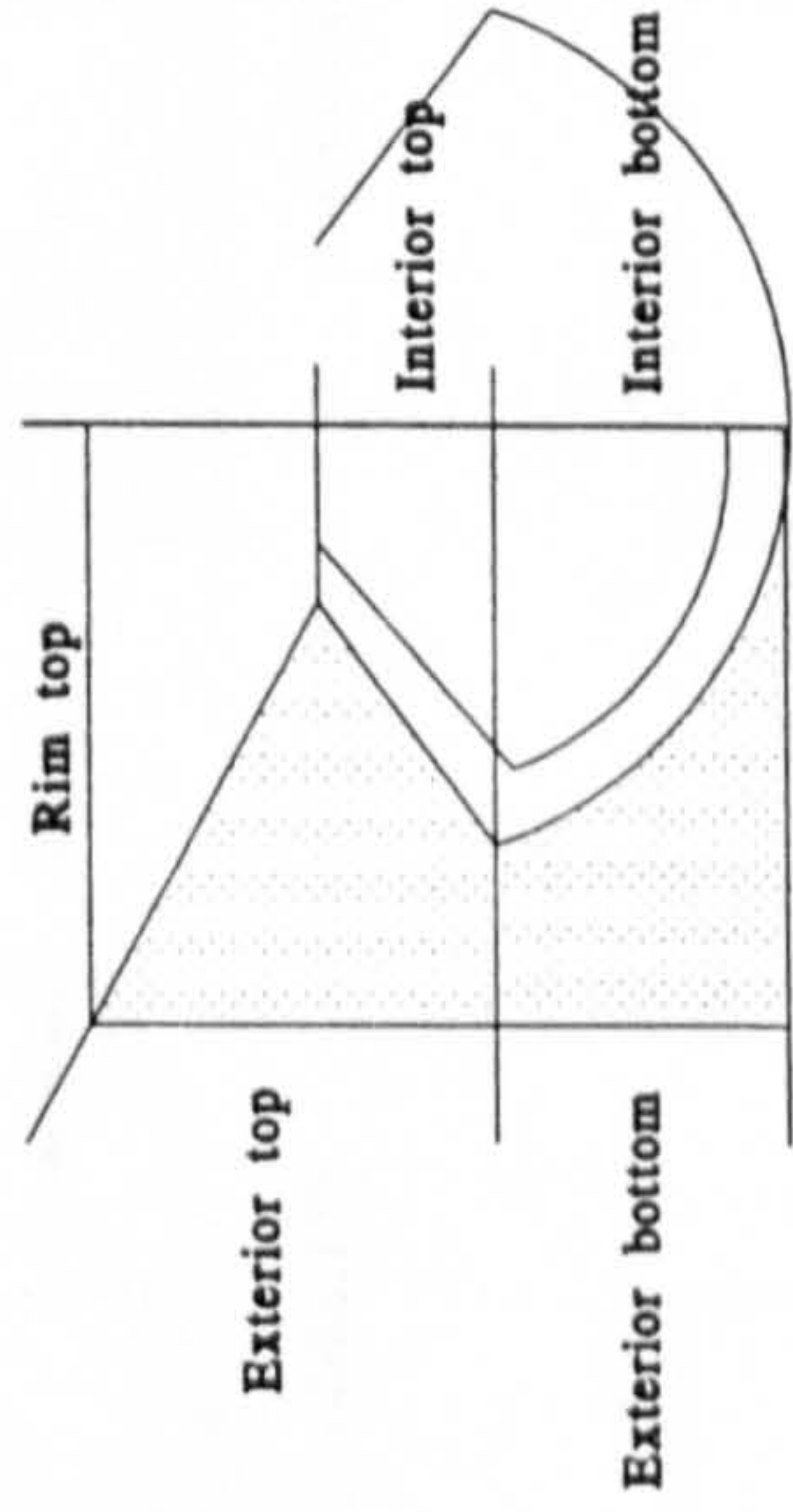
1 example



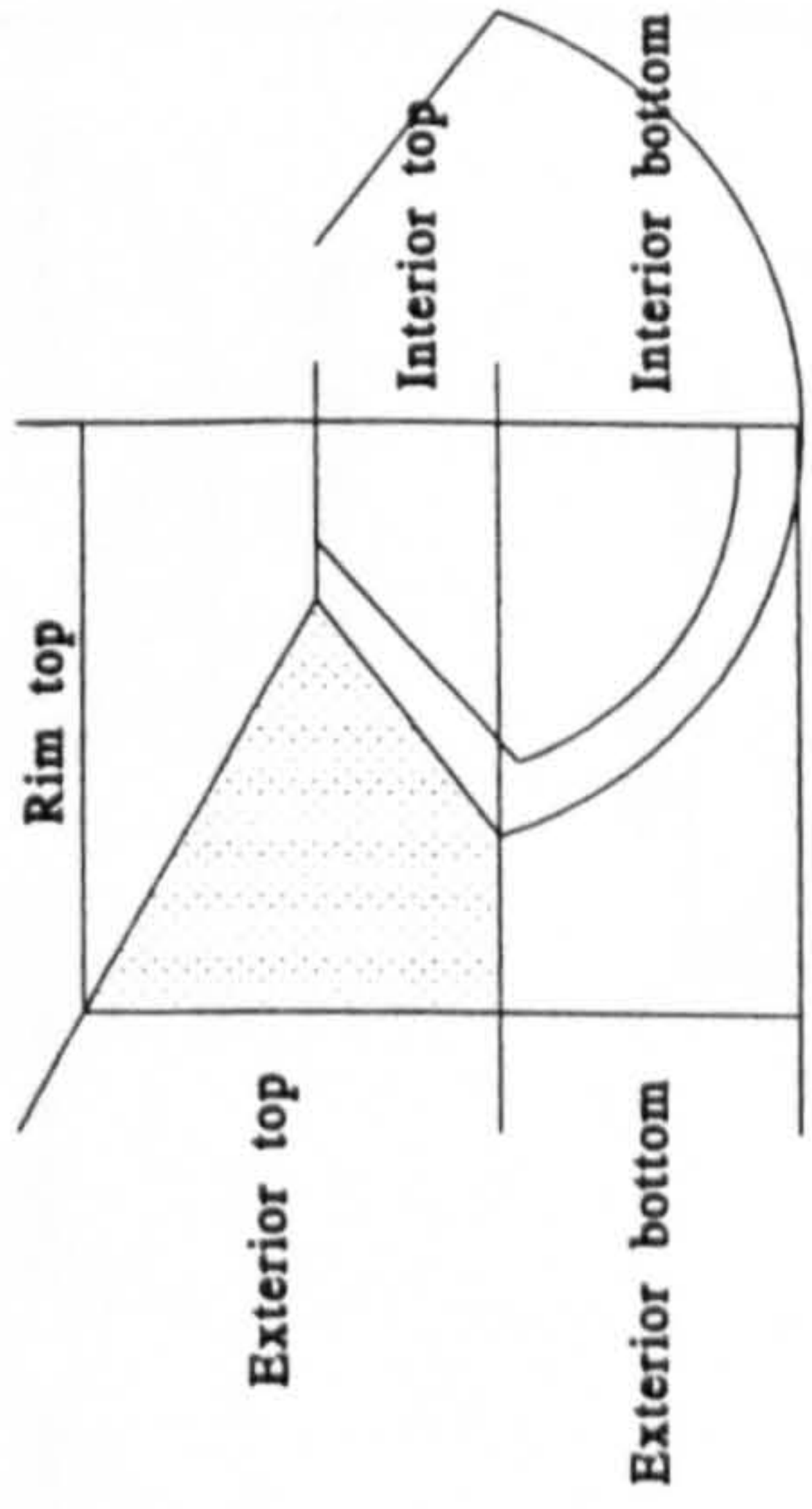
1 example



1 example



16 examples



2 examples

Figure 10.5: Location of decoration on whole Drinnagh bowls

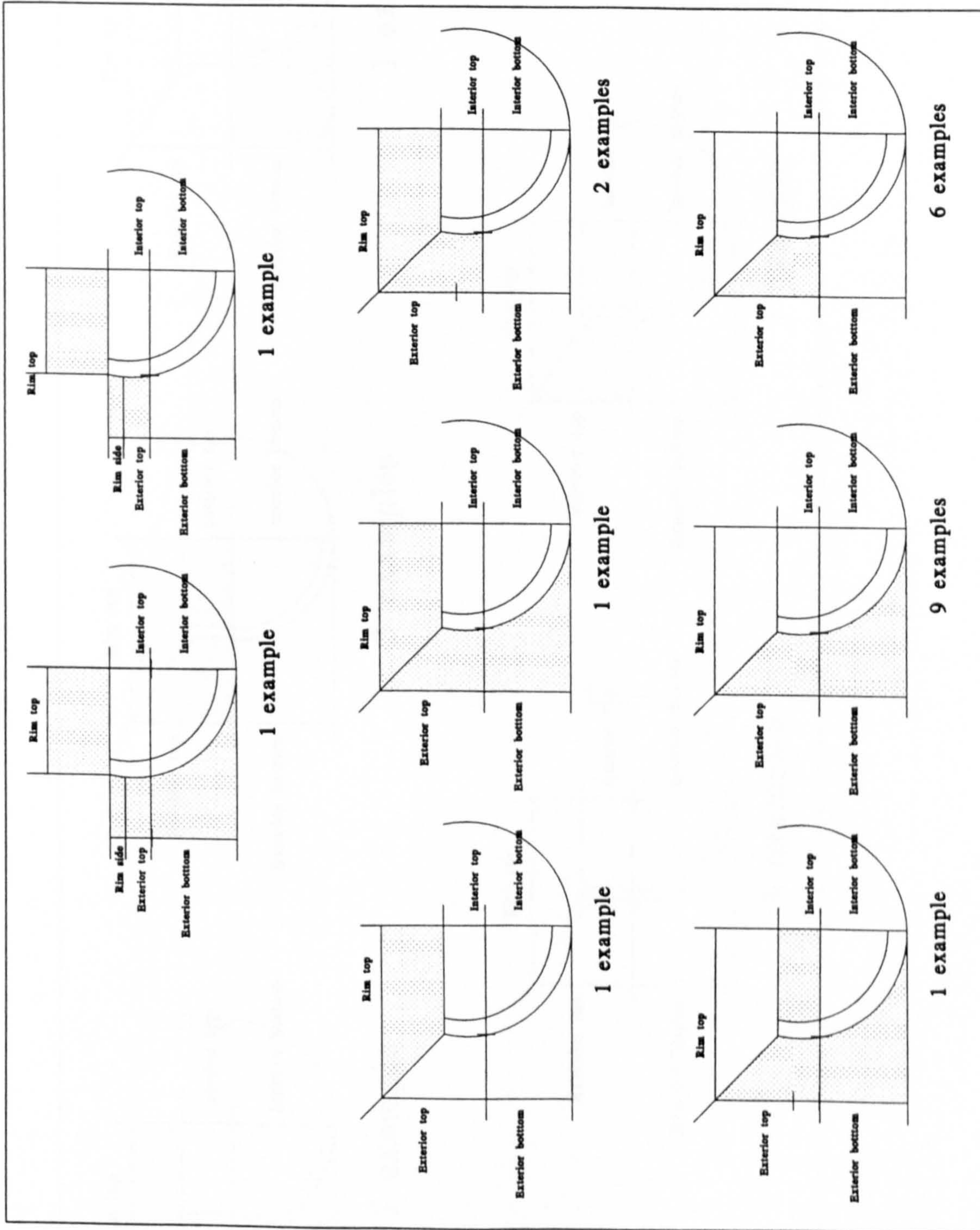


Figure 10.6: The location of decoration on whole Sandhills vessels

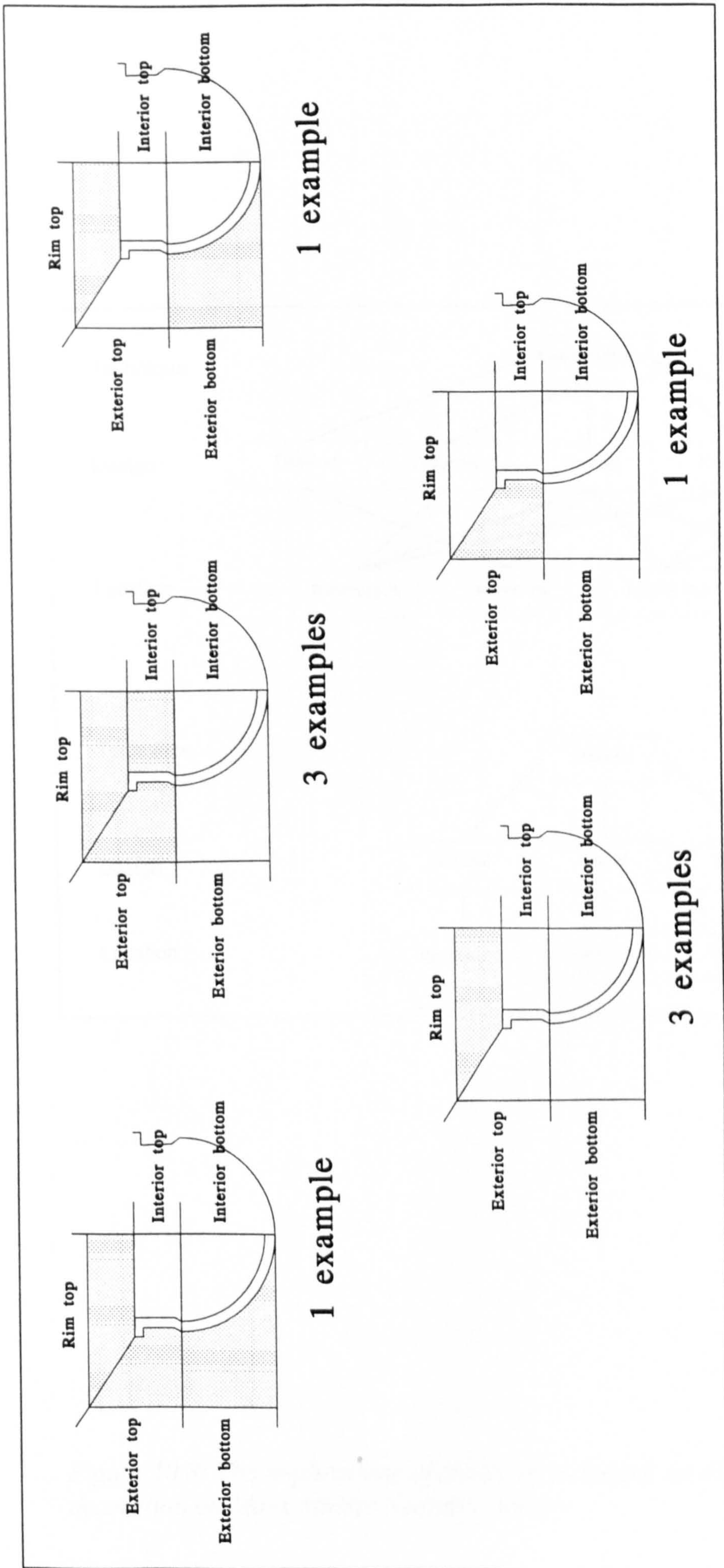


Figure 10.7: The location of decoration on whole Shouldered bowls

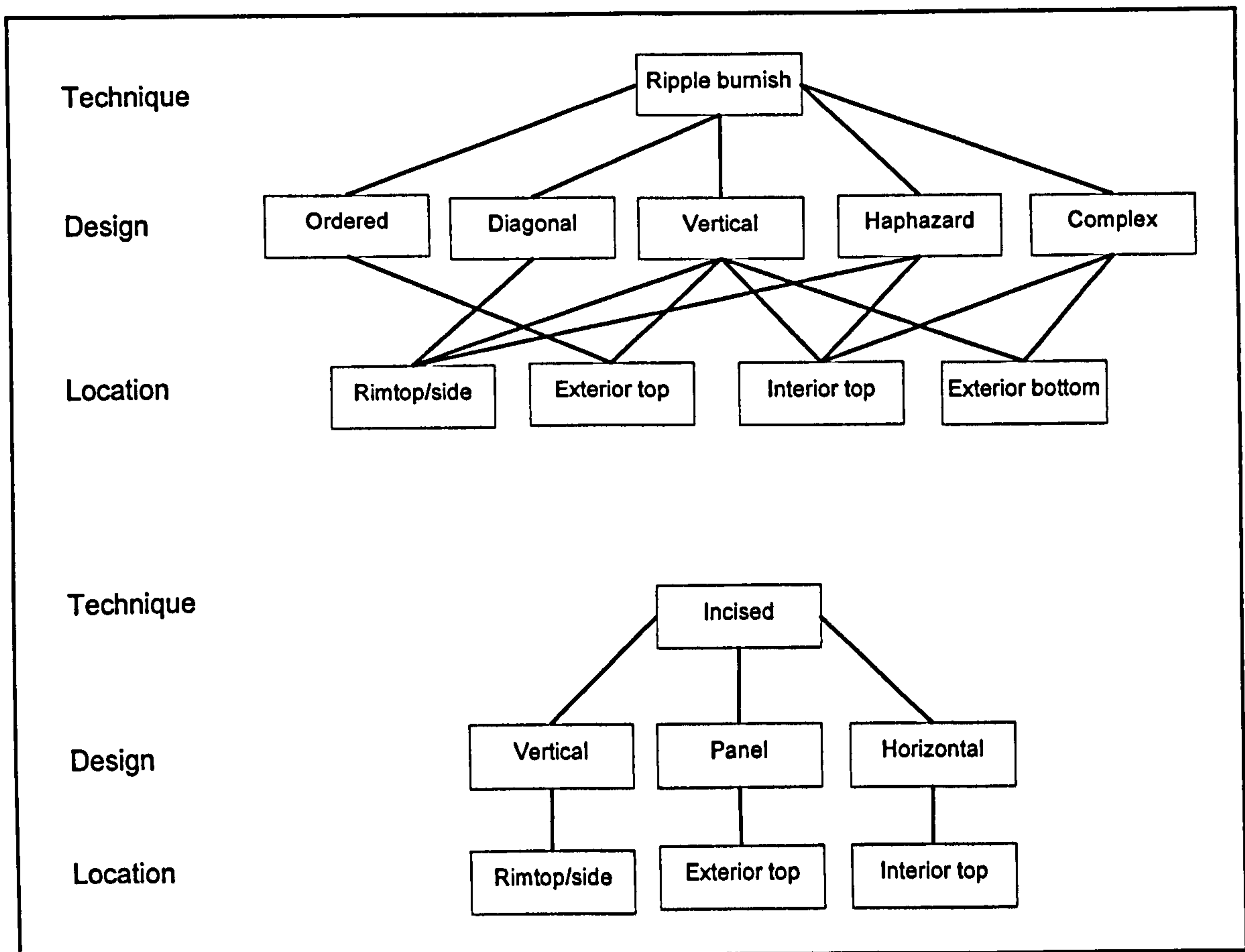


Figure 10.8: The implications of choice of technique on the design and location of decoration on Manx Middle Neolithic pottery

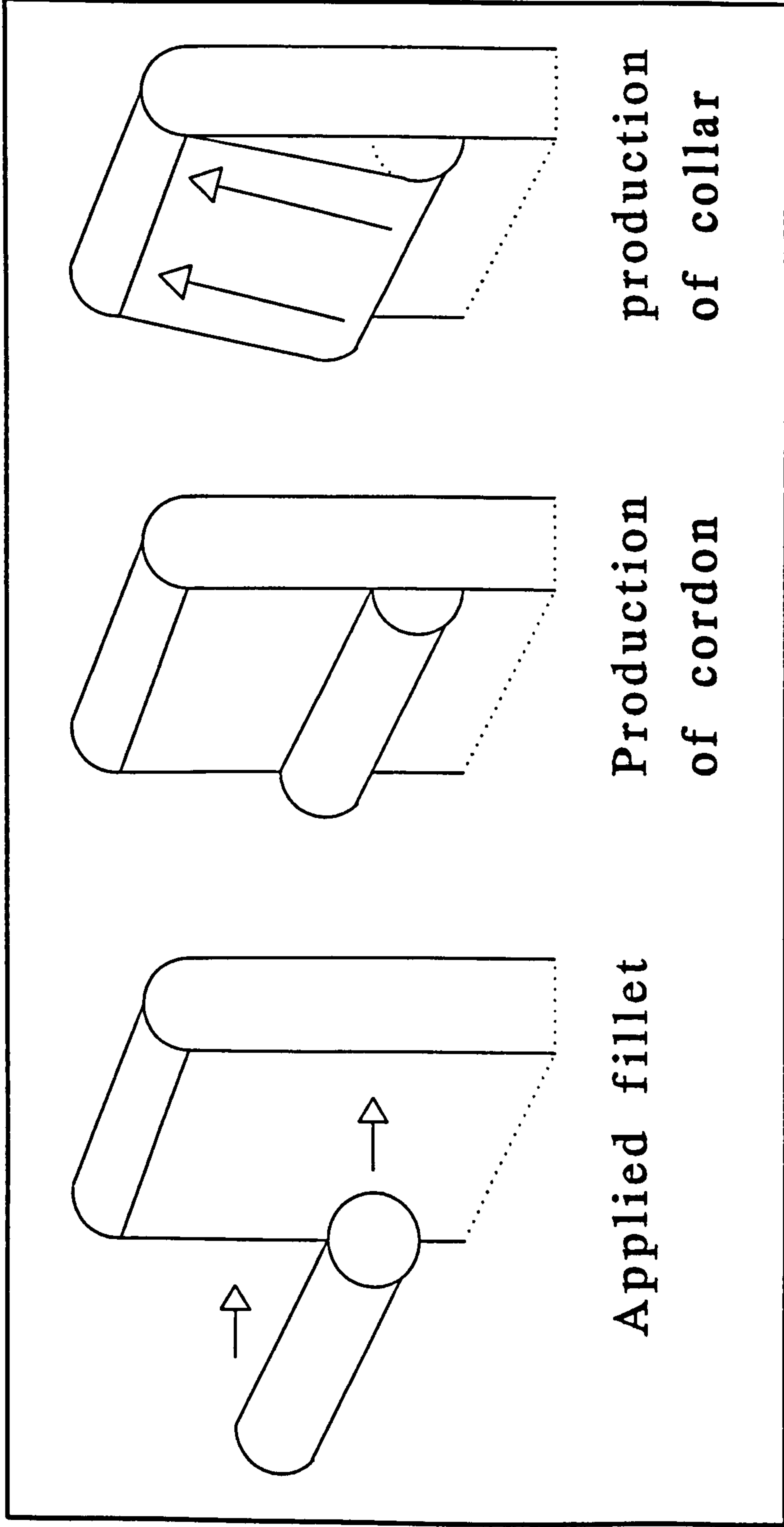


Figure 10.9: The method by which collars and cordons may have been produced on Manx Late Neolithic pottery

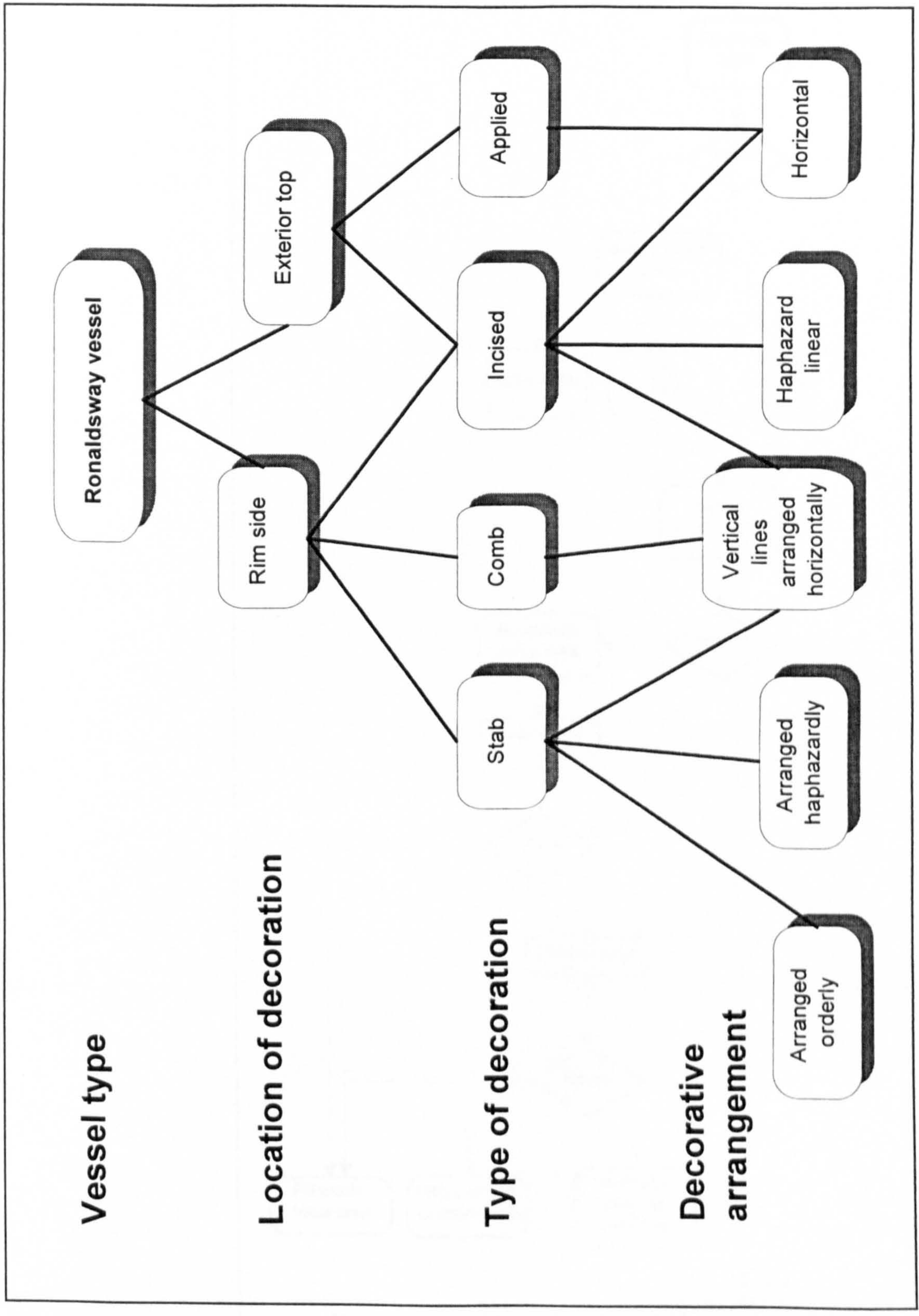


Figure 10.10: Dendrogram of design choices open to the Manx potter in the decoration of Late Neolithic pottery

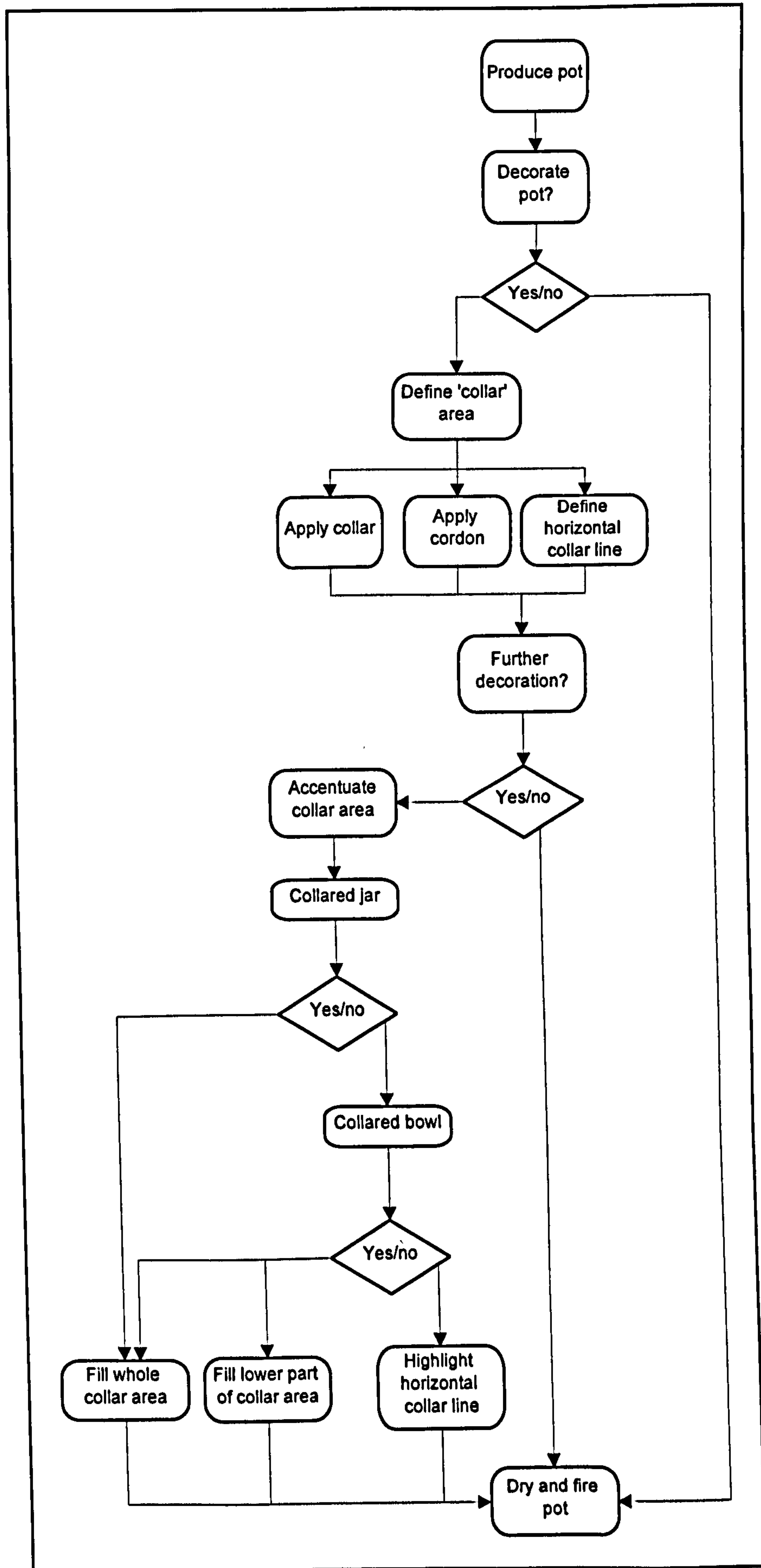


Figure 10.11: Flow chart of the design choices open to Manx Late Neolithic potters

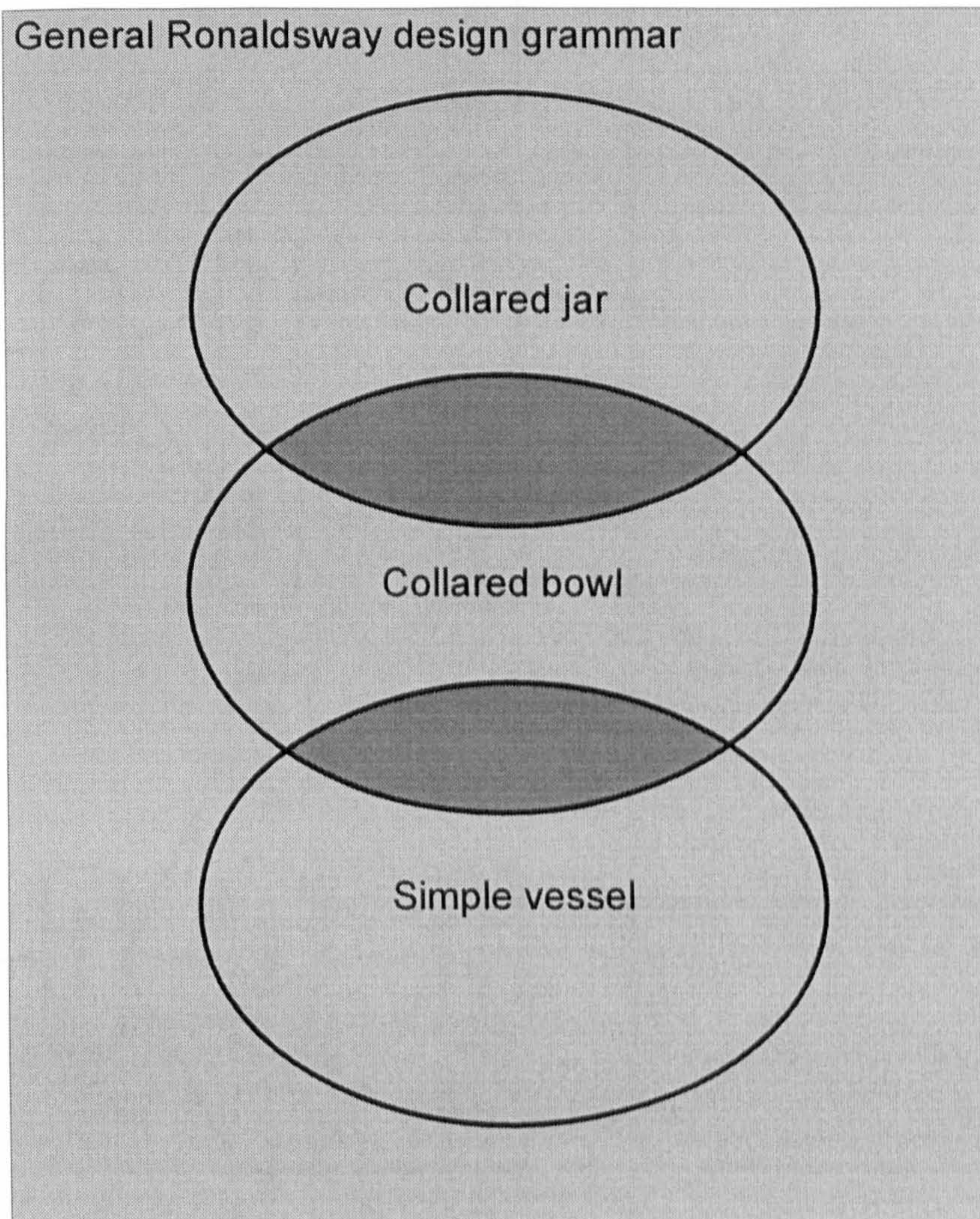


Figure 10.12: Venn diagram showing the overlap in design choices in the decoration of Manx Late Neolithic vessels of different types

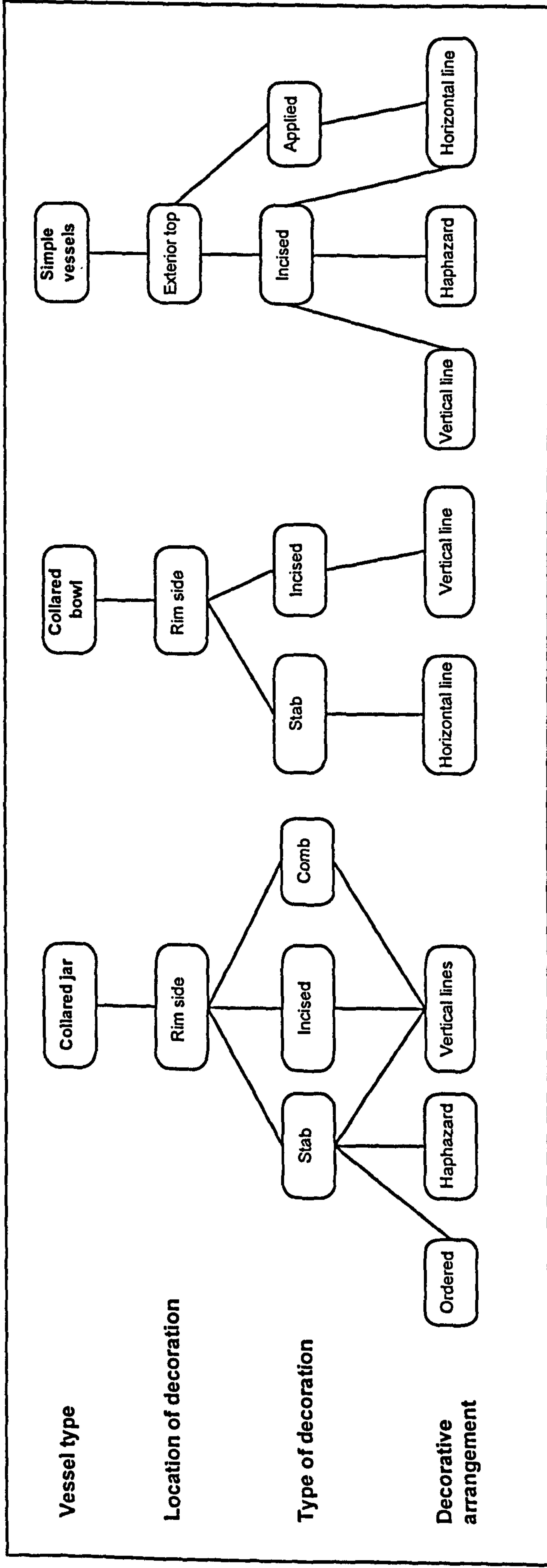


Figure 10.13: The design grammar specific to collared jars, collared bowls, and simple rimmed vessels

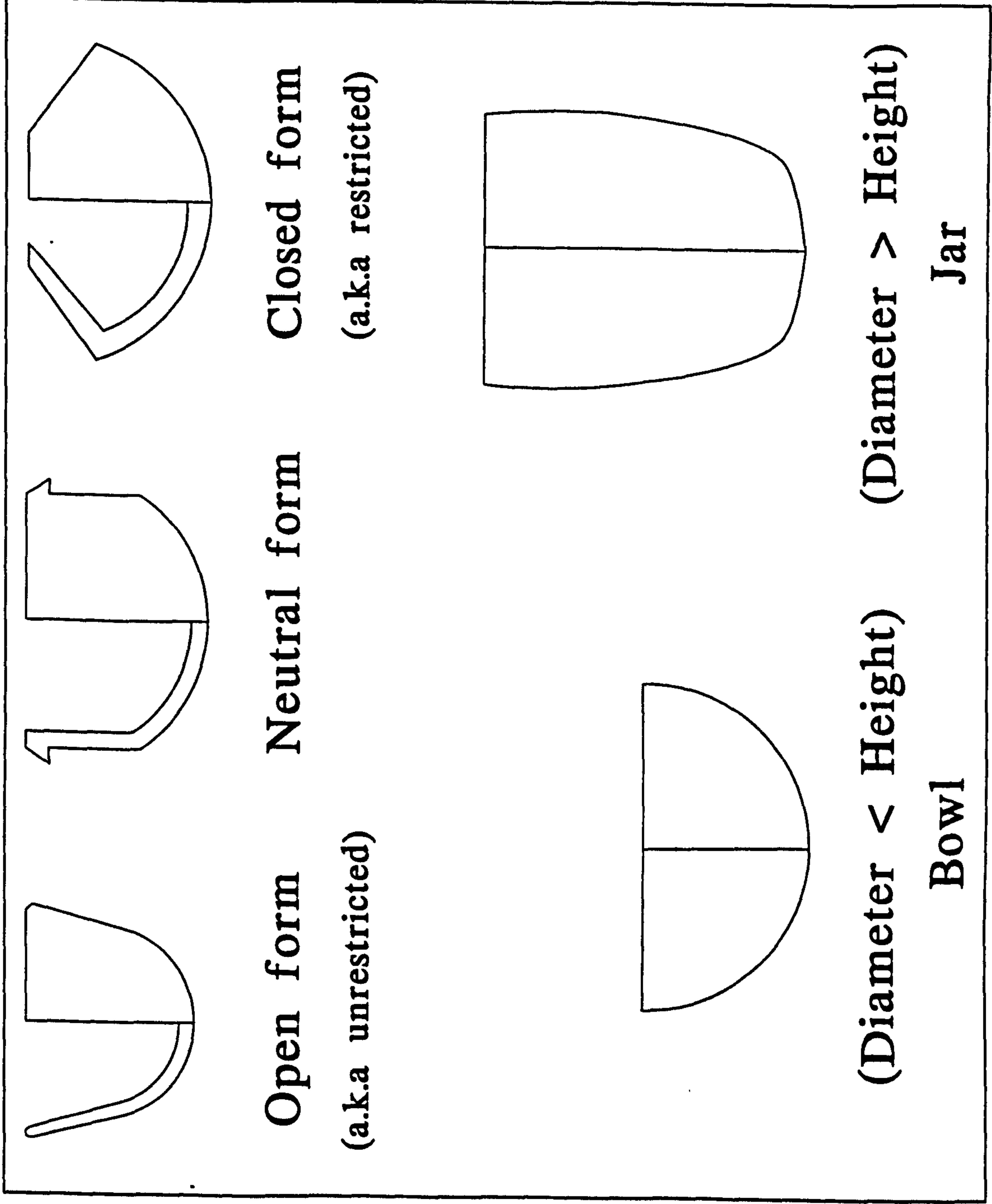


Figure 11.1: The classification of vessel shapes used in this study

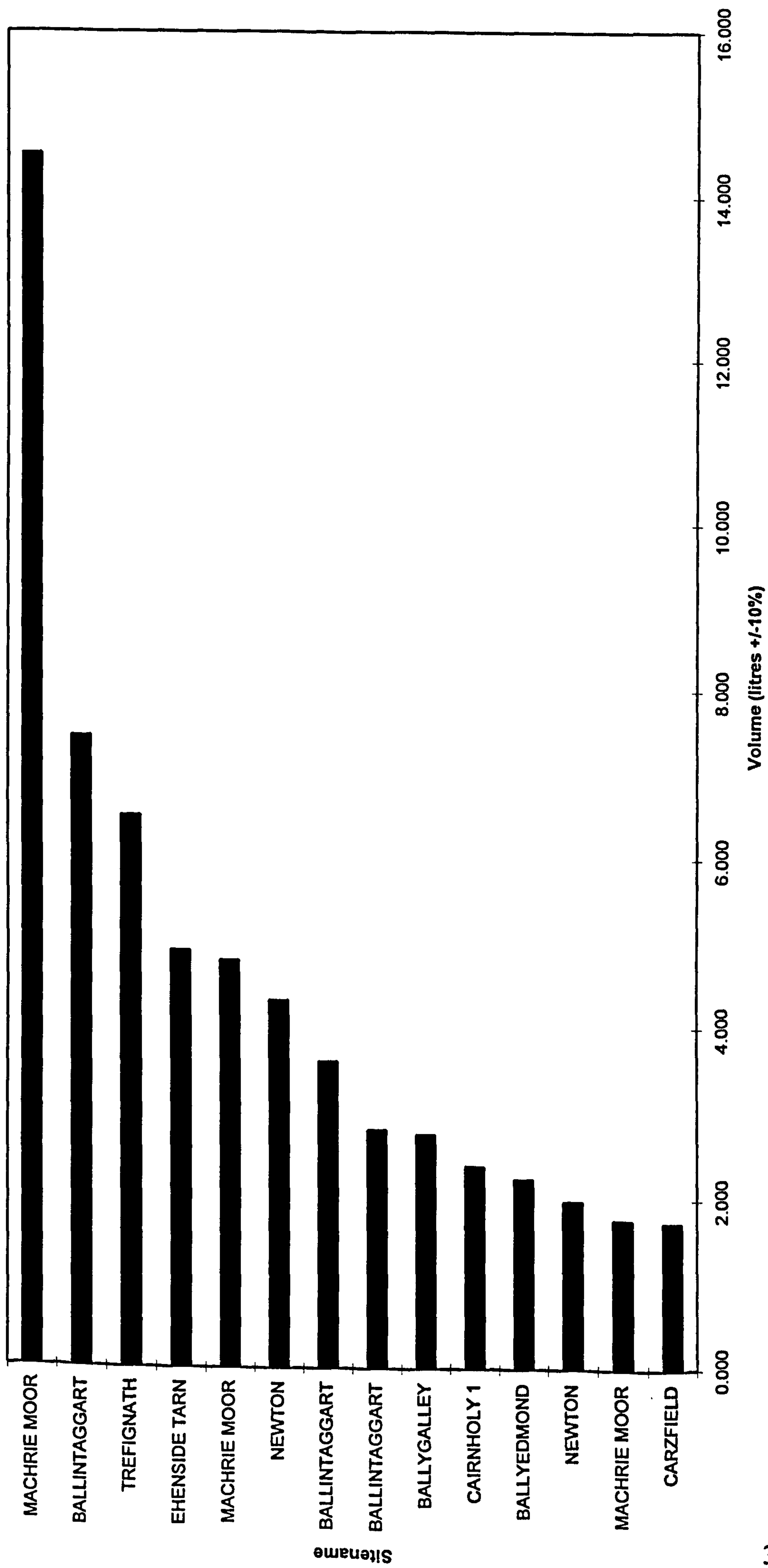


Figure 11.2: Volume of whole, or reconstructable, Carinated bowls

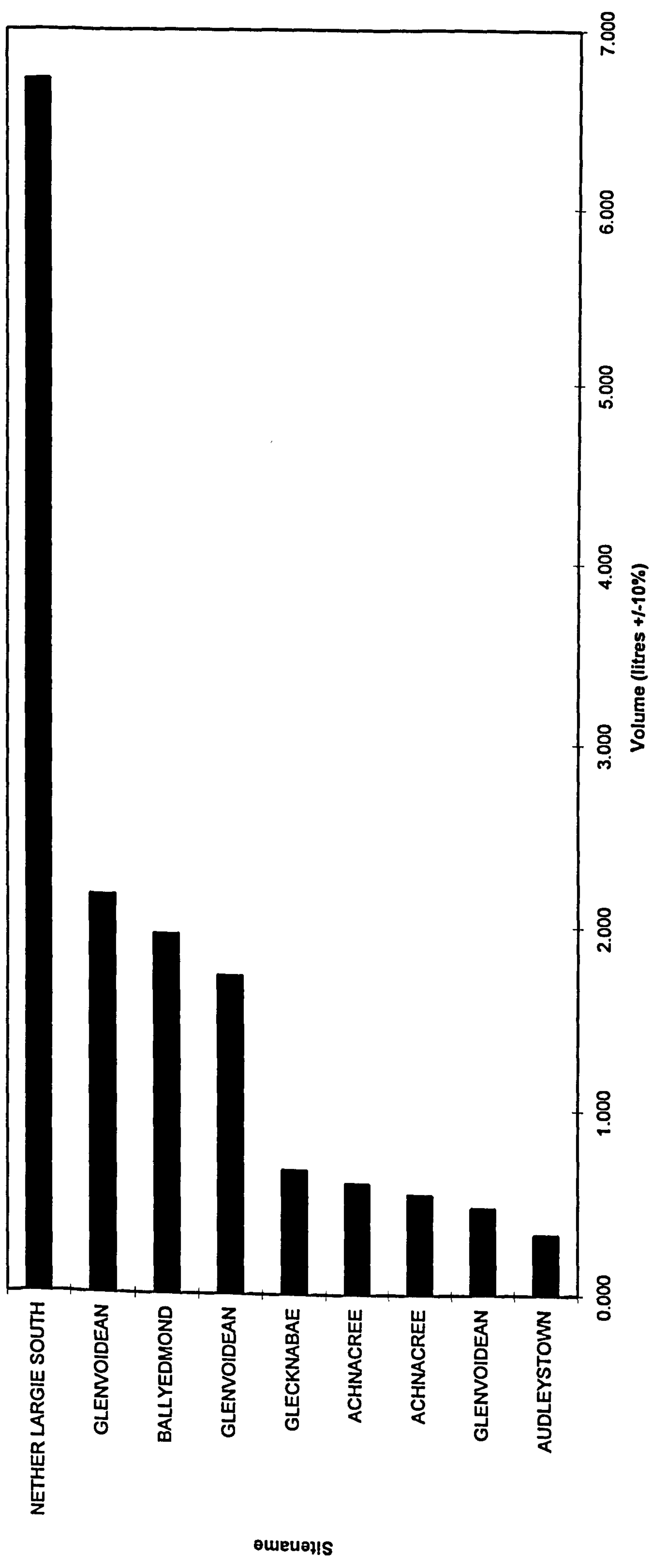


Figure 11.3: Volume of whole, or reconstructable, Achnacree bowls

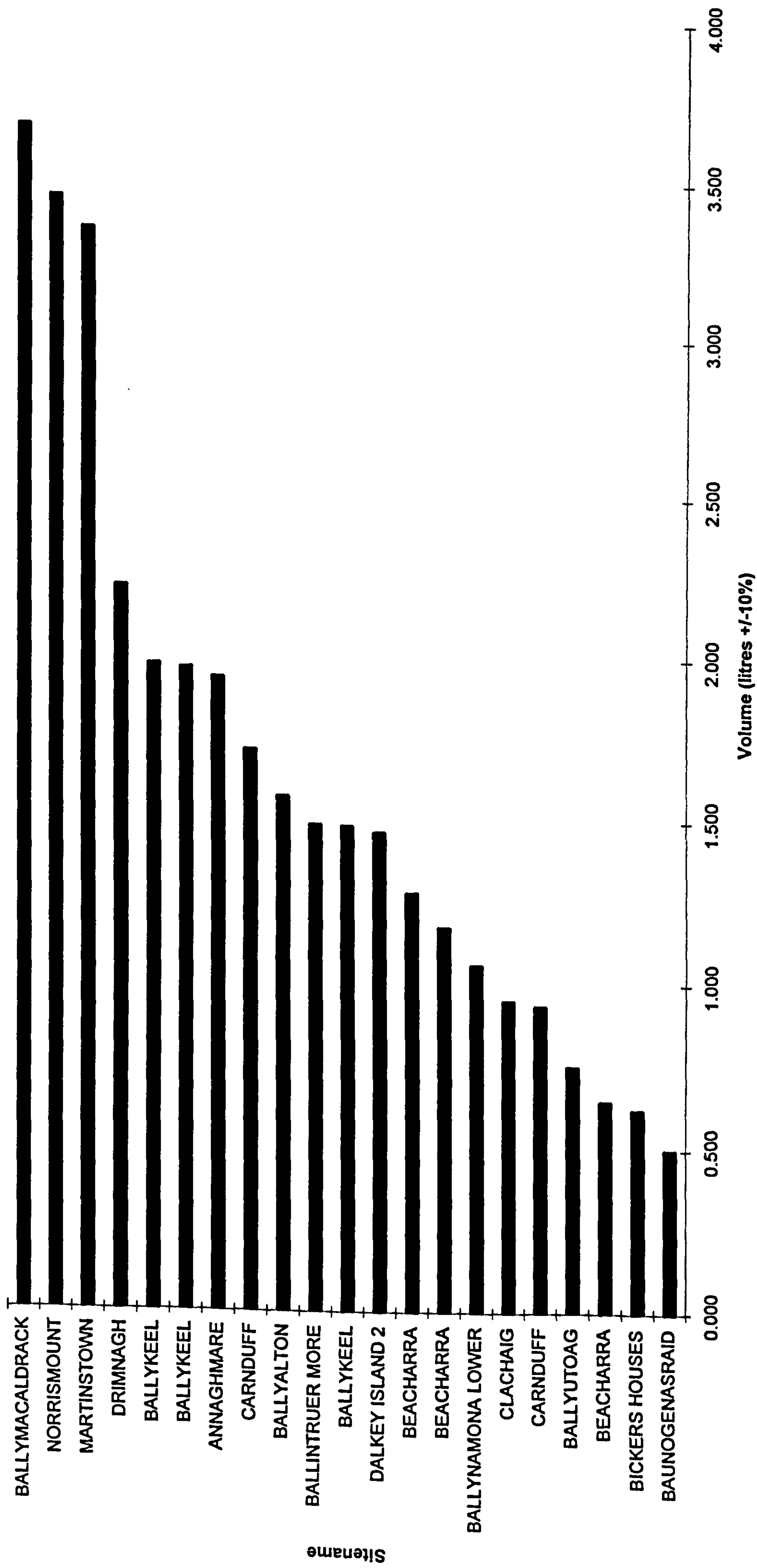


Figure 11.4: Volume of whole, or reconstructable, Drinnagh bowls

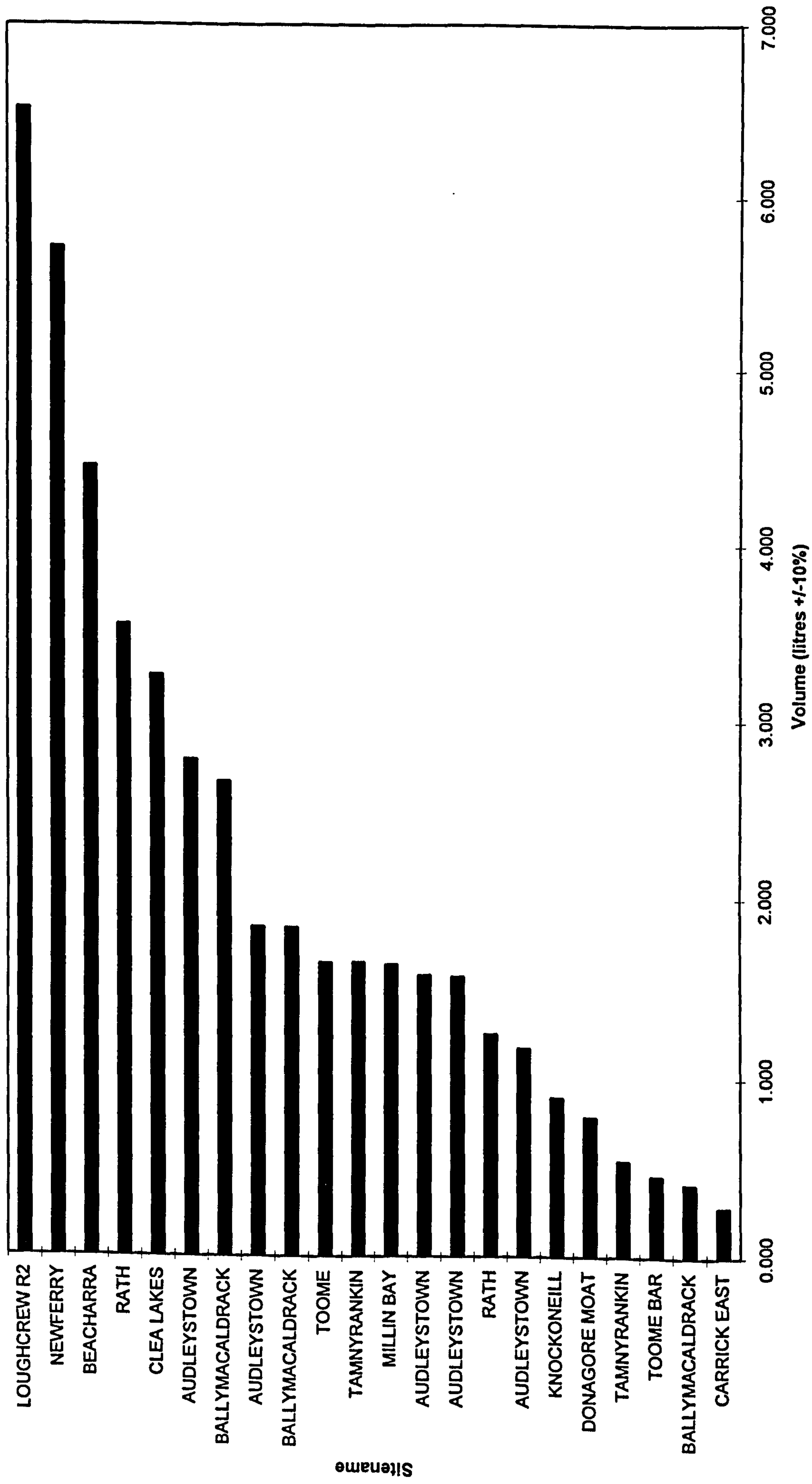


Figure 11.5: Volume of whole, or reconstructable, Sandhills vessels

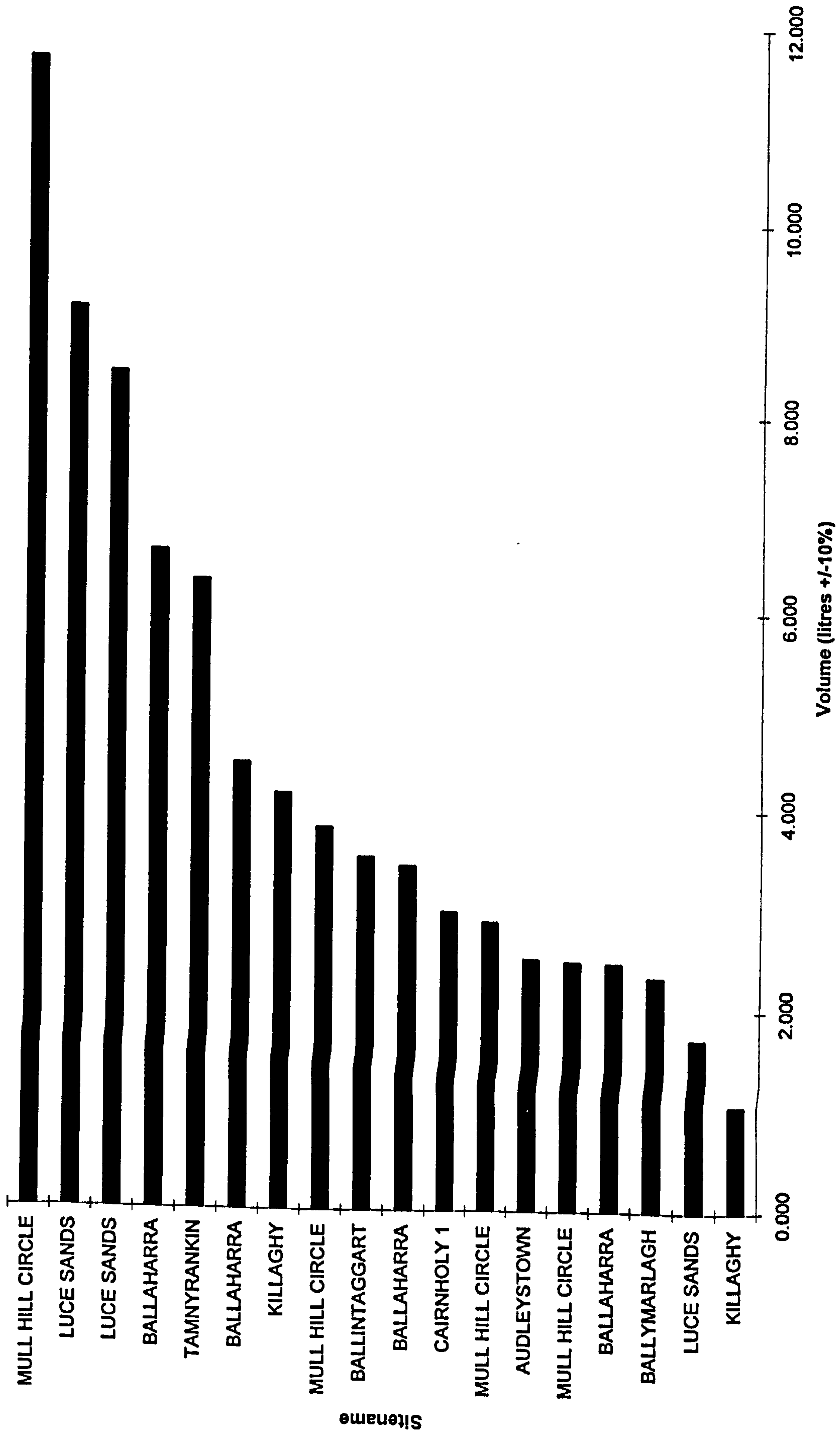


Figure 11.6: Volumes of whole, or reconstructable, Shouldered bowls

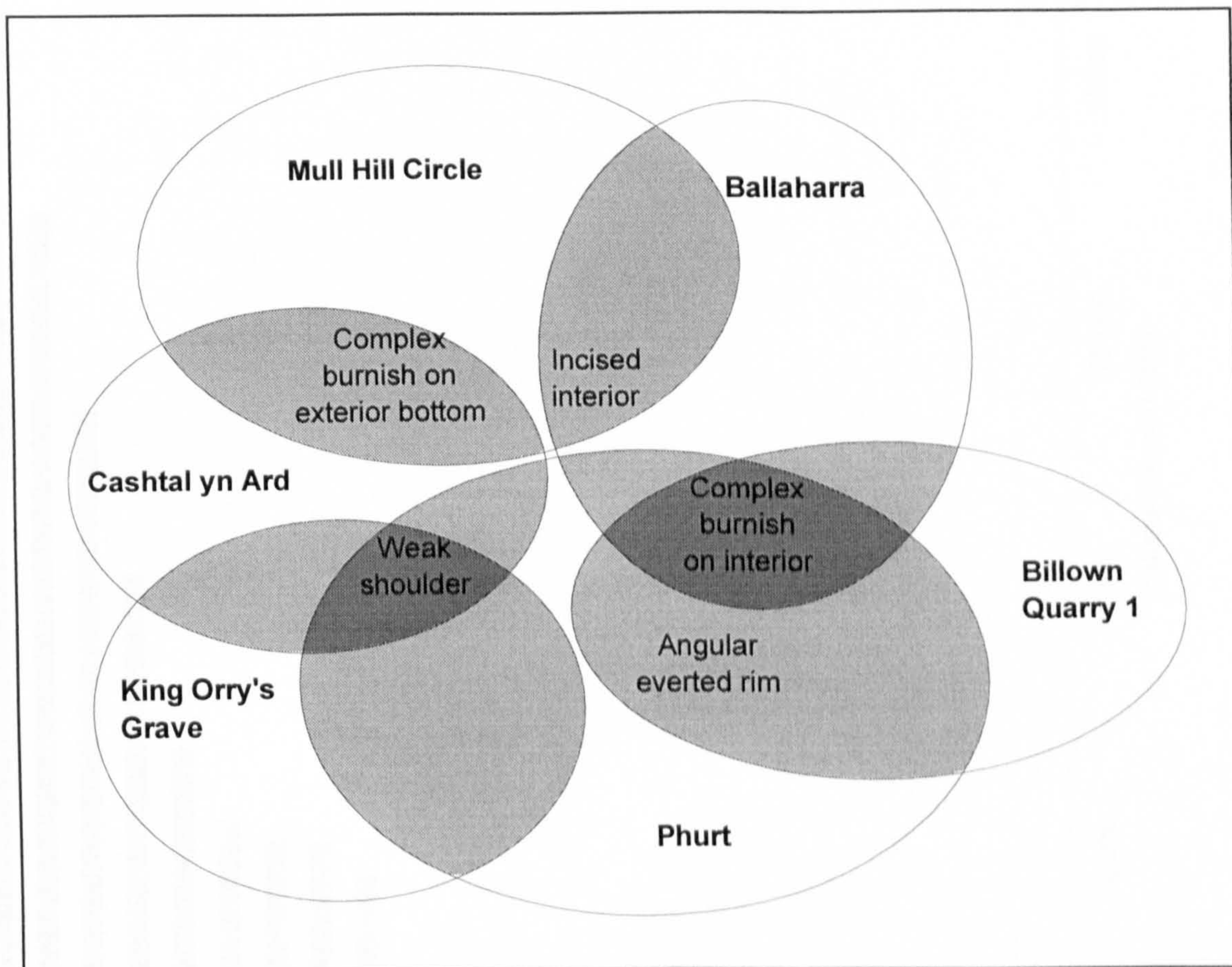


Figure 11.7: Venn diagram showing the correlation between Manx Middle Neolithic decoration and the find spot of the ceramic

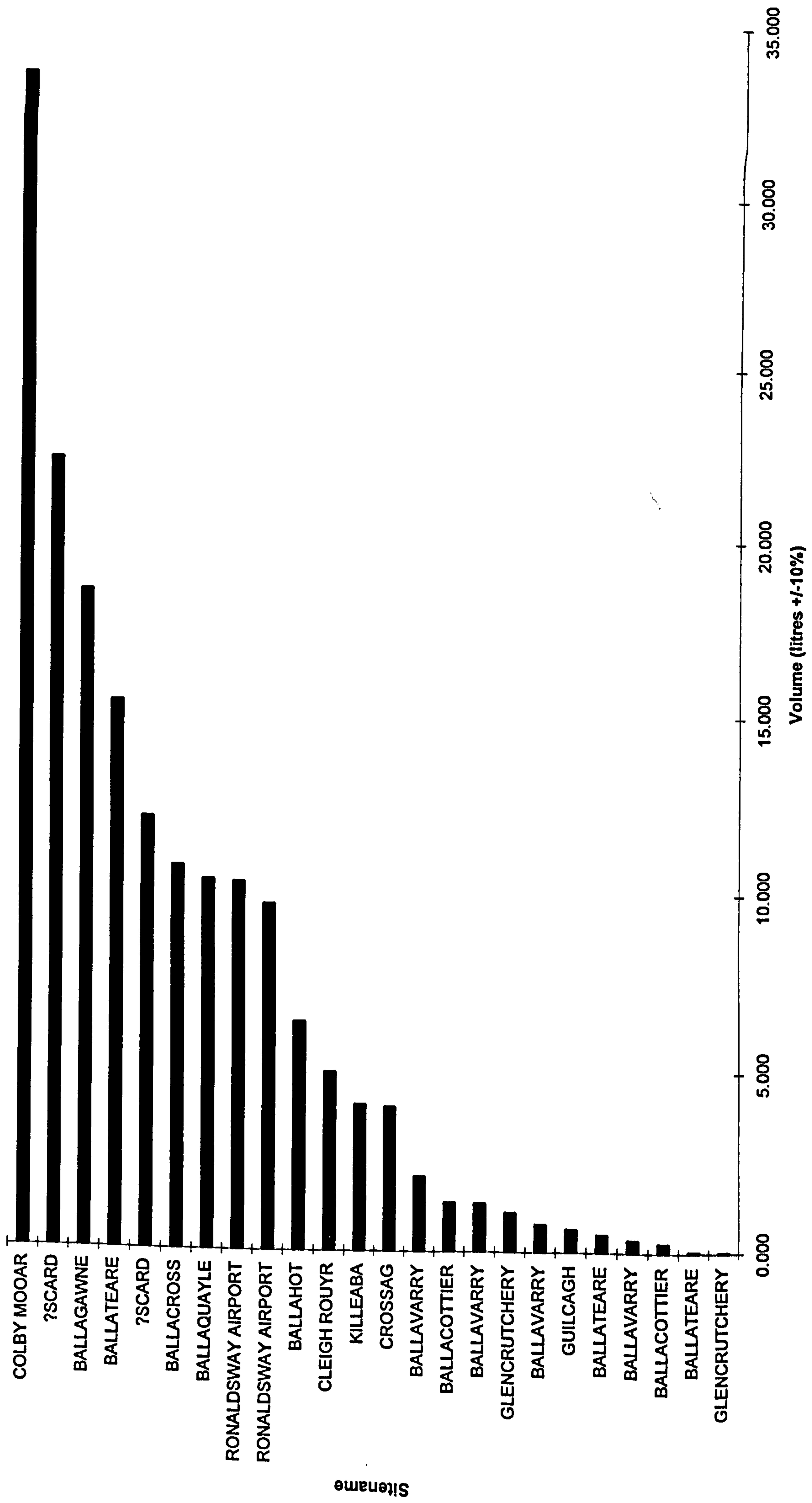


Figure 11.8: Volumes of whole, or reconstructable, Manx Late Neolithic pottery

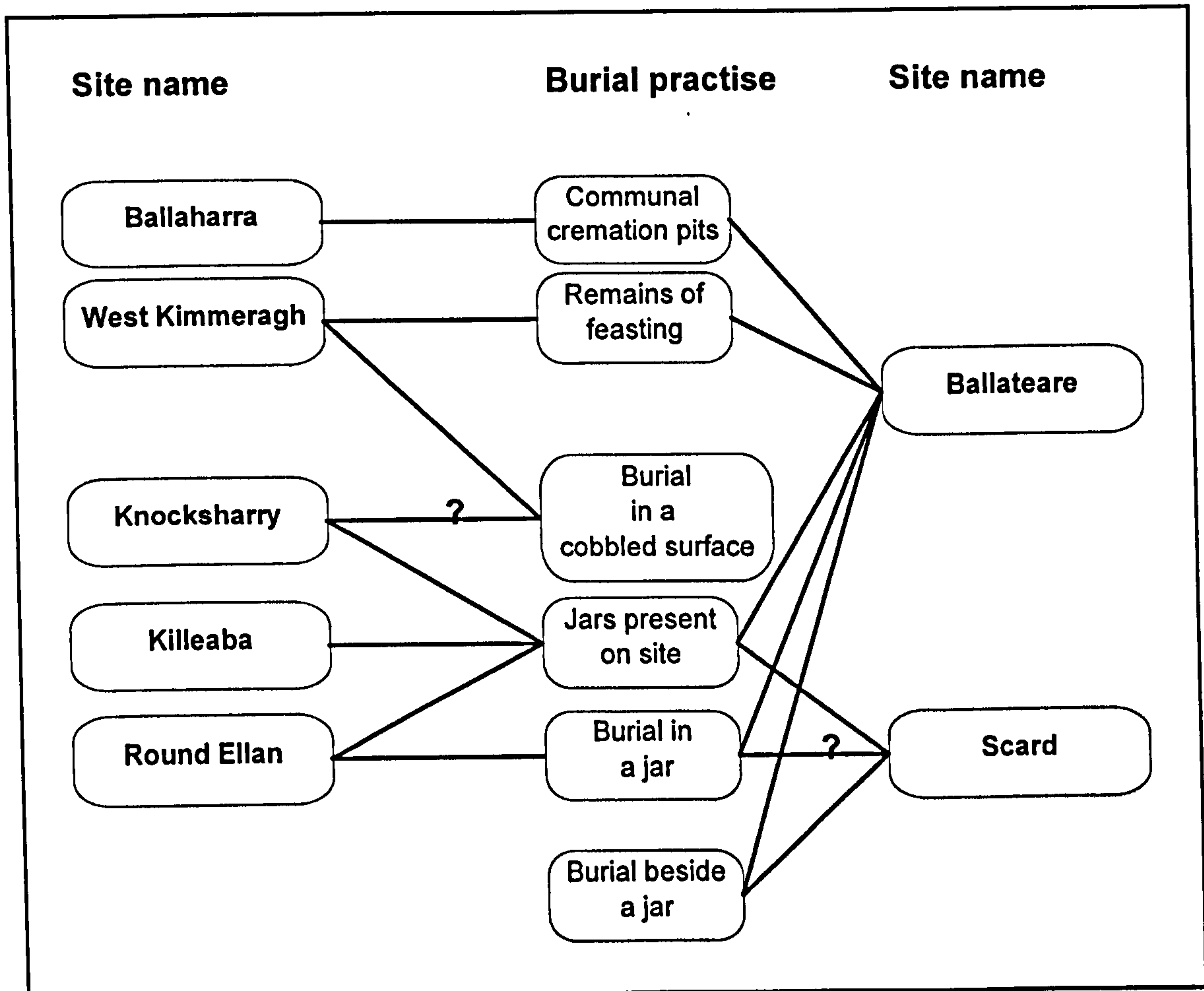


Figure 11.9: Range of ceramic practises used at each of the Manx Late Neolithic burial sites (? used where the presence of a specific practise at a site is uncertain)

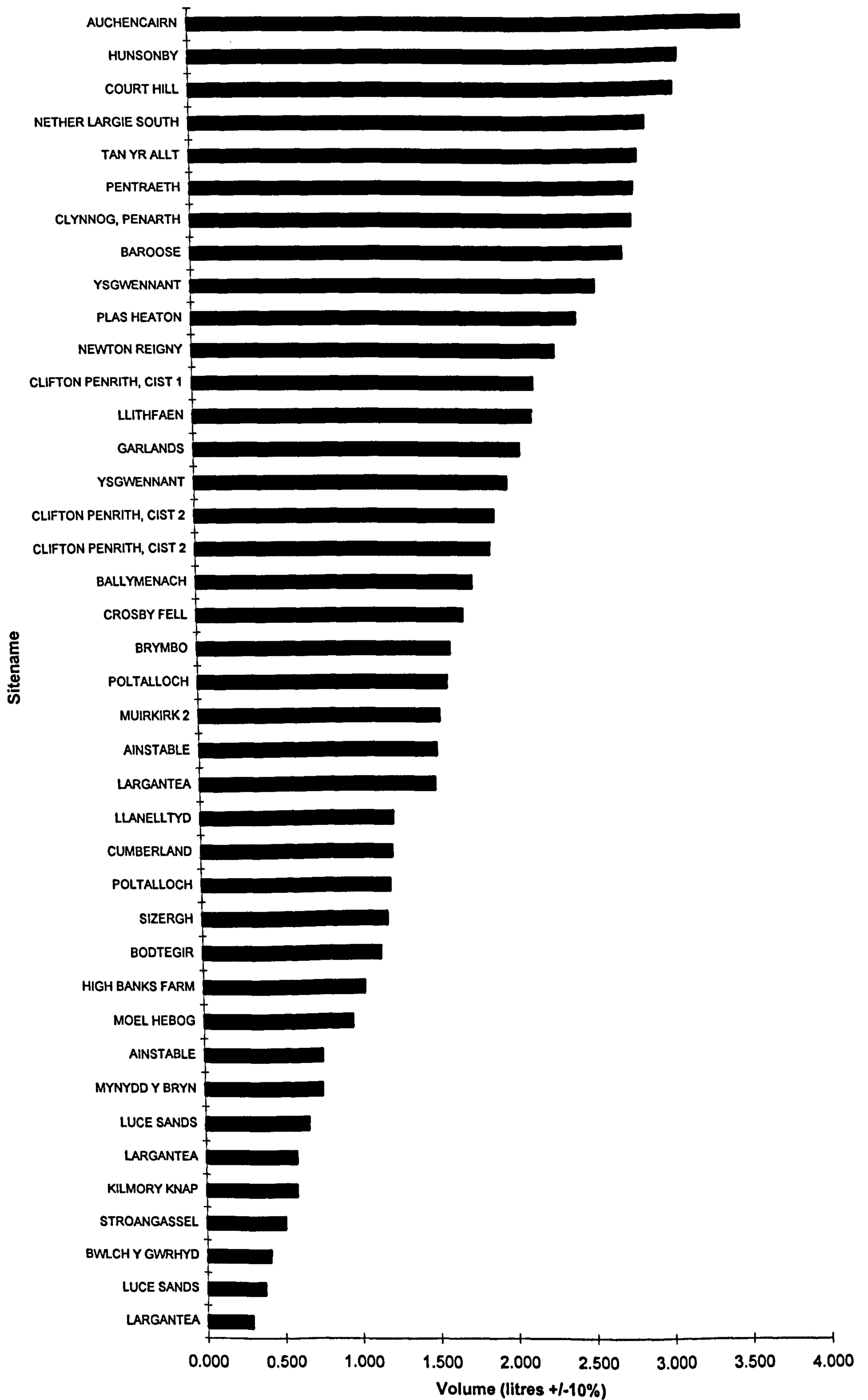


Figure 11.10: Volume of whole, or reconstructable, Beaker vessels

Distribution of Middle Neolithic site and ceramic types										
Counties	Site types					Ceramic types				
	Court tomb	Linkardstown cist	Passage tomb	Timber circle		Achnacree	Drinnagh	Peterborough	Sandhills	Shouldered
Antrim	✓		✓				✓		✓	✓
Armagh	✓		✓				✓		✓	✓
Carlow		✓					✓		✓	
Derry	✓		✓				✓		✓	✓
Down	✓		✓	✓		✓	✓		✓	✓
Dublin		✓	✓						✓	✓
Louth	✓		✓						✓	✓
Meath	✓		✓	✓			✓		✓	✓
Kildare			✓				✓			
Wexford		✓					✓			
Wicklow		✓	✓				✓		✓	
Argyllshire	✓		✓			✓	✓	✓	✓	✓
Arran	✓		✓	✓		✓	✓	✓	✓	✓
Ayrshire	✓		✓							
Dumfries and Galloway	✓		✓					✓		✓
Cheshire								✓		
Cumbria				✓				✓		
Lancashire				✓				✓		✓
Clwyd	✓		✓	✓				✓		✓
Gwynedd	✓		✓					✓		
Anglesey	✓		✓	✓				✓		✓
Isle of Man	✓		✓						?✓	✓

Table 4.1: Occurrence of Middle Neolithic site and ceramic types in each of the counties of the Irish Sea province

Type of grits used in Manx Late Neolithic pottery	
	Percentage of sherds (n=2780)
Igneous	59.5
Quartz	9.4
Granite	25.4
?Grog	0
None visible	5.7

Table 6.1: Frequency with which different temper types were used in Manx Late Neolithic pottery

Sample numbers of sherds selected for thin section analysis			
Middle Neolithic			
Billown Quarry 1			
?daub			
29.007			
29.010			
29.012			
29.030			
Late Neolithic			
Ballateare	Ballavarry	Glencrutchery	Ronaldsway 'House'
3.001	32.123	2.057	1.087
3.006	32.125	2.080	1.184
3.009	32.142	2.082	1.281
		2.101	1.349
		2.206	1.449
Latest Neolithic			
Ballachrink			
30.005			
30.009			
30.065			
30.067			
30.078			

Table 7.1: Catalogue of sherds of Manx Neolithic pottery used in thin section analysis

Rock fragments found in thin sectioned sherds of Manx Neolithic pottery

	Dolerite	Basalt	Shale/slate	Chert	Sandstone	Granite	Quartzite	Meta-quartzite	Other igneous	Argillaceous
29.007					CX	FX				
29.010					RX	FX		OX		
29.012			RX		RX				FX	
29.030					OX	CX				
1.087	FX		RX							
1.184	FX	OX	RX	RX				RX		
1.281	FX			RX	RX		RX			
1.349	FX	FX		OX	OX					
1.449	FX		RX	RX	RX					
2.057	CX	RX	R?X	RX	OX					
2.080	FX	CX	RX						FX!	
2.082	FX	FX	OX	RX	RX					
2.101	AX		OX	OX	RX					
2.206	A?X	FX	RX	RX						
3.001				OX	CX				CX	
3.006	O?X			OX	RX					
3.009				RX	FX		OX			OX
32.123	FX	FX			CX					CX
32.125	OX	CX		OX						
32.142	CX	CX			OX		OX			OX
30.005						FX		OX		
30.009					OX	CX				
30.065					CX			RX	RX	CX
30.067		RX			CX			OX	OX	
30.078		OX			OX					

A= abundant. F= frequent. C = Common. O=occasional. R=rare.

X= angular / sub-angular x = rounded / sub-rounded

Table 7.2: Summary of the range of tempers, used in Manx Neolithic pottery. Letters in bold indicate the major temper in each sherd. Sample codes are as follows: 1.xxx Ronaldsway 'House'; 2.xxx Glencrutchery '3.xxx Ballateare; 29.xxx Billown Quarry1; 30.xxx Ballachrink; 32.xxx; Ballavarry

Minerals found in thin sectioned sherds of Manx Neolithic pottery							
	Quartz	Feldspar	Mica	Iron ore	Microcline	Pyroxene	Olivine
29.007	✓	✓	✓	✓	✓		
29.010	✓	✓	✓	✓	✓		
29.012	✓	✓	✓	✓	✓		
29.030	✓	✓	✓	✓	✓		
1.087	✓	✓	✓	✓			
1.184	✓	✓	✓	✓	✓		
1.281	✓	✓	✓	✓			
1.349	✓	✓	✓	✓			
1.449	✓	✓	✓	✓			
2.057	✓	✓	✓	✓			
2.080	✓	✓	✓	✓			
2.082	✓	✓		✓			
2.101	✓	✓	✓				
2.206	✓	✓	✓	✓			
3.001	✓	✓	✓	✓		✓	
3.006	✓	✓	✓	✓			
3.009	✓	✓	✓				
32.123	✓	✓	✓	✓			
32.125	✓	✓	✓	✓			
32.142	✓	✓	✓				
30.005	✓	✓	✓	✓	✓		
30.009	✓	✓	✓	✓			
30.065	✓	✓	✓	✓			
30.067	✓	✓	✓			✓	✓
30.078	✓	✓	✓			✓	

Table 7.3: Summary of the range of minerals found in Manx Neolithic pottery.. Sample codes are as follows: 1.xxx Ronaldsway 'House'; 2.xxx Glencrutchery' 3.xxx Ballateare; 29.xxx Billtown Quarry1; 30.xxx Ballachrink; 32.xxx; Ballavarry

Range of geological types present within a 5km radius of each site				
	Ballateare	Ballavarry	Glencrutchery	Ronaldsway
% of total area covered by sea	55.1	1.0	22.8	42.3
% of remaining area covered by:				
Drift geology:				
Alluvium	14	15	4	5
Blown sand	3	3		1
Boulder drift	19	5	71	62
Late Glacial Flood gravels	6	34	2	
Raised beach			1	
Sand & gravel mounds	6	10		1
Sand & gravel platform	48	26	2	13
Exposed solid geology:				
Agneash grits			3	1
Conglomerate				
Limestone				6
Lonan Flags			16	7
Sandstone & conglomerate				1
Tuff agglomerate				1
Undifferentiated slates	4	7	1	2

Table 8.1: Illustration of the range of geological types present within a 5km radius of each Late Neolithic site sampled. Intrusive dykes have been left off of this table, despite their presence within the area of Glencrutchery and Ronaldsway since they are of insufficient scale to record in this part of the study.

Number of sherds sampled for chemical analysis			
	Number of samples	Assemblage MNI	Percentage of assemblage sampled
Ballateare	6	15	40
Ballavarry	8	17	47
Glencrutchery	13	48	27
Ronaldsway House	19	44	43

Table 8.2: Number of sherds sampled from each site during chemical analysis. (Includes sherds sampled in both first and second phase of work)

Catalogue of sherds sampled for AAS analysis		
Site name	Batch 1	Batch 2
Ronaldsway 'House'	1.028	1.008
	1.049	1.010
	1.052	1.018
	1.060	1.020
	1.182	1.044
	1.281	1.046
	1.348	1.048
	1.349	1.119
	1.482	1.222
	1.512	
Glencrutchery	2.020	2.183
	2.053	2.184
	2.057	2.189
	2.080	2.201
	2.082	2.224
	2.101	
	2.206	
	2.257	
Ballateare	3.001	
	3.005	
	3.006	
	3.007	
	3.008	
	3.009	
Ballavarry		32.122
		32.123
		32.125
		32.137
		32.142
		32.145
		32.163
		32.166

Table 8.3: Catalogue of sherds sampled for AAS study, including a breakdown of the batch to which each sherd belonged.

Instrument parameters for AAS study		
Element	Wavelength (nm)	Standard concentration (ppm)
Al	394.4	1, 5, 10
Ca	422.7	1, 2.5, 5
Cu	324.8	1, 2, 5
K	769.9	0.3, 1.5, 3
Mg	285.2	0.1, 0.5, 1, 2.5, 5

Table 8.4: Instrument parameters and details of standard solutions used during AAS analysis

Results of AAS analysis in ppm					
Sample code	Ca	Mg	Cu	Al	K
Ronaldsway House					
1.008	6738	5436	82.42	181.08	1882
1.010	3766	2542	55.92	182.64	1806
1.018	2620	2288	47.52	173.28	450
1.020	2888	2612	43.7	198	1472
1.028	5542	5590	71.84	246.9	2180
1.044	1626	2302	43.62	165.9	2170
1.046	4268	4566	61.22	182.7	2502
1.048	5218	3720	38.9	176.4	3778
1.049	7406	7950	69.76	307.56	2628
1.052	5744	9472	80.98	167.34	1766
1.060	1560	3490	67.52	272.64	2792
1.119	5592	6562	82.36	217.86	2346
1.182	3524	4342	82.38	193.62	1904
1.222	4028	5242	42.06	174.24	1690
1.281	4376	5222	80.96	199.8	1894
1.348	3986	4034	62.26	217.5	2046
1.349	2654	2152	70	194.7	2368
1.482	5190	4658	67.84	222.06	2494
1.512	3412	3636	35.34	238.44	3122
Glencrutchery					
2.020	3660	5948	82.44	228.36	2062
2.053	2004	2992	107.42	262.74	2426
2.057	5600	5352	115.38	226.8	2838
2.080	1722	3458	144.14	273.3	2326
2.082	1870	2910	61.72	254.76	3168
2.101	3122	4988	59.84	233.52	2036
2.183	1898	3986	75.96	170.28	1660
2.184	2592	3554	131.28	160.98	852
2.189	2212	4858	62.74	198.48	1610
2.201	2208	3154	96.1	220.14	1612
2.206	2864	5846	59.98	231.96	1858
2.224	1648	2770	79.56	231.54	1526
2.257	3340	4570	94.18	251.76	2872
Ballateare					
3.001	3224	5682	52.54	167.22	1886
3.005	1204	3564	29.38	230.52	1822
3.006	1084	2652	37.24	241.38	2750
3.007	3176	3664	36.98	207.36	2636
3.008	1976	3880	47.26	183.84	2058
3.009	788	2252	33.82	195.6	2392
Ballavarry					
32.122	1478	2676	51.26	143.28	1090
32.123	5852	4734	79.12	170.94	1694
32.125	2904	3976	62.24	136.5	836
32.137	2230	4270	44.16	147.6	744
32.142	1792	2580	52.78	142.02	1484
32.145	1008	2048	63.16	124.32	1726
32.163	3488	5504	108.62	189.12	1664
32.166	756	1276	34.92	144.72	648

Table 8.5: Results of AAS analysis arranged by site, and displayed in parts per million

Allocation of sherds to their findspot when analysed using AAS for Al, Ca, Cu, K, and Mg	
Site name	Percentage of samples correctly allocated to site
Ballateare	83.3%
Ballavarry	75%
Glencrutchery	69.2%
Ronaldsway 'House'	84.2%

Table 8.6: Results of the final discriminant analysis of the AAS data

Average probability of group membership from final discriminant analysis				
	Ronaldsway 'House'	Glencrutchery	Ballateare	Ballavarry
Spread from group mean	.6288	.5823	.7418	.7307
Spread from group mean without misallocated sherds	.6965	.7959	.7826	.8160

Table 8.7: Spread of data at each site from the group mean. (Produced using the P(G/D) score allocated to each sample during discriminant analysis)

Correlation of Ronaldsway vessel sizes and forms						
		Bowl			Jar	
	Open	Neutral	Closed	Open	Neutral	Closed
Individual	8					
Group				1	3	1
Communal					4	5

Table 8.8: Correlation between the form of Ronaldsway vessels, and the size category to which they belong