THE NEOLITHIC AND BRONZE AGES OF ABERDEENSHIRE:

A STUDY OF MATERIALITY AND HISTORICAL PHENOMENOLOGY.

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ABSTRACT

It is suggested that previous interpretations of the Neolithic and Bronze Ages of Aberdeenshire have, in the main, been flawed due to a pre-occupation with placing the remains of these periods within models still grounded in cultural historical frameworks. Consequently, I abandon period divisions within the thesis, and instead use the changing nature of human inhabitation of landscape, based on the available radiometric dating, as the temporal basis for the study.

Thus, recent phenomenological approaches in archaeology are highlighted as a significant development to the study of past remains. Such phenomenological approaches, however, do suffer from a lack of consideration of the role of perception in constituting social meanings in the past. The theory of the cultural sensoria is developed, therefore, and the significance of material culture, during ontogenesis, in the maintenance of social meanings is stressed.

The thesis explores how human understanding of their material conditions (landscape and material culture) changed through the fourth to second millennia BC. Study of the sensory qualities of material culture indicates that a shift in balance of sensory orders, from haptic to visual dominance, took place during this period. The inter-relationship between topography and monument locations is studied. This demonstrated that the choice of monument location was constrained by a number of competing factors, such as the extent of visual field and inter-visibilities. The importance of recognising the inter-play between the materiality of monuments and landscape as a significant component in the constitution of cosmological systems is highlighted. The tension between regional traditions and local expressions within those wider traditions is explored.

A variety of historical trends during the fourth and second millennia BC are identified. Ultimately, I conclude sensory studies are of considerable value to the study of all archaeological remains and that it is possible to study historical phenomenologies.

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A NOTE ON ACCOMPANYING MATERIAL AND CONVENTIONS

A VHS video accompanies the thesis: this includes video footage showing the inter-relationship between landscape and monuments in Aberdeenshire (Table 1). The intention was to provide this material on a CD-ROM. Technical difficulties, however, prevented this from taking place

In order to allow them to be referred to effectively, a proportion of the figures (Fig 50 - 83) are provided loose. Figures 50, 56 & 66 are base maps on which to overlay the plots of monument visual fields (Figs 51-5, 57-65 & 67-83).

The radiocarbon dates quoted throughout the thesis are calibrated dates expressed at 2 sigma. Calibration was on OxCal v2.01. Further details of individual dates are included in tables 10 and 11.

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CHAPTER 1

Introduction

1.1 Exploring a foreign country

The study area of Aberdeenshire has arguably one of the greatest densities of archaeological remains in Britain dating to the fourth and second millennia BC. These remains are, however, predominately ceremonial or funerary, with limited evidence of domestic activity from this period. For me, the most striking of the ceremonial remains are the stone circles, in particular the Recumbent Stone Circles which are almost unique to the study area. In the past the lack of clearly domestic settlement has been considered as a problem resulting from the limited amount of excavation which has been undertaken in the area. It will however be suggested that this lacuna in our knowledge is more apparent than real. The absence of settlement is a product of our preconceptions of what traces of domestic activity should be. A bit like expecting egg and chips when on holiday in Spain, such views never force us to consider or experience the differences of other cultures. Studying the past with such preconceptions then becomes no more than a comforting reflection of how we think it should have been.

Several times within the thesis I refer to archaeological, ethnographic or ethno-historical examples of the understanding of monuments and landscapes. These are not intended to provide a direct analogy for the past during the fourth to second millennia BC in Aberdeenshire; they illustrate some of the potentials and possibilities of the diversity of human expression. Ultimately they provide reminders that the past was almost certainly different from our preconceptions about what it may have been.

Several avenues of research were pursued:

- The first aimed to develop a new interpretative framework for the study of the Recumbent Stone Circles. As these monuments have long formed the basis through which the nature of Neolithic and Bronze Age society in Aberdeenshire has been characterised their reassessment forms an essential part of this thesis.

- The second aimed to explore the potential significance of the inter-play between topography and monument location to past peoples understanding of the world they inhabited.

- The third aim was to consider how historical changes in the nature and use of material culture categories may have been understood by people in the past.

These aims were pursued with two main objectives:

- The first objective is to be able to consider the inter-relationships between human perception and materiality through the results of research on artefacts, monuments and the landscapes that they were utilised.

- The second objective is to provide an understanding of how different arenas of social expression through the material world may have inter-related to form cognitive or cosmological schemes in Aberdeenshire during the fourth to second millennia BC.

The ultimate goals of the thesis are two fold:

- The first goal is to reappraise the changing nature of society in Aberdeenshire between the fourth and second millennia BC and to consider how material culture was implicated in peoples understanding of their historically changing place in the world.

- The second goal is to be able to consider the potential for practising an historical phenomenology that takes into account the complexity of human perceptual engagement with the world around them and the dynamic, strategic and contingent nature of social change.

1.2 The structure of the thesis

The thesis is composed of a further nine chapters, forming three parts. The first part introduces the scope of the study raising some of the problems with previous interpretations and suggests some perspectives that go towards resolving these problems.

The first chapter of part I, *Only the material remains (c 4000 - c 800 BC)*, introduces the artefacts and monuments within Aberdeenshire which form the basis of the study. The first

section within chapter two introduces the physical characteristics of Aberdeenshire and the historically changing nature of the environment, because of a recognition that the landscape forms a substratum of human understanding in both the past and present. The final section introduces previous studies of the Neolithic and Bronze Ages in Aberdeenshire, and as such provides the backdrop to a wider critique of these period divisions in chapter three.

Chapter three, *Rethinking the fourth to second millennia BC*, considers the implications of recent critical thinking on the definition of different periods in prehistory. The changing inter-relationship between human groups and landscape is explored as a more useful approach to interpreting historical change during the period of study.

The following chapter, *Making no sense of circles*, outlines the history of the study of stone circles in the region of Aberdeenshire. I go on to highlight several of the main limitations of previous interpretative approaches to the understanding of the use of stone circles. It is proposed that the main shortcomings in the majority of previous interpretations is an absence of recognition of the importance of the role of people and the place of monuments in the landscape in the construction of social meanings.

The second part of the thesis consists of chapters five and six. Chapter five, *Phenomenology and cultural sensoria* includes a critique of recent archaeological phenomenologies. In short it is suggested that although archaeological phenomenologies represent an important contribution to the study of the past, they suffer from a lack of theory of human perception. This criticism leads to the development of the concept of cultural sensoria. The importance of an awareness of the complexity of human perception to the archaeological study of the past is further developed in chapter six *Perceiving the monumentality of objects*. Here the archaeological study of material culture is considered in relation to the development of human perception. The inter-relationship between objects and monuments is also considered in terms of how they constitute different forms of material culture.

The third part of the thesis analyses and interprets the archaeological remains of the period from Aberdeenshire in relation to the perspectives outlined in Parts I and II. In chapter seven, *The past is an object of our perceptions,* several forms of material culture are studied in relation to the sensory balance between haptic and visual experience. Histories of the sensory order of a variety of forms of artefact are considered, the results of which suggest that there is a shift in the balance of sensory orders between the fourth and second millennia BC.

Chapter eight, *To see or not to see,* studies the interplay between the architecture of recumbent stone circles and their location within the landscape. It begins by considering how the architecture of recumbent stone circles provides parameters to the experience from both within and out with the monument. The importance of prominent positions for recumbent stone circles affording views between one another, views of prominent peaks or of mutually exclusive visual fields is studied in the remaining sections.

In the following chapter, *Monuments to a changing age?* the inter-relationship between landscape, monuments and people is studied further. This is explored through highlighting the presence of topographic sources of inspiration for the architectural form of recumbent stone circles. The diverse and multiple perceptual experience of both landscape and monuments are then explored in the remainder of the chapter.

In the final chapter, *Materiality and historical phenomenology*, the importance of the materiality of topography and material culture within cosmological systems is stressed. The historical inter-relationship between monuments and mediums is also explored. A series of trends in the inhabitation and understanding of the landscape are highlighted as indicating the historically changing nature of being human between the fourth and second millennia BC. Ultimately, the potential for producing historical phenomenologies is higlighted.

PART I

Chapter 2

Only the material remains; (c 4000 BC to c 800 BC)

Introduction

This chapter introduces the archaeological remains that form the basis of study. The vast majority of remains from Aberdeenshire, which are thought to date to the Neolithic and Bronze Ages, were discovered or excavated prior to the advent of systematic recording and analysis. Of the few Neolithic and Bronze Age remains that have seen proper archaeological investigation in the past 25 years, most still await full publication. Although this situation makes the interpretation of the Neolithic and Bronze Age of Aberdeenshire more difficult, it should not, however, deter us from the task. The distinctiveness of the remains, which form the focus of this research, indicates that there is a unique and significant history to be explored. For the purposes of this chapter, these remains are discussed within several groups: monumental structures, stray finds, scatters, pottery and settlement remains.

Before detailing the remains that form the basis of study the geology and topography of the study area must be outlined. Since, in gross terms, these have not changed greatly since the Neolithic and Bronze Ages, they represent the basic fabric of human experience in both the past and present.

2.1 The bones of Aberdeenshire

The region of Aberdeenshire has traditionally been defined as the area bounded by the river Deveron to the west, the river Dee to the south, the Moray Firth to the north, and to the east the North Sea (Robertson 1843; Smith, A 1875) (Fig 1). Within the Aberdeenshire region there has traditionally been identified a number of sub-regions or districts (Fig 5): Mar, Formatine, Garioch, and Buchan. Mar lies between the rivers Dee and Don, and Formartine sits between the rivers Don and Ythan. To the West of Formatine is Garioch, which is ringed by hills. The district of Buchan is situated north of the river Ythan and to the east of the river Deveron.

Within each of the areas further subdivisions have frequently been recognised, e.g. within Mar are the areas of Alford, Cromar and Braemar.

2.1.1 Geology & Topography

The region of Aberdeenshire is renowned for the variety and antiquity of its geology and topography (Figs 2 & 3). The geology of Aberdeenshire is dominated by metamorphic rock, predominately sillimanite, biotite, and andalusite, with some granite intrusions, and pockets of sedimentary Old Red Sandstone (Gemmell 1975; Kneller 1987; Trewin et al 1987) (Fig 2).

The district of Buchan is particularly notable for its Quaternary geology, as it is virtually free of indicators of glacial erosion. Although debate continues, it is possible that Buchan was largely unglaciated during the Devensian (Gemmell 1975; Clapperton & Sugden 1975; Hall & Connell 1991). Also of particular note is the presence of the 'Buchan Ridge Gravel'. This is a deposit located to the north-west of Cruden, which contains flint (Gemel & Kesel 1979, Kesel & Gemel 1981) (Fig 4). Other than beach material, the Buchan Ridge Gravel represents the only substantial source of flint in Scotland (Wickham-Jones & Collins 1978).

Aberdeenshire has several major rivers flowing through it: the Deveron, the Ugie, the Ythan, the Don and the Dee (Fig 3). There are significant deposits of alluvium along the river valleys and their tributaries, which usually represent the most fertile areas in each district. In contrast to a significant number of rivers, there are relatively few lochs or bodies of fresh water. Notable exceptions are Loch Kinord, the Loch of Skene, and the Meikle Loch.

The different character of many of the areas, which form Aberdeenshire, stems from the topographic features of hill and mountain (Gemmell 1975; Sugden 1987). To the south-west of Aberdeenshire are the Cairngorm plateau (over 1200 m) and Grampian mountains. Four of the five highest mountains in Scotland, Ben Macdhui, Braeriach, Cairntoul, and Cairngorm, are in the upper reaches of the river Dee at Braemar. Running to the east from these mountainous areas are the hill massifs which form much of Western Aberdeenshire. Here basins such as the Howe of Alford, the Howe of Cromar and the Garioch are ringed by hills and drained by what become major rivers. Farther to the north-east is the undulating Buchan plateau renowned for its treeless, and at times bleak, character (Pratt 1858; Smith 1996). A lower coastal plain fringes the Buchan plateau about 5 - 7 km wide.

Other than those of the Grampian mountains, several notable peaks within Aberdeenshire should be mentioned as they dominate many parts of the landscape, and perhaps more than any other features make the region distinct. The best known of these is the ridge of Bennachie which presents it highest peak (518 m), the tor of Mithers Tap, to its eastern end (Plate 1 & 2). Notably it has been suggested, because of the extensive views from the top of Bennachie, that the name Bin-na-chie signifies *Hill of Sight* (Robertson 1843; 89). From Bennachie, the Garioch, Banff and Buchan can be seen extending to the north and east and to the south-west the Cairngorms and Lochnagar can be seen some 80 km distant.

Strung along the spine of Bennachie are several other distinctive peaks (Craigshannoch, Oxen Crag, Watch Crag, Brunt Wood Tap and Hermit Seat) which are also visible from a great distance. To the west, Bennachie joins the Correen Hills that forms the northern boundary of the Howe of Alford. Farther west, between the headwaters of the rivers Don and Deveron, is the mountainous area of the Cabrach.

Buchan is dominated by the isolated peak of Mormond Hill, to the north-east of Strichen. Other notable hills are to be found farther to the south e.g. Skelmuir Hill and the Hill of Dudwick.

A broad contrast can be drawn between the northern and eastern coasts of Aberdeenshire; the east coast comprises predominately flat sandy shores and the north consists of jagged and precipitous cliffs. Raised marine deposits are occasionally present along the eastern North Sea coast, at c 15 m OD, with the maximum transgression having being reached about 6000 BP (Kneller 1987, 49).

Until the improvements, during the late eighteenth and nineteenth centuries, large tracts of peat covered Aberdeenshire. The improvements were exceptionally intense in areas such as Buchan. Large areas of Buchan were systematically double-dug; a strategy which would destroy the majority of upstanding remains. Substantial consumption dykes and frequent clearance cairns are visible testaments to the work of the improvers.

The region of Aberdeenshire extends c 60 km east to west, from the mouth of the Ythan to the Cabrach, and c 60 km north to south from the Moray Coast to the river Dee. Clearly, this represents a large area to study archaeologically. Therefore, although reference will be made to the archaeological remains within Aberdeenshire as a whole, and indeed where necessary beyond, ultimately analysis will focus on a number of discrete sub-areas: the Garioch, the Howe of Alford and Buchan (Fig 5).

2.1.2 A changing post glacial-environment

Over much of Aberdeenshire, the vegetation is now considerably different from that during the Neolithic and Bronze Ages. The reconstruction of the vegetational history of Aberdeenshire has been possible through pollen analysis (palynology) (Fraser & Goodwin 1955; Durno 1957, 1959, 1970; Ewan 1981). Unfortunately, of the pollen sequences from the region only one group, from the Howe of Cromar, has been radiocarbon dated; this makes it difficult to interpret the significance of the changes in the other pollen profiles (Edwards 1978). In the absence of a more refined understanding of the regional changes in vegetation and of pollen profiles in the locality of individual monuments within the study areas, we must refer to a more general model of vegetational change.

After the retreat of the last glaciation the open tundra landscape turned to a predominant mixed birch (*Betula*) and hazel (*Corylus)* woodland during the early to mid Holocene (Tipping 1994). By the beginning of the fourth millennium BC this woodland was dominated by a mix of birch (*Betula*), hazel (*Corylus*) and oak (*Quercus*) in the lower fertile areas. The higher portions of land to the west would have been covered by a mixed pine (*Pinus*) and birch (*Betula*) woodland. At this point, with the altitudinal limit to tree growth at about 716 m, even the higher peaks within the study area would probably have been covered by woodland. From at least the fourth millennium BC onwards, the pollen sequence increasingly reflects the local impact of anthropogenic activity on the vegetation (Edwards & Ralston 1984; Edwards 1989). Notably there is no apparent elm (*Ulmus*) decline, once frequently considered as an indicator of the adoption of farming, in pollen profiles from the north-east of Scotland (Ewan 1981, 37; Tipping 1994, 20-2).

In the absence of more detailed information, the one pollen analysis with radio-carbon dates may provide a broad indicator of the regional sequence of the human impact on the woodland (Tipping 1994, 29). The work at Braeroddach Loch indicates that small scale clearance was probably taking place in the Howe of Cromar at the end of the fifth millennium BC and continued for about six hundred years before the partial regeneration of woodland (Edwards 1979). At the beginning of the third millennium BC there was a cycle of small scale clearance over a period of about 400 years followed by a regeneration of the woodland. The next distinguishable phase occurs in the last quarter of the second millennium BC, when there are a limited number of prolonged phases of clearance. From the last half of the second millennium BC to the last quarter of the first millennium BC there was a sustained phase of activity which left the first evidence for cereal cultivation and severe erosion; prior to this the evidence

suggests that farming was pastoral (Edwards 1979; Edwards & Rowntree 1980). A similar broadly synchronous sequence of radiocarbon dated events is evident in the pollen from nearby Loch Davan, and may indicate that this picture has some use as a broad model for the clearance of the area.

Of the other pollen cores from the region, the one taken from Nether Mills may also be informative. Here a decline in birch (*Betula*) is represented which may have taken place at the end of the fifth millennium BC (Ewan 1981, 36-7). This could indicate a phase of disturbance, possibly the result of deliberate clearance, but may also be because of more intensive exploitation of birch for bark and resin or to disease.

2.2 Monumental Structures

2.2.1 Long Mounds

Occasionally when walking over the hillsides of Aberdeenshire you will encounter an elongated mound of stone or earth. Their regular shape and profile might suggest they are man-made in origin. Grassed over, they are clearly of some antiquity.

There are only 13 examples of long mounds within the Aberdeenshire region. Together these have been classed as the Balnagowan group of monuments (Henshall 1963; Kinnes 1992). Within the group there is a relatively even split between those monuments constructed of earth and those of stone. The exact size and form of many of the sites is uncertain, as they have been badly damaged (Henshall 1963; 1972). The evidence, which does exist on the variability in their form, suggests that they may not represent a coherent group of monuments (Table 2). For example, Balnagowan is a classic long cairn (43 m in length) with a horned fore-court in keeping with the Orkney Cromarty tradition. In contrast, Pol Hill is earthen and only 21 m long, and Longman Hill (63 m long) is earthen and has an unusual bipartite form of tail and eastern mound (Plate 3).

Other than a general orientation to the east, the Balnagowan group is unified by the apparent lack of megalithic construction within the body of the mounds. As this group has, however, seen almost no modern excavation, with most of our knowledge of them deriving from nineteenth century accounts or through parallels from elsewhere, this hypothesis is largely untested. The limited investigation of these monuments which has taken place has generally been inconclusive, although this is probably because of unsystematic excavation and recording.

The discovery of quantities of carbonised wood and charcoal from Knapperty Hillock and Cairn Catto has led to the suggestion that wooden mortuary chambers may have been present beneath the mounds (Henshall 1963). Perhaps the most significant contribution from earlier investigations was the discovery of a range of Late Neolithic / Early Bronze Age funerary deposits which indicate that these monuments continued to be a focus of ceremonial activity after they were built.

The chronology of these monuments can not be precisely understood because of the complete absence of radiocarbon dates from examples within Aberdeenshire. Indeed Henshall (1963, 40) assumes they are contemporary with the chambered forms known elsewhere in Scotland, and therefore date to the earlier Neolithic. Traditionally, however, it has been thought that the bipartite form of several monuments within the Balnagowan group indicates they are likely to be multi-phased monuments (Henshall 1972).

The geographically closest dated example of a long mound is that of Dalladies, Kincardineshire. Two radiocarbon dates of 3630-3340 BC (SRR-289) and 3380-3030 BC (SRR-290) were obtained relating to the phase II mortuary structure beneath the main mound (Piggott 1972). Although unproven, it would seem probable that the Aberdeenshire long mounds were constructed during the earlier Neolithic period. Some support is given for this date by the recovery of earlier Neolithic pottery sherds at Knapperty Hillock (Milne 1892). In keeping with those from elsewhere in the country, there has been a clear tradition of assigning the construction of the long mounds of Aberdeenshire to farming groups (Henshall 1963, 5; Shepherd & Ralston 1979, 7; Kinnes 1992, 86).

In contrast to other areas of Scotland the long mounds are not densely distributed, having a rather uneven distribution across Aberdeenshire as a whole. The only potentially significant pattern is a broad preference in location at high points towards the coast (e.g. Longman Hill, Pol Hill) or more inland positions on the higher foothills of the Grampians (e.g. Cairn Borrow, Balnagowan).

It is also worthy of note that long mounds were not the only form of monument constructed during the earlier Neolithic. There is also evidence to suggest a tradition of non-megalithic round mound construction during the earlier Neolithic of the north-east (e.g. Burl 1984; Shepherd 1997). It has been suggested that these find their closest parallels in the Yorkshire tradition of crematoria (Kinnes 1985). Similarly, we must bear in mind that there is now limited evidence for the presence of cursus monuments in Aberdeenshire (Aberdeenshire Archaeological Surveys 1977; Shepherd & Greig 1996, 72-3). Although long mounds are the

best known form of earlier Neolithic monument, it is becoming increasingly apparent that a variety of monument types were being constructed and used during this period.

2.2.2 Henge Monuments

At a few specific locales in Aberdeenshire you can find earthworks with an unusual arrangement of bank and internal ditch. Other than rubbish tipped into the ditch there is no indication that they are used by people today.

Henge monuments represent a distinct form of monument characterised by an arrangement of a bank and internal ditch enclosing a circular area (Clare 1986; 1987; Harding 1987). The construction of henge monuments dates to the late Neolithic although many saw re-use into the Bronze Age. They are generally considered to represent earthwork enclosures that were utilised for a variety of ceremonial activities. There are three certain and seven probable examples of henge monuments from the Aberdeenshire region (Table 3), the majority of which are found in the area of the Garioch. The henge monuments of Aberdeenshire are notably smaller than the classic examples of Henges from farther south. Indeed, because of their small size, many of the examples from Aberdeenshire would usually be classed as 'hengiform' monuments (Fig 16; Plate 4).

Although Harding (1987) suggests that henges are chronologically earlier than stone circles, this relationship is not entirely clear. In Aberdeenshire there are two examples of stone circles found within the centre of henge monuments: at Broomend of Crichie and Tuack. In each case these belong to the class of small circle, and therefore, as these stone circles are likely to be late, they may represent additions to existing henge monuments. In contrast, it was suggested by the excavator that the circle of timber posts at North Mains predated the construction of the henge (Barclay 1983, 180).

With no modern excavations having taken place at the Aberdeenshire henges their chronology and phasing of use is poorly understood. Nineteenth century excavations at Broomend of Crichie and Tuack, however, did reveal a variety of deposits within their interiors dating to the earlier Bronze Age (Stuart 1856; Dalrymple 1884). In the absence of any absolute dates from the Aberdeenshire henges they can only be considered to date in origin broadly to the late Neolithic.

The geographically closest radiocarbon dated example of a henge is at North Mains, Perthshire. Here charcoal was found within the upper fills of the post-holes of the timber circle that had rotted in-situ (Barclay 1983). The charcoal was dated to 2890 - 2584 BC (GU-1352), 2874 - 2491 BC (GU-1353), 2870 - 2352 BC (GU-1354) 2878 - 2500 BC (GU-1436) and 2862 - 2333 BC (GU-1435). As the excavator felt the timber circle and henge were broadly contemporary, these dates suggest the henge was built prior to middle of the third millennium BC.

Also of note are the two excavated examples of henges at Balfarg, Fife. Excavation of the henge at Balfarg produced dates of 2915-2460 BC (GU-1160 & GU-1161) and 3080-2705 BC (GU-1162 & GU-1163) from charcoal (Mercer 1981; Mercer et al 1988). Dates of 3300-2915 BC (GU-1670) and 3275-2900 BC (GU-1904) were obtained from charcoal associated with Grooved Ware recovered from the lower ditch fill at Balfarg Riding School Henge (Barclay & Russell-White 1993).

2.2.3 Stone Circles

From most places in Aberdeenshire you can walk in almost any direction and within half an hour you will come across stones which have been set upright. From close by many of these stones will force you to crane your neck to look up at their tops. If you ask, nobody can remember when and why these arrangements of stones were erected.

The area of north-east Scotland has the greatest concentration of stone circles in Britain. It has been calculated that of the 667 definite stone circles surviving in Britain, at least 15 percent are represented within the area formerly known as Grampian Region (Barnatt 1989). There are known to be a variety of forms of stone circle within Aberdeenshire: recumbent stone circles, small circles, and four-posters.

2.2.3.1 Recumbent Stone Circles

The Recumbent Stone Circles (hereafter RSCs) represent a distinct form of monument, which have a limited geographical distribution within the north-east of Scotland. There is disagreement about the exact number of RSCs that survive to this day (Table 4). Burl (1974) considered that there are 74 definite and 18 probable RSCs; in contrast Barnatt (1989) considered that there are only 60 definite examples of RSCs with at least another 25 possible examples. Clearly the exact number of RSCs which were constructed is not known. If,

however, we consider the large number of accounts of the destruction of stone circles, the 85 examples identified by Barnatt can be considered a minimum number.

Monument morphology

It would be easy to assume that an RSC is identifiable purely by the presence of a recumbent stone at a stone circle. If this were the case many more stone circles would probably have been considered to belong to the recumbent class through the presence of fallen stones. The recumbent stone of an RSC represents only one of a number of distinctive architectural traits that together produce a deliberate and sophisticated monument. These characteristic traits of an RSC have been well documented (Burl 1974, 1976a; Barnatt 1989). It is, however, worth reiterating these traits as it is the distinctive architecture of these monuments which has traditionally formed the focus of their interpretation.

The Stone Circle

An RSC must have by definition a recumbent stone. The recumbent stones are usually larger, sometimes massively so (e.g. Loanhead of Daviot, Old Keig, Old Bourtreebush, Easter Aquorthies), than the other stones forming the circle but are always supine and located within the southern portion of the circle, most often to the south-west. The recumbent stone of an RSC is accompanied by two other standing stones, one at either end of the recumbent, which are usually termed the flankers. Together, the recumbent and flankers form one of the most distinctive pieces of prehistoric architecture found in Britain (Fig 6; Plate 5).

Another architectural trait that has been long recognised at most RSCs is the grading in height of the stones of the circle. Where grading in height does occur the flankers on either side of the recumbent are tallest (c 2 m tall) with the other stones of the circle progressively smaller towards the north. It also appears that this grading in height relates to a degree of axial symmetry, with pairs of opposed stones comprising the circle at many of these monuments (Fig 6).

These are not huge monuments, on average comprising between eight to thirteen standing stones, plus the flankers and recumbent. The recumbent stone circle has a relatively small diameter, ranging where calculable from 10 m to 30 m, with a median of 19.3 m. Of particular note is that the recumbent and flankers are not always on the circumference formed by the circle of other standing stones, but are often set farther in towards the centre of the monument.

There is evidence to suggest, at least in some cases, that the ground was prepared before the RSC was constructed. This appears to have involved either limited quarrying into the hillside

(e.g. Druidsfield, Loanhead of Daviot, and Strichen) or the building up of quarried material (e.g. Berrybrae and Castle Frazer). These examples have interpreted as an attempt to create a relatively level platform for the construction of the monument (Burl 1974).

Internal features

The interiors of many RSC have been badly disturbed by early investigations, robbing of stone for construction and deliberate acts of vandalism. It is, however, clear from the evidence that does exist that the interior of an RSC was often the focus of other distinct architectural elements. These include such features as platforms behind the recumbent, two perpendicular stones running inwards from the point the recumbent and flanker meet, ring-banks joining the orthostats, central kerbed ring-cairns and central cairns (Fig 7).

Monument distribution & location

RSCs are exclusive to the north-east of Scotland, with the great majority being confined to the area of Aberdeenshire. Of the 74 definite examples which Burl (1976a) lists, only 11 are outwith Aberdeenshire: eight in Kincardineshire, two in Banffshire and one dubious possibility from Angus. The majority of RSCs are located in the foothills of the Grampians and appear to cluster in discrete concentrations. Notably, few RSCs are found in the area of the lower coastal plain.

The location of RSCs, appears to favour prominent positions. RSCs are infrequently found in valley bottoms; however, neither are they found on the most prominent peaks (e.g. Bennachie, Tap O' Noth, Mormond Hill, the Grampian Massive) or ridges (e.g. Skirts of Foudland) which appear to have been completely avoided. Generally, their builders seem to have avoided the highest points with monuments tending to be located slightly down the southern slope.

2.2.3.2 Small Circles

The small circles were first recognised as a distinct group of monuments by Kieller (1934), of which there are 11 examples within the study area (Fig 8; Plate 6). This group shows a variety in size of circle, number of stones, and internal features. Therefore, other than the generally small size of small circles (Table 5), there are few criteria to make them a distinct group or class of monuments. Although they have been classed as other forms of circle (Barnatt 1989), other circles that should be considered within this heterogeneous group include the circles at Fullerton, Broomend of Crichie, South Ythsie and Tuack.

Although no radiocarbon dates have been obtained from small circles in Aberdeenshire, the discovery of Bronze Age pottery at some may provide a *termini ante quos* for the construction of the circles. Cordoned urns were discovered during nineteenth century investigations in the interior of both Broomend and Tuack (Stuart 1856; Dalrymple 1884). Dating evidence from small circles elsewhere in Scotland indicates that they were being constructed by the late Neolithic (see Ritchie 1974; Scott 1989; Haggarty 1991).

2.2.3.3 Four-posters

Four-posters represent a distinct form of monument (Plate 7) with a wide distribution across Britain and Ireland. Notably they have a predominately north-eastern distribution with a major concentration in the areas of Perthshire and Loch Tayside. There are seven possible examples of Four Posters within the Aberdeenshire region (Fig 8; Table 6).

Although four-posters were first recognised as a group of monuments by Coles (1908), it is the work of Burl (1971; 1976a; 1988) that has made the greatest contribution to their study. Four-posters are defined as a distinct class of monuments because of the number and arrangement of their stones: four set defining a rectangle. Other notable features are present at many of the four-posters, including a platform, kerbing between the stones, grading of the stones to the south-west, and the presence of cup-marks on the stones. Yet it is recognised that most of the sites described as four-posters do not conform to the classic definition of a four-poster (Burl 1988, 2-3). Indeed it is clear that some examples of four-posters could represent the remnants of small circles (Barnatt 1989).

The majority of the artefactual finds from four-posters indicate an early-middle Bronze Age date. These rarely provide a date for the construction of the monuments. A clear example of this problem is the date range of 2000-1600 BC from the later phases of activity at Park of Tongland four-poster (McCullagh 1992). Nevertheless, despite the lack of absolute dating for the construction of four-posters, it is considered by Burl (1988) that they represent a late development in the tradition of stone circle building. Untangling the sequence of development of different types of monuments is further complicated by the results of recent excavations at stone circles which generally indicate that individual monuments are multi-phase constructions (e.g. McCullagh 1992).

2.2.3.4 Standing stones

Beyond those that comprise part of stone circles, Aberdeenshire has a large number of other standing stones. We can distinguish several different classes of other standing stone including outliers, single standing stones, stone rows and avenues.

Outliers.

Outliers are single or twin standing stones found not far beyond the circumference of stone circles e.g. West Balquhain, Sheldon, and Druidstone. The relationship between outliers and stone circles is not clear. The ambiguity of the relationship between stone circles and outliers is, however, increased by the absence of a critical definition of what actually constitutes an outlier, other than close proximity to a stone circle. Yet some examples of single or paired standing stones that are visible from stone circles are not usually classed as outliers, e.g. 365 m distant at Castle Frazer and 218 m distant at Ardlair (Plate 8).

The presence of outliers at stone circles has been an important piece of evidence for the argument that they had an astronomical function (Childe 1930, 164) with outliers providing a marker to sight on astronomical phenomena. 'Outlier' must be considered no more than a descriptive term and, without further critical interpretation of what outliers represented, it does not offer a useful concept to the study of stone circles.

Single Standing Stones.

There are 94 probable examples of single standing stones (SSSs) within the Aberdeenshire region (Table 7). It is by no means certain whether all of these are prehistoric in date, as standing stones are known to have also been erected in other periods, e.g. as Medieval boundary markers. Nevertheless, it is likely that many of these stones were erected during the Neolithic or Bronze Ages. Unlike their regularly arranged counterparts, SSSs have received no systematic study. A variety of interpretations have, however, been suggested for the erection of SSSs, ranging through territorial markers, grave stones and memorials (e.g. Morgan 1992). Excavation has shown that some SSSs formed a focus for other ceremonial activity (e.g. Vyner 1977; Ruggles & Martlew 1989).

The valley of stones

In general, the distribution of SSSs broadly complements that of the stone circles. Examination of their distribution in Aberdeenshire indicates that there is, however, one notable concentration of SSSs. The area of land they occupy lies between the Hill of Fare and Bennachie, centred on the area of Leylodge, some 7 km to the south of Inverurie. Here 22 SSSs

are found within an area of about 80 square kilometres. This means that about 23 % of the SSSs in Aberdeenshire concentrate in area representing less than 3 % of the region.

Stone rows

Stone rows are linear settings of standing stones that usually run for a considerable distance across the landscape. In some cases, such as those in Caithness, several parallel lines of stone rows have been erected, forming larger groups. Closely related to these groups of stone rows are stone avenues which consists of two parallel rows of standing stones. Although there are no examples of stone rows from the Aberdeenshire region there is one example of a stone avenue at Broomend of Crichie, Inverurie (Maitland 1757; Stuart 1856). The avenue originally ran for a distance of over 400 m from Broomend towards the River Don to the south. To the north the avenue extended about 50 m to reach another stone circle. Unfortunately, all of the second stone circle and much of the avenue has been destroyed. Only four stones of the southern portion of the avenue survive. The presence of an avenue at Broomend has further significance as it is the only example in close association with a henge monument (Barnatt 1989, 36).

2.3 Neolithic and Bronze Age pottery

It has traditionally been considered that one of the main indicators of the Neolithic was the presence of pottery. The earliest pottery from the east of Scotland is the tradition of carinated and plain bowls of the earlier Neolithic (Cowie 1993). In this respect Aberdeenshire is no different, with a well established tradition of earlier Neolithic bowls (Table 8). The majority of earlier Neolithic pottery in Aberdeenshire comes from the area of the Garioch (Henshall 1983) and has been recovered as stray finds or during the excavation of ceremonial monuments.

In contrast to the relatively high concentration of earlier Neolithic pottery there is an almost total absence of late Neolithic (grooved and impressed wares) found within Aberdeenshire (Kinnes 1985). A notable exception is the possible presence of Grooved Ware at Berrybrae RSC (Burl 1978, 8). In light of the extremely limited evidence of late Neolithic forms of pottery, the possibility exists that, in the absence of secure dates for the majority of the sherds which have been assigned an earlier Neolithic date on typological grounds, the tradition of plain and carinated bowls may have lasted longer in Aberdeenshire (Herne 1988; Cowie 1993, 19).

The one form of pottery that is well represented during the late Neolithic and earlier Bronze ages are Beaker vessels. Beaker vessels represent a relatively distinctive variety of pottery, sharing a degree of similarity in fabric, form and decoration. There is, however, a considerable degree of variation within the broad parameters of what would be classed as Beaker pottery (Boast 1995; Case 1995). Although Beaker pottery has been found in a variety of different contexts it is predominately found as part of funerary deposits (Clarke 1970; Gibson 1982).

As well as Beaker there exists a remarkable number and variety of pottery forms dating to the earlier Bronze Age including accessory vessels (Morrison 1969), food vessels (Cowie 1978), cordoned urns (Waddell 1995) and collared urns (Longworth 1984). The majority of these are most frequently found in funerary contexts.

2.4 Scatters and stray finds

For centuries the Aberdeenshire ploughman has been picking up pieces of flint and using them to light his tobacco pipe. You too can walk over a ploughed field and collect a variety of objects. Every year the past produces another strange harvest!

A large proportion of the remains considered to be of Neolithic or Bronze Age date are uncontextualised finds. These are found either singly, termed stray finds, or in groups, usually as surface scatters. The lack of information about their original context of deposition usually stems from the plough truncation of archaeological deposits which results in the migration of artefacts into and onto the surface of the plough soil. As many of these artefacts were collected during the nineteenth century, when no detailed record of their location of discovery was made, they can usually only be provenanced to a particular region, parish, or, at best, farm. Unfortunately, of those artefacts which can be located more precisely to a particular field, the majority of these were recovered prior to the recent establishment of systematic methods of recovery, recording and analysis (Haselgrove et al 1985; Shennan 1985; Schofield 1991). Clearly this lack of detailed contextual information puts certain limitations on the types of analysis and interpretation which is possible with this material.

For the purposes of this study I wish to highlight three main classes of material: lithics, carved stone balls and indicators of metal working. Artefacts made of other materials are known but are rarely found in significant quantities. For example although prehistoric pottery can be recovered during fieldwalking, a combination of its fragility and frost action means it is unlikely to survive long on the surface of plough soil.

2.4.1 Lithics

Within the general category of lithics there exists a variety of different forms of object produced from a number of different types of stone including flint, chert, pitchstone and a variety of igneous rocks. The majority of pieces are flakes, blades, cores, rejuvenation flakes and other working debris. Varieties of tool types are, however, frequently recovered, including scrapers, arrowheads, knives and burins.

There also exists a variety of forms of larger heavy tool types that can be included within the broad category of lithics. These include stone and flint axes (polished and unpolished), battle axes, mace heads, hammer stones and anvils (see Table 9). It is worth noting that although particular forms of lithic clearly emerged in use and circulated during particular periods, they represent an insensitive chronological gauge. This is in part because of recognition in recent years that most lithic forms are not exclusive to one particular period and that the relationship between lithic production, circulation and ultimately deposition is more complex than previously assumed (Brown & Edmonds 1987). Thus for the purposes of this study it is more useful to highlight a few key points which have been previously recognised during the study of some of the lithic material from Aberdeenshire.

The Mesolithic occupation of Aberdeenshire is testified by only a few sites. These are represented, in the main, by microlithic forms within lithic scatters. It has long been suggested from these known sites that the Mesolithic settlement of Aberdeenshire was largely focused on the river valleys (Paterson & Lacaille 1936; Edwards 1975, 82; Kenworthy 1975, 74). Significantly, a recent small scale field walking survey of the Dee Valley indicated that late Mesolithic lithics were restricted to near the river and later lithics were more widely dispersed (Kenney 1993). Although it is dangerous to generalise, there does appear to be, from the limited evidence of Mesolithic activity, an apparent preference for Mesolithic sites in Aberdeenshire to riverine or coastal areas (Hawke-Smith 1981; Kenworthy 1981; 1982; Sneddon & Shepherd 1985; Baird & Finlayson 1994; Kenney 1993). Nevertheless, the discovery of a Mesolithic barbed point, deep in the Grampian Mountains at Glenavon, Banffshire, indicates that Mesolithic groups were not confined solely to the coast and river valleys (Lacaille 1954). Also of note is the presence of shell middens along the Ythan estuary (Dalrymple 1866). Although none of these have been dated to the Mesolithic, the discovery of Mesolithic artefacts along the banks of the River Ythan and within the area of the Ythan estuary suggests that some of these middens may date to this period.

One of the most numerous and distinctive tool types found in Aberdeenshire is the arrowhead. Although there is considerable variation in the types and forms of arrowheads (Green 1980) the majority of those found from Aberdeenshire are either leaf shaped or barbed and tanged types. It is generally recognised that leaf shaped and barbed and tanged arrowheads were probably in circulation at broadly different times, with leaf shaped arrowheads having an earlier currency than barbed and tanged. Analysis of the distribution of leaf shaped and barbed and tanged arrowheads in the north-east of Scotland by Hamilton (1981) has indicated several points which are potentially significant to this study. The first is that barbed and tanged arrowheads have a more widespread distribution than leaf shaped arrowheads, which show regional grouping. The second is that a larger percentage of barbed and tanged than leaf shaped arrowheads occur in upland terrains, with leaf shaped arrowheads being largely being retrieved from lowland positions. The final point is that reddish coloured flint may have been deliberately chosen for leaf shaped arrowheads but it was not used to any noticeable extent for barbed and tanged arrowheads, which are more likely to be grey/brown in colour. The implications of these three points are considered later in the study.

Many of the artefacts produced from lithics are fine pieces of craftsmanship and clearly were never used functionally. Notably, a significant proportion of these fine pieces have been found within funerary contexts. The programme of petrological analysis that was undertaken on stone axes identified a series of discrete sources or quarries. The products of many of these have been found several hundred kilometres distant (Chappell 1987; Bradley & Edmonds 1993). It has been suggested that many of these artefacts circulated widely as part of a prestige goods economy during the Neolithic (Thorpe & Richards 1984; Edmonds 1998). Indeed, Aberdeenshire has a notable concentration of a variety of heavy tool types, in particular maceheads, battle-axes and axe-hammers. Also of particular note is the presence of the only major concentration of porcellanite axes outside Ireland (Sheridan 1986; Sheridan et al 1992).

Finally, it is worth highlighting that the mining of flint was taking place in Aberdeenshire during the Neolithic. The surface remains of mining activity at Skelmuir Hill were excavated at the beginning of the twentieth century and interpreted as representing flint working huts (Graham-Smith 1918). Excavation has taken place in recent years at the mines at Den of Boddam and Skelmuir Hill (Saville 1991, 1992a, 1992b, 1993a, 1993b, 1994) (Fig 9). This has revealed that extraction was taking place in bell pits (c 4 m diameter by 3 m deep) dug through the glacial till to the Buchan Ridge Gravel, where flint cobbles up to 170 mm could be found (Fig 10). Substantial quantities of primary processing debris, along with quartzite anvil stones, were recovered from the fill of the pits. No evidence of any other stages of tool production or finished tools has been found.

At Boddam the bell pits extend over an area of at least 10 acres, which is comparable in size to the extent of the mines at Grimes Graves, in Norfolk, England. Radiocarbon dates of 3504 - 3038 BC and 3366 - 3040 BC (GU-3439 & GU-3438) were obtained from buried soil beneath upcast from one of the pits and an infill of peat in an adjacent pit which sealed working debris was dated to 2452 - 2034 BC and 2557 - 1986 BC (AA-12233 & GU-3440). These dates indicate flint extraction was taking place during the late Neolithic but may have started earlier (Saville 1994).

2.4.2 Carved stone balls

Carved stone balls (hereafter CSBs) are c 7cm diameter balls of stone, the surfaces of which have been modified to produce objects decorated with a series of knobs and in some cases incised motifs. Despite a degree of uniformity in size and form there is considerable variation amongst the 400 or so examples of CSBs (Marshall 1977; 1983).

The seminal work on CSBs is Marshall's (1977) article. This made a substantial contribution to the study of CSBs through the provision of the first comprehensive corpus of CSBs, within both museums and private collections, and the development of a classificatory system which recognised the variability in their form.

Beyond their distinctive form, three important points can be made about CSBs. The first is that although examples are found across Scotland, the vast majority are from the Aberdeenshire area. The second point is that CSBs are considered to have a Neolithic and Bronze Age currency as the decorative motifs on them are found on a variety of other forms of Neolithic material culture. Finally, besides a few ambiguous nineteenth century accounts, there is limited contextual evidence for CSBs. A combination of this limited contextual information, their decoration and apparent absence of function has led to these objects as being perceived as highly valued prestige goods (Edmonds 1992).

2.4.3 Metalwork and moulds

The north-east of Scotland has a notable concentration of early Bronze Age metalwork (Coles 1971). The majority of this metalwork consists of flat axes that have been discovered as stray finds. Perhaps more notable is the concentration of early Bronze Age moulds within the

Aberdeenshire area (Callander 1904; 1906; Greig 1975; Shepherd 1982; Inglis & Inglis 1984). Half of the 16 known flat axe moulds from north-east Scotland have been discovered in the area of the Garioch or Buchan (Sherriff 1997, Illus 1).

The apparent focus of metalworking in these areas is even more striking when it is considered that there are no known nearby sources of copper (Cowie 1988, 11). Clearly ores, ingots or finished implements were being brought to the Garioch where subsequent working was taking place. The introduction of metalworking and its products clearly played a significant role in society in Aberdeenshire during the third and second millennia BC.

The significance of early metalwork is also evident through the few notable exceptions that do have contextual evidence. These are a number of hoards or deliberate depositions of groups of metal work, such as a group of eight flat axes from Finglenny Hill near Rhynie (Stevenson 1948) and a hoard of halberds from New Machar (O'Riordain 1936).

One of the few dated examples of early Bronze Age metal work in the north-east of Scotland comes from the Migdale hoard (Anderson 1901). The wooden core of a sheet bronze bead was dated to 2204 - 1866 BC (OxA - 4659) (Hedges et al 1995). Significantly, the bead formed part of a hoard containing a Migdale type flat axe, which indicates that this form of axe was probably in circulation during the first half of the second millennium BC.

2.5 Settlement remains

I can show you beautiful artefacts and enigmatic ceremonial structures. Walking from the inside of your room, you query what were the houses like that people lived in then. Must I answer it is difficult to find substantial traces of Neolithic and early Bronze Age houses in Aberdeenshire ?

Other than numerous surface scatters of artefactual material there is limited evidence of settlements of the Neolithic and Bronze Ages in Aberdeenshire. There are, however, several examples that may give some indication of the possible form of settlement of this period and the consequent problems associated with its study. These examples include the possible Neolithic timber hall at Crathes, a series of earlier Neolithic pits, traces of late Neolithic/early Bronze Age settlement at Auchmachar plantation, and evidence of later Bronze Age settlements.

2.5.1 Balbridie & Crathes timber structures.

Balbridie is located on the southern terrace of the River Dee and there is a similar unexcavated example on the northern terrace of the Dee at Crathes. Both of these structures were identified by aerial photography through crop mark evidence. The Balbridie timber structure was excavated between 1977 and 1981 over five seasons (Fig 11). Measuring some 24 m x 12 m, the structure was initially considered a rare example of a Dark Age timber hall (Ralston 1982). During the excavation significant quantities of sherds of earlier Neolithic pottery, similar to Unstan style, were recovered from an internal post-hole. Radio-carbon dates, ranging between 4227 - 3036 BC, subsequently confirmed that the structure was earlier Neolithic in date (Fairweather & Ralston 1993). The arrangement of features has led the excavators to consider that the structure was a roofed building. Although it has been recognised that similar forms of timber structure exist in ceremonial contexts, the excavators have interpreted this structure as a rare example of a Neolithic timber house (Ralston 1982, 244-47; Fairweather & Ralston 1993, 321).

Excavation indicated that the structure had partially burnt down. Also of importance was the carbonisation and preservation of substantial quantities of cereal: wheats (*Triticum dioccum Scheubl. & Tritcum aestivum* L.) and naked barley *Hordeum vulgare* L. *var. nudum*). The distribution and quantity of cereals present within the structure has led to the suggestion that they may have been stored within the roof of the structure which was subsequently burnt (Ralston 1982, 240; Fairweather & Ralston 1993). Notably a quantity of flax seeds, of a cultivated variety, was also recovered.

About 1.5 km south of Balbridie, a watching brief at Wardend of Durris revealed archaeological features. Subsequent excavation and analysis has shown that there was probably an earlier Neolithic phase of activity on the site indicated by a radiocarbon-dated palisade slot and post-hole. Noting similarities to Balbridie, these features were interpreted by the excavator as representing the remains of a Neolithic settlement (Russell-White 1995, 23). The slot (F19) was dated to 3339 - 2700 BC (GU-2955) and the posthole (F18) to 3960 - 3715 BC (GU-2958). Notably the palisade slot held squared timbers that had been burnt *in-situ*.

2.5.2 Neolithic pits

A large proportion of earlier Neolithic pottery in Scotland derives from isolated pits. In recent years several such examples have been excavated in the Aberdeenshire area. During an archaeological evaluation at Spurryhillock several stratigraphically unrelatable pits were discovered (Fig 12). One of these contained a sherd of earlier Neolithic pottery of Unstan style and another nearby pit produced a small assemblage of struck lithics interpreted as Mesolithic in date (Alexander 1997). Charcoal from the lower fill of the pit with struck lithics produced radiocarbon dates of 4904 - 4541 BC (Beta - 73552) and 4718 - 4363 BC (Beta - 73553) (Table 10).

Similarly, at Kintore a series of pits and a few associated postholes forming an elongated cluster were also discovered during archaeological evaluation. The range of cultural material recovered from these pits included earlier Neolithic plain bowls, flint, quartz, Arran pitchstone, and a leaf shaped arrowhead (Alexander 1996). The fills of three of the Neolithic pits also contained limited quantities of cereal grain or chaff, with both emmer wheat and barley identified (Alexander forthcoming).

Within the north-east, other notable examples of Neolithic pits have been found at Boghead (Burl 1984) and Easterton of Roseisle (Walker 1968). Excavation of a burial mound revealed a series of earlier Neolithic pits beneath. The presence of cereal grains (emmer and barley) in some of the pits at Boghead led Burl to interpret the pre-mound activity as representing an 'agricultural site' (1984, 53). Similarly, the pits at Roseisle were interpreted as relating to domestic activity (Walker 1968).

2.5.3 Auchmachar Clump.

Archaeological assessment of a series of low banks, in advance of construction of a British Gas pipeline, led to the discovery of a small assemblage of flint debris and Beaker pottery. It has been suggested that this material relates to a settlement (Shepherd 1986b). Unfortunately, this site has never been properly published, making it difficult to gauge the validity of this interpretation. Consultation of the Aberdeenshire Region Sites and Monuments Record, however, indicates that a series of low banks forming at least one enclosure may be contemporary with the artefactual material recovered (SMR NJ95SE0024). Several burial

cairns were also found within the area. One of these cairns had a kerb made of large stones and a large stone placed over a platform over the middle burial.

2.5.4 Later Bronze Age settlements

The excavation of several sites within the coastal sand dunes has produced evidence of later Bronze Age settlement. Excavation on the sands of Forvie involved the examination of a kerb cairn (site A), a hut circle (site B) and a midden (site C) (Kirk 1953, 1958a). Excavation of the kerb cairn revealed that four medium-sized stones had been arranged to form the corners of a square within the interior (Fig 13). A small mound composed of earth flecked with charcoal and bone had been constructed over the stone arrangement. A layer of wind blown sand sealed the central mound and indicated that there was a hiatus in deposition. Further activity took place later, evident by a thin carbonised layer containing charcoal and burnt bone. Notably pottery was found within the central mound, which was considered early Iron Age in date. Bearing in mind the chronological insensitivity of later prehistoric pottery it is, however, possible that the sherds derive from later Bronze Age vessels.

Excavation at site B was more limited but revealed a sub-circular structure comprising an outer stone and earth bank and a inner low stone kerb surrounding a paved area (Fig 14). The only artefact recovered from a secure context was a fragment of jet armlet that is likely to date to the late Bronze Age.

The excavation of site C revealed a series of layers of dumped material, including a basal layer of mussel shells and an upper layer of earth full of shells, charcoal and animal bones (Fig 15). Artefacts were also recovered from the upper layer, including a piece of pierced bone (interpreted as a needle by the excavator) and fragments of pottery of the same form as that recovered from site A.

Later excavation of several kerb cairns at Forvie established they overlay a midden up to 0.50 m in depth (Ralston 1978a; 1978b). Within the midden were a series of walls and floors; beneath these the surface of the subsoil bore ardmarks. A radiocarbon date of 1615-924 BC (GU-1827) was obtained from the basal layer of the midden.

At Rattray, although no structures were present, significant evidence for agricultural activity was found (Murray et al 1992). This included a series of ardmarks and the carbonised remains of hurdling. A radiocarbon date of 1501-1165 BC (GU-2719) was obtained from the

carbonised hurdling. The hurdling may have been utilised as fencing which indicates that fields were potentially formally enclosed by this time.

It is clear that many of the upland field systems and hut circles within Aberdeenshire originated in the second millennium BC (Shepherd 1987, 130). A comprehensive review of this class of settlement is, however, beyond the scope of this thesis.

2.6 The Neolithic and Bronze Ages of Aberdeenshire; (c4000 BC to c800 BC)

It is clear from the previous sections of this chapter that the majority of archaeological remains from Aberdeenshire relate to some form of ceremonial or funerary activity. There is a limited degree of evidence that relates to settlement of the period. The vast majority of those remains which unequivocally represent settlement probably date to the later Bronze Age. This imbalance has frequently been considered problematic but as we shall discuss in the next chapter this bias may be more apparent than real.

There has been a limited amount of synthetic work undertaken on the Neolithic and Bronze Ages of Aberdeenshire. The work which has been undertaken generally discusses these periods either as part of a larger historical synthesis (e.g. Tocher 1910; Callander 1935; Simpson 1943; Kenworthy 1975; Shepherd 1987) or in relation to the results of particular excavations (e.g. Kenworthy 1981; Ralston 1996; Shepherd 1997). Rarely have these periods been critically considered in their own right (e.g. Kinnes 1985; Square 1990). In comparison to other areas of Britain (e.g. Wessex, Orkney, Yorkshire), the Neolithic and Bronze Ages of Aberdeenshire have been understudied.

The Neolithic and Bronze Ages in Aberdeenshire have been most studied in recent years by Ian Shepherd (1986b, 1987). The work of Shepherd represents the most explicit statement about of the Neolithic and Bronze Ages in Aberdeenshire and it is, therefore, worth considering in further detail. Rather than undertaking a comprehensive critique of Shepherd's work it is more productive to highlight several main points about Shepherd's conception of these periods.

Shepherd recognises the high potential for the co-existence of both hunter-gatherer groups and the first farmers and considers that the loss of forest cover from clearance reduced the game available to hunter-gatherer groups (1987, 120-1). Shepherd then goes on to characterise the Neolithic people as sedentary farmers, citing Balbridie, Easterton of Roseisle and Boghead as

examples of their settlements. The construction of long cairns and barrows is thought to have been undertaken by these farming groups. It is speculated that the frequently prominent skyline position of these monuments may have been because of their role in making boundaries between different territorial groups.

Noting the concentration of henge monuments in the Garioch, Shepherd (1986b, 7) feels that they relate to an emerging centralisation of power. The late third and early second millennia BC are considered by Shepherd (1987, 127) to represent a time when authority was changing from the group to the individual and that this process was sustained by the use of prestigious late Neolithic artefacts. He then notes that there is a concentration of early Beakers in Buchan and a large number of late Beakers in the Garioch. He suggests this pattern may be because of a relationship between the adoption of metal working and Beakers, with the concentration of early Bronze Age moulds in Buchan indicating an earlier adoption of metalworking. Elsewhere he elaborates on the reason for this distinction, suggesting that it relates to resistance by an established centre of power as represented by the concentration of late Neolithic monuments in the Garioch (1986b, 4-5).

The limited studies which have been undertaken have tended to be traditional culture histories and uninformed by developments in archaeological thinking which have taken place over the past twenty years. It is, therefore, an appropriate time to critically reconsider the Neolithic and Bronze Ages of Aberdeenshire.

Chapter 3

Rethinking the fourth to second millennia BC.

Introduction

Perhaps the primary interpretative tool of any archaeologist is the assignation of a period or date to an artefact or monument. As each period in the past has its own history of study and perceived differences from other periods, it means that when we assign a particular date to an artefact we immediately begin to conceive of it within a wider interpretative scheme about that period. The act of dating an object is, therefore, never an entirely neutral process.

The first part of this chapter explores some of the problems involved in assigning particular artefacts to the periods known as the Neolithic and Bronze Ages. This critical review sets the scene for the second section of the chapter in which the inter-relationship between people and landscape is discussed as a potentially more productive interpretative approach to the understanding of the past.

3.1 Breaking the flow of time

3.1.1 The Neolithic and Bronze Ages: a short history of study.

The history of the study of the Neolithic and Bronze Ages indicates that the definition of these periods has frequently changed (Thomas 1993; Morris 1993; Barrett 1994a; Pluciennik 1998). The Neolithic and Bronze Ages are not static entities; they are contingent and contentious concepts. Hence this section examines how the Neolithic and Bronze Ages have been conceived in the past as this clearly influences our understanding of how the remains under study have been previously interpreted.

The definition of the Neolithic and Bronze Ages has its roots in the emergence of the discipline of archaeology, in particular with the adoption of the Three Age system. The Neolithic was

identified as a sub-division of the Stone Age distinguished at first on technological grounds by the appearance of polished stone tools and seen to end at the point that bronze metal working appeared. From the late nineteenth century onwards, the Neolithic was increasingly understood as a revolutionary change in economy from the Mesolithic hunting and gathering to a mixed farming economy with pottery and polished stone tools. This culminated in the work of Childe (1925) with his concept of a Neolithic package, which was thought to have to be introduced by incomers or colonists. The history of the process of colonisation was detailed in Piggott's seminal work, 'Neolithic Cultures of the British Isles' (1954). His major period division within the Neolithic stemmed from his definition of primary and secondary Neolithic cultures. These cultures were later termed the early and late Neolithic, which has formed the basis of most subsequent attempts at developing a periodisation of the Neolithic in Britain.

During the nineteenth and early part of the twentieth centuries, the study of the Bronze Age was dominated by a concern with the generation and refinement of artefact typologies. As with the Neolithic, Bronze Age society was first substantially defined in the work of Childe. In his work Childe considered that the introduction of metalworking required the movement of people (1930). The smith was portrayed as a master of mysteries who gained prestige and power through his specialised skills. Significantly, what was considered the essential difference between the Neolithic and Bronze Ages was made explicit. This was based on the degree of self sufficiency; the requirements of a Neolithic community meant it could be self sufficient, in contrast a Bronze Age community relied on a set of skills and resources which could not be acquired locally (ibid. 9). Significantly, at this stage it began to be proposed that the emergence of the Bronze Age witnessed a change in the structure of society. The introduction of metalworking was considered to mark the emergence of an elite as evident by a series of 'wealthy' graves (Piggott 1938).

The study of the Bronze Age increasingly involved attempts to refine artefact typologies in order to relate their relative chronology to the historical chronologies of the Near East and Egypt. By the middle of the twentieth century it was generally thought that a series of movements of peoples had taken place. With each movement resulting in the emergence of another period in prehistory; the Neolithic with the introduction of farming by colonists; the late Neolithic marked by the introduction of Beaker pottery; and the early Bronze Age through the introduction of metalworking. The movement of peoples therefore explained social or cultural change. The advent of radiocarbon dating meant, however, that several central assumptions about the chronology of the Neolithic and Bronze Ages could not be sustained through reference to the historical dates from the Near East and Mediterranean (Renfrew

1973a; 1974). This led to more critical appraisals not only of the chronology of the periods but also of the underlying models of society and social change.

The traditional chronological division of the Bronze Age into early, middle and late periods, based on metal work typologies, became increasingly challenged with the recognition of a period of copper working (Hawkes 1960) prior to full bronze metallurgy and the probability that the earliest metal working related to the period of use of Beaker pottery (Case 1966). This emphasised what was essentially, in terms of technology, a period of continuity between the late Neolithic and early Bronze Ages. Therefore, during the 1970s and 80s there was an increasing tendency to consider that there was no clear break between the late Neolithic and early Bronze Ages (Burgess 1976; Whittle 1980a & b). Similarly, a reassessment of a number of changes in the archaeological record, as opposed to purely artefact typology, resulted in the division of the Bronze Age period into an earlier and later Bronze Age (Barrett & Bradley 1980).

The identification and refinement of period subdivisions of the Neolithic and Bronze Ages has had a long history. These period subdivisions, which were still being applied to the study of the Neolithic until recently, were made explicit by Chappell (1987). Chappell, following Whittle (1980 a & b), proposed the sub-division of the Neolithic, based on a number of points including changes in settlement pattern, material culture and monuments, into Early (3500-2500 bc), Later (2500 - 2150 bc) and Latest phases (2150 - 1750 bc). If we translate these period divisions into calendar dates we find the Early Neolithic commences by 4350 BC, the Later by 3150 BC, and the Latest by 2700 BC and ending by 2100 BC. We extend this scheme to include the Early Bronze Age which is considered to last until c 1550 BC.

3.1.2 The Mesolithic was what the Neolithic was not.

There has been considerable debate in recent years about the definition of the Neolithic and its historical relationship to the Mesolithic. This debate has resulted in a better understanding of the definition and inter-relationship of these periods and a greater appreciation that historical changes were socially embedded at this time. The distinction between the later Mesolithic and earlier Neolithic has, therefore, become increasingly blurred. This has largely been the result of a more critical consideration of the criteria that have been used to define each period and a recognition that the evidence does not exist to support such interpretations. This work, therefore, has important implications for how we understand both the Neolithic and Bronze Ages and their potential inter-relationship.

The Mesolithic and Neolithic were traditionally distinguished by their subsistence strategies. Put most simply, the Mesolithic was a hunting and gathering way of life and the Neolithic was marked by the adoption of farming. As the essence of each period was considered to stem from this basic difference in economy, there were several associated preconceptions about what the remains of the Mesolithic and Neolithic should or could be. Therefore, a series of expectations existed as to what archaeological remains should be found from the Neolithic: pottery, permanent settlement involving buildings and the remains of domesticates.

The Neolithic was considered to mark the introduction of new resources in the form of domesticates which allowed a sedentary mixed farming. As these resources had to be introduced from the continent, it was perceived that a movement of colonists took place (Kirk 1957; Clark 1966, 176; Case 1969). The Neolithic was therefore considered to have been effectively imposed from outside. This lifestyle was often considered to allow more freedom through generating a surplus and was thus envisaged as being preferable to the uncertainty of eking out an existence through gathering, hunting, and fishing (Cole 1965). The surplus generated by established farming communities was considered to allow the time for the construction of monuments.

In recent years, this general model for the introduction of farming has received considerable criticism. Particular criticism has been made of the idea that mixed farming was an easier option than gathering, hunting, and fishing, and therefore Mesolithic groups would be falling over each other to become farmers (Zvelebil 1986). On the contrary, in no respect was it inevitable that the Mesolithic populations would adopt a farming lifestyle; not only was the Mesolithic economy possibly more productive, but the adoption of farming was not just about access to domesticates but involved accepting a whole new set of alien ideas about the world (Bender 1978; Hodder 1990; Thomas 1988; 1991; 1996b).

An important point in the recent critique of the Mesolithic/Neolithic transition was the recognition that in the western fringes of Europe the technology of farming was not introduced it was adopted (Zvelebil 1986). Indeed a three-stage model for the transition to farming was proposed, involving phases of availability, substitution and consolidation (Zvelebil & Rowley-Conwy 1986). This perspective has led to the consideration that Mesolithic groups were able to actively choose what portions of the 'Neolithic package' they would adopt at a time when they found it suitable (Zvelebil 1996). The adoption of a particular technological process (e.g. potting, cereal growing) did not necessarily mean that its original significance and meaning were also adopted. Such new technologies would be understood in terms of reference of

existing dynamic system of signification. It is possible, therefore, to envisage foraging and farming groups living in close proximity to one another and perhaps engaged in limited exchange (Thorpe 1996; Zvelebil 1996).

The traditional model, however, has further problems, as it is not until the Bronze Age that the traces of what is traditionally considered to be a farming economy become visible in the archaeological record, that is field systems and permanent settlement (Barrett 1994b, Thomas 1996a). There are several possibilities for this apparent contradiction in the evidence: (1) the survival of a Mesolithic lifestyle was much stronger than has been previously thought; (2) the earlier Neolithic was a largely pastoral economy; (3) There was no uniform entity called the Scottish Neolithic but a variety of local traditions in economy which emerged, depending on a combination of differences in opportunities, requirements and decisions (Kinnes 1985; Armitt & Finlayson 1992).

It has recently been suggested that to define the Neolithic as primarily a conceptual and social transformation is inadequate. Zvelebil suggests that the Neolithic is about transition in terms of 'the process of becoming a farming society within the historical scenario of the Stone Age' (1998; 26). Thus the definition of the Neolithic would depend heavily on the definition of farming or farming society. It would, however, appear that Zvelebil believes farming equates to village-based agro-pastoral farmers (ibid. 25-26) (Plate 9). In this respect the emergence of a fully developed farming society did not take place in Scotland until the Bronze Age. This process of becoming a farming society probably took place by a variety of historical routes varying in time in the different regions of Scotland (e.g. contrast Whittle 1987; Armitt & Finlayson 1992; Barber 1997; see also Barclay 1996).

Although it represents a key issue in the study of Scottish prehistory (Barclay 1995, 1997a) the details of how and why the changes in economy during the fifth to second millennia BC took place cannot be addressed within the scope of this study. What is important, however, is a change in subsistence strategy did occur which must have involved people reconceptualising their place in the world. Certainly many aspects of people's lives will have been transformed with a change from a gathering, hunting, and fishing economy to a farming economy, whether garden, arable, pastoral or mixed. Through a combination of the changing environment, increasing permanency of settlement, changing social relationships, different annual and daily routines, distinct places and the landscape as a whole will have become conceived differently by different people. Clearly such a suite of changes is in part an inevitable consequences of adopting new technologies of subsistence. Yet the choice to adopt these new technologies also presented an opportunity to modify the consequences of many of these changes beyond the

basic demands of adopting a new technology; in effect, the transitions which were taking place may have offered an opportunity for groups to actively create new world views. If we consider the Neolithic as the process of the emergence of a farming society we may therefore be able to consider the Bronze Age as the continued development and change of that farming society.

This study focuses on the period that covers the process of the emergence of farming. There are, however, a relatively limited number of radiocarbon dates from Aberdeenshire relating to the Neolithic and Bronze Ages (Tables 10 & 11). In the absence of a substantial further number of radiocarbon dates from Aberdeenshire we must be careful in how we refer to the various period subdivisions which have been generated through reference to sequences of material elsewhere. Clearly these sequences may be inappropriate to Aberdeenshire, which had it own unique historical trajectory. Pluciennik's suggestion that the terms Mesolithic and Neolithic should be thought of as no more than 'a useful shorthand within regions limited in time as well as space' (1998, 79) should be extended to include the Bronze Age as well.

3.2 Different rhythms of inhabitance

With the abandonment of the traditional periodisations how then do we begin to distinguish different eras in human history? Indeed is it a useful heuristic device to divide the continuum of human history into categories of our of own understanding, which may have no bearing on the processes of change in the past. It has been outlined above that one of the main consequences of the historical changes which were taking place between the fourth and second millennia BC was the emergence of a village-based agro-pastoral system. It was then suggested that these changes were both material and conceptual, which together resulted in a fundamental reconstitution of the inter-relationship between people and their landscape. Perhaps then the basis for understanding historical change during this period is through a reconsideration of how people inhabit a landscape.

3.2.1 Creating a place in the Landscape

The archaeological study of the concepts of landscape and place has increased dramatically in recent years. Before there emerged archaeological theories on these concepts they had long been discussed, as part of a wider concern for the human experience of space and time, in other disciplines such as Geography (Tuan 1974; Relph 1976; Pred 1984; Cosgrove 1985) and to a lesser degree Anthropology (Rodman 1992; Ingold 1993; Hirsch & O'Hanlon 1995). I do not wish to go into the details of either the emergence or recent use of these concepts in archaeological studies, as they have been well discussed elsewhere (e.g. Barrett et al 1991;

Bender 1993; Barrett 1994; Gosden & Head 1994; Tilley 1994; Knapp 1997). It is, however, worth attempting to give a brief definition of what the concepts of place and landscape are generally considered to represent within this body of archaeological work.

The one point which these recent theoretically informed approaches to the study of place have in common is that they consider place is in itself an essentially indefinable entity; yet can be defined through the elements which all places share. Places are emotive locales, personally and historically grounded nodes of memory, brought into being through the experience of people. Notably it is recognised within this approach that although places are often built by human groups, natural features may also gain the significance of place.

Similarly, like place, landscape is notoriously difficult to define. What landscape does not equate to is countryside as the concept of landscape can refer to any human environment including cities. The crucial aspect about landscape is the active presence of human beings. The extent of a landscape is bounded only by the conceptual limits of society. Yet, the human experience of a particular landscape is in part also influenced by topography, climate, vegetation and animal life. Influences which, themselves, may have been effected or deliberately modified by the activity of previous generations. Landscape is, therefore, the result of a complex interplay between natural processes, the material consequences of history, and contemporary action.

The understanding of the concepts of place and landscape in such terms has been important as it acknowledges that although people live within the physical constraints of their environment, they are not slaves to it, they actively change that environment. Place and landscape are, therefore, points along a continuum of the human impact upon and definition of their world. As place and landscape are dynamic and temporally bound, as constituted by human practice, they are important concepts in the exploration of historical change. Although landscape is now often thought about in such terms by many archaeologists the conversion has, however, not been universal (e.g. Smith 1997; Barber 1997, 155-7).

3.2.2 Ceremonial landscapes

Concentrations of ceremonial monuments have long been recognised as having had significance to people in the past and to our potential for interpreting the way in which they may have understood their world. We have already discussed (see chapter two), in relation to the study area, how concentrations of monuments have been interpreted by previous authors (Burl 1976; Shepherd 1986; Barnatt 1989). Let us, therefore, now begin to consider the relationship between landscapes that are often perceived to be of different types or levels of significance. In particular, let us consider the implicit contrast between the mundane landscape of daily routine and the concept of ceremonial landscapes during the fourth to second millennia BC. Let us consider a useful distinction that has been made as a heuristic device between cultural and ideational landscapes (Knapp 1997, 15). Knapp considers that cultural landscapes have been historically distinguished as the material results of human action, in contrast the ideational landscape is considered as a fundamentally conceptual landscape. Clearly as Knapp recognises all landscapes are both cultural and ideational. The problem is how do we embrace both these understandings of landscape in our interpretations of the past. How then do we interpret ceremonial landscapes in these terms? Do we consider ceremonial landscapes represent those landscapes that are more ideational than others? Such an approach would be unsatisfactory as it stems from an underlying dualism between ritual and domestic spheres of activity, privileging one source of knowledge, a point I shall return to shortly.

There has been a tendency in recent years to consider that areas with concentrations of monuments dating to the fourth to second millennia BC were specifically devoted to funerary, ritual and ceremonial activity. Despite criticism of the use of terms such as 'ritual landscape' (Harding 1991) it is still not uncommon to hear phrases such as 'landscapes devoted to the dead' (Parker Pearson 1993, 91), 'complexes of ceremonial sites' (Barclay & Russell-White 1993), 'great ceremonial landscapes' (Tilley 1994, 144), 'great prehistoric religious centre' (Barclay 1995), and 'ceremonial centres' (Ritchie 1997, 78-9) used when talking about these regions. It would appear that many archaeologists still perceive and present these concentrations of monuments relatively uncritically in using these terms. They there by perpetuate a series of assumptions about what these concentrations of monuments represent in terms of their relationship to other social spheres. Clearly, the great concentration of these monuments in such areas is of some significance, yet the above descriptions of them imply that these areas of landscape were dedicated exclusively to these purposes. This problem has been compounded by the continuing tradition of constructing models, about the relationship between monument building and society during the fourth to second millennia BC, from the larger

Wessex groups of monuments and then using them to interpret other smaller concentrations elsewhere in the country (Harding 1991).

Despite the significance of Harding's (ibid.) critique of the concept of ritual landscapes, it has a serious flaw through the lack of a detailed consideration of the historical changes in the composition and structure of individual groups of monuments. We should not, therefore, forget that the remains within these landscapes emerged slowly and only reached their final monument density over a period of some 2000 years. The ceremonial activity, at least when considered in terms of monument building, within most years would have been relatively limited. The concentration of activity in these areas is not necessarily indicative of the set-aside of whole areas of landscape for ceremonial purposes. To understand the significance of these concentrations of monuments requires a degree of critical theory which is generally absent from discussions referring to concepts such as ceremonial landscape or ceremonial centre.

It is often stated that the construction of these ceremonial centres is suspected to involve 'the sacrifice of large areas of productive land' (Barclay & Russell-White 1993, 202). This presupposes that land was perceived as having a certain kind of productive value. The assignment of value to land in such terms is highly problematic for a variety of reasons. First, the concept of value as implied in these studies is embedded in Western capitalist thought and probably has no bearing on the relationship between people and their land at this period in time. The interpretative model implies certain assumptions about the relationship between modes of production and other spheres of society. Therefore, even if we could demonstrate that prime arable land was a limited resource, the perception in the past may have been that it was of lower value as arable land as opposed to symbolic capital. Second, it implies that when these monuments were first being constructed agricultural farming was the main productive mechanism. As already discussed in this chapter, it is unlikely whether arable farming formed the basis for subsistence during the fourth to second millennia BC. Finally, it suggests that at this point an act of sacrifice would have been perceived owing to a demand for prime arable land outstripping supply. There is no substantive evidence for demographic patterns at this time and its is, therefore, difficult to sustain an argument that population pressure was so great that land was in short supply. Most arguments about the relationship between the adoption of farming and increasing populations are circular.

The concept of ceremonial landscapes tends to distort how we conceive the remains that we study. As opposed to perceiving the establishment of concentrations of ceremonial monuments in terms which identify it as a particular kind of interpretative problem (i.e. what are

ceremonial landscapes?) it is perhaps more useful to consider the inter-relationship between all human practices which, in themselves, fundamentally constitute the human understanding of these landscapes. Indeed it has been suggested that complexes of ceremonial monuments were integrated to such an extent with settlement that the linear groups of monuments may have respected or formed land divisions for pasture (Barclay et al 1995). Thus if we recognise it is likely that these densities of monuments emerged at the points where people were most densely living, and dying, they usually centre on the most suitable land in a particular region (Bradley 1984, 63). We have to consider, therefore, that these concentrations of ceremonial monuments emerged historically as a consequence of continued human occupation within these areas.

It is not possible to consider what these groups of monuments, and the activities that took place at them, may have meant without considering their inter-relationship with other types of activity. If we are to begin to interpret the human understanding of these landscapes in the past, we have to recognise that the level of group mobility and the form of settlement patterns represent a significant basis for these understandings. We have already discussed the importance of the development of archaeological theories of landscape and place and noted their importance in interpreting human occupation. The concepts of place and landscape are not, however, mutually compatible terms which is often implied during their usage. As Barnes & Gregory note, landscape and place

> 'seem a natural pairing...because we have been socialised into a particular view of what is natural' (1997, 292).

There is a clear tension between the bounded (place) and unbounded (landscape) characteristics of these concepts which has not been fully explored in archaeological studies. One aspect that is rarely considered within recent studies of place and landscape is the issue of territory. In particular, how do human groups define and distinguish their territorial limits. It may, therefore, be useful to further consider the relationship between the concepts of territory and mobility in order to think about how people conceive their place within the landscape.

There has been a long tradition of archaeological analysis of territory but with the critique of processual approaches to the study of the past, the concept of territory has become unfashionable. Processual studies of territory, such as site catchment analysis (e.g. Higgs & Vita-Finzi 1972) and the use of Thessien Polygons (e.g. Renfrew 1973b), were often environmentally deterministic and functionalistic in approach. It is true that previous analysis of territory had many problems but does this mean we have to abandon the concept altogether? The concepts of landscape and place have been fundamental to the reintroduction of the

consideration of people into our interpretations of the past. Yet, they do have a tendency to allow people to wander freely across the landscape. The recognition that landscape is socially constituted means that just as social groups are defined by their boundaries (De Atley & Findlow 1984) so are their landscapes. One problem, therefore, with archaeological landscape phenomenologies in particular, is that they have created the impression of a boundless and common ground. The concern with paths and places has led to boundaries and fences being largely ignored; now just as landscape, and the places which compose it, can be considered as both culturally and ideationally constituted we can consider that boundaries are not always physical. A social group's sense of landscape is bounded, representing a variety of constraints to movement, through social conventions and symbolic boundaries that are part of their conceptualisation of landscape. People are not, and have never been, entirely free to wander where or when they want. The concept of territory may not be the most appropriate to the study of boundaries in the past, which are maintained socially instead of politically. Territories by definition have defined limits that are clearly demarcated, strictly maintained and defended (Casimir 1992). This situation probably does not represent the way in which a social groups limits were conceived in the past: certainly through the earlier prehistoric period. A sense of belonging through tenure results in certain portions of the landscape becoming conceptually bounded to certain groups or individuals (Ingold 1986).

One traditional distinction between different periods in prehistory has been the degree of group mobility within the landscape. The Mesolithic has traditionally been considered as a period of relatively high mobility, in contrast the emergence of the Neolithic has been considered to result in a lower degree of group mobility, manifesting itself through sedentism. Within recent critiques of the transition to agriculture there is an underlying assumption that the ultimate interpretative goal is to try to understand the emergence of sedentism (Armit & Finlayson 1996, 289). This assumption stems from a lack of concern about the relationship between, mobility, territory (landscape tenure) and social relationships. Sedentism, and its polar opposite nomadism, are conceptual categories which when examined have slight bearing on the frequency, extent or form of mobility of human groups. The variety of patterns of residential mobility and the relationship to economic base amongst human groups is huge, and in recent studies there is no consensus as to a nomenclature (For examples see Khazanov 1984; Ingold 1986; Kelly 1992; Whittle 1996). These recent studies raise several significant points about the relationship between the mobility of human groups, their structural remains and landscape tenure. The first is that substantial and permanent architecture for dwelling within may be constructed amongst highly mobile groups. Amongst groups practising pastoralism in particular there may be seasonal or indeed permanent occupation of these structures. The archaeological presence of substantial structures does not, therefore, necessarily equate with

use by fully sedentary groups. Furthermore, where a substantial degree of sedentism can be demonstrated as relating to a particular structure, this does not necessarily indicate a reliance on mixed farming. A second point is that within a particular society or group there may be a variety of different mobility strategies employed. The frequency, extent or form of mobility within a group may be highly sectional. Different age or gender groups within any society will participate in different mobility strategies, the question is with what degree of variability. Furthermore, although different social groups may exist conceptually there may be few times when they physically coalesce at one place. Many mobile groups can be highly fluid in their composition. Archaeologically, therefore, the interpretative problem is whether patterns of material culture actually relate to patterns of social structure that would be recognised within society at the time. A final point about landscape tenure is that it is neither in exclusively a secular or ceremonial sphere that the boundedness of landscape is defined; a sense of a hierarchy of place is sustained through all human activity. The daily and seasonal routines of movement create a spatial rhythm to social structure. There is ethnographic evidence to indicate that an important aspect of ceremonial, including monument building, occurs at times when social tensions emerge within and between social groups. For example, the Selknam hunter-gatherer group of Tierra del Fuego utilised a semi-permanent ceremonial structure called *Hain.* This was used not only to naturalise gender inequalities but also to bring about an end to inter-group warfare over territorial disputes (Bridges 1948; McEwan et al 1997).

In the past, the Neolithic occupation of the landscape has been characterised as comprising sedentary mixed farming. Characterising the fully developed Neolithic in these terms meant that interpretations of the process of Neolithisation attempted to understand social change from Mesolithic populations to Neolithic populations. Rarely was the underlying assumption that there was an inevitable and linear route of transition from the Mesolithic to Neolithic questioned. In recent years this assumption has been increasingly questioned resulting in a recognition that there are potentially many historical routes to many different Neolithics (Thomas 1988, 1991; Sharples 1993; Armit & Finlayson 1996). Bearing this in mind, I wish to begin to reconsider the remains of settlement, and the implications this has to the level or type of group mobility, within the study area.

3.2.3 Carrying your house on your back

As noted, the archaeological remains found within the study area have an apparent bias towards material culture relating to the funerary, mortuary, ritual and ceremonial. This bias would seem to prevent us from discussing the form of settlements and settlement patterns, and therefore, the relationship between settlement and ceremonial spheres. This problem was discussed by Bradley (1984) who suggested several reasons for the limited amount of structural remains that may be interpreted as settlement for this period:

- They did exist but have largely been destroyed by agricultural improvements and subsequent intensive ploughing.

- The priorities of society at the time meant as most effort was spent on monument building the structures were necessarily less lasting.

Bradley does, however, suggest that the evidence can not support another possible interpretation for the apparent absence of settlement;

- The structure of society meant that no permanent place of settlement existed. This could be envisaged if the subsistence strategy was mobile, such as gathering and hunting, or nomadic pastoralism.

I would agree with Bradley's conclusion that although destructive processes have made an impact on archaeological survival and visibility it has not, yet, been so catastrophic that no trace would remain of settlement of this period. It is, therefore, the second two points that we must consider as the possible cause of an apparent absence of settlement evidence. In order to sensibly talk about these issues we have to bear in mind two points. First, our concept of domestic settlement may be radically different from that of the past. Second, we have to appreciate the potential significance and meaning of the remains we do have.

The idea that human settlement is a discrete and fixed locale is really a residue from site based approaches (Dunnell 1992). Therefore, we must consider a fundamental question; should the remains of settlement always be capable of being found archaeologically and be recognisable as such in the terms we immediately understand as settlement. Underlying many discussions about the organisation of prehistoric settlement is the dualism that is often considered to exist between domestic and non-domestic spheres (e.g. Hodder 1990). The domestic sphere can be

considered to be defined by the activities which we associate with daily life: the tending of the hearth, cooking, bathing, eating, love making, giving birth, rearing, sleeping and dying. Clearly, these activities need not take place under the one roof or indeed under a roof at all. Indeed, the domestic sphere is constituted by the daily interaction of the same people (Ingold 1986, 176). The recognition that the domestic sphere is defined by the regular structure of the interactions of different people as opposed to a particular building means we have to reassess our preconceptions about how the archaeological traces of domestic activity may appear. The structure of sedentary settlement, therefore, may be radically different from that which has traditionally been conceived. Particularly so if social relations are structured differently. Indeed if we envisage that the range of activities which are normally considered domestic are not undertaken in the same location how can we conceive of a domestic sphere at all. Clearly the idea of the domestic is more than just a particular type of activity at a particular locus, the concept of domestic is a socially and politically loaded concept. As opposed to considering that there was a discrete domestic sphere, we could envisage, therefore, a more fragmented society that distinguished a variety of alternative spheres. Let us continue this line of thought by asking how we would categorise the activities of sowing seeds, tending cattle, and mending fences? If our initial response is to consider that these activities are economic, as they relate to modes of production, is the making of a pottery vessel, therefore, an economic act? The act of pottery production is well recognised as also a highly social, symbolic and political act. In short all human action is loaded with meaning, invokes power relations, is socialised or social, and is productive as it results in a transformation.

Clearly, the idea that the domestic sphere between the fourth to second millennia BC may be more fragmented than we might immediately anticipate, or indeed may not be recognisable within our conceptual terms at all, is supported by recent thinking on the relationship between secular and ritual action. It has been previously noted in relation to the archaeological study of monuments, that it is now widely recognised that during much of prehistory what we would distinguish as ritual and domestic spheres were in many respects probably less distinguishable (Barrett 1988; Bruck 1995). In societies that show high group mobility, this distinction may be more blurred owing to the larger number of locales for various group interactions. There is therefore a real possibility that, during the fourth to second millennia BC in Aberdeenshire, the domestic was not recognised as a distinct or discrete sphere of activity, instead there was a continuous, if routinised, stream of human action which took place at a variety of different locales. The meaning or significance of the activity at each locale can only be understood in relation to its relative significance to others.

Let us now consider the second issue about the potential significance and meaning of the remains we do have that are usually considered to relate to settlement. A problem arises from a certain degree of circularity of argument when it comes to defining what the Neolithic constitutes. The preconceptions of what defined the Neolithic involved a package of traits including agriculture, sedentism, pottery production, polished stone tools and monument building. There has been, therefore, a tendency to anticipate what the remains of the fourth to second millennia BC, in particular settlements, should look like because of the perceived sedentary lifestyle. As Bradley (1984) noted, for later periods we have a large number of what we comfortably recognise as houses and settlements, yet they do not generally exist in these forms in the earlier periods, a situation which immediately informs us of a difference in settlement patterns. As noted above, however, the presence of substantial dwelling structures does not indicate the type or degree of sedentism, but merely suggest sedentism exists somewhat. Therefore if we recognise, on a variety of levels, the problems in interpreting many of the few 'non-ceremonial' structures from the fourth to second millennia BC as houses (e.g. Balbride) we should set these structures aside for our purposes just now and examine what else remains for us to interpret.

As discussed in chapter two, other than that evidence which is uncontextualised in the form of stray finds and scatters we have a variety of artefactual evidence which come from a series of pits. These pits are usually found, during the excavation of a variety of sites of other periods, in isolation or in small groups. They contain a range of different types and combinations of remains, including lithics, pottery and palaeo-environmental evidence. There is, however, usually no recognisable structural remains found in association with these pits. Taken at face value, therefore, these class of features may be best interpreted as representing the only surviving remains of the temporary settlements or camps of mobile groups.

Trying to understand historical changes in mobility strategies during the fifth to second millennia BC is further complicated through the existence in Scotland of a class of scooped structure utilised from the seventh to fifth millennia BC (MacGregor & Donnelly forthcoming). These structures would appear to be sunken occupation areas that were potentially surrounded by turf banks. As such these structures potentially have a greater degree of permanency and impact on the landscape than the bivouacs, lean-tos and tents which are usually assigned to groups of this period. If we accept that the presence of substantial structures during this period may indicate less frequent movement or a higher degree of sedentism than generally envisaged we can contrast this with the potential of high group mobility during the fourth millennium BC. Other than the type of archaeological features which constitute the evidence for most 'Neolithic domestic sites' the idea of high group mobility may also be supported by the recognition of a

close correlation between these earlier Neolithic pits and pitchstone. Struck pitchstone is frequently found in association with the earliest pottery within these pits. Significantly pitchstone was not widely used during the seventh to fifth millennia BC (Donnelly pers comm.) which would be the time when we might expect significant movement of pitchstone along with the mobile gatherer/hunter economies. Clearly, we may be seeing pitchstone moving as part of down the line exchange during the fourth millennia BC but I would suggest there is a strong case for its movement, at least, in part with mobile groups. Evidently any attempts to trace the historical change in mobility strategies from the fifth to fourth millennia BC in terms of increasing sedentism is difficult to sustain through reference to the known archaeological remains.

Perhaps the main reluctance in accepting high mobility of, at least a portion of, society during the fourth millennium BC comes down to, not the limits of the perceived demands of the economy for increased sedentism, but our perception of the relationship between mobility and the increasing fragility of material culture. This way of thinking results in statements such as

> 'The most important evidence for a well-advanced sedentism is the large quantity of potsherds from the sites. Pottery, which constrains mobility, would have operated as a factor favouring sedentism, as well as being itself promoted by sedentism' (Haaland 1997)

and

> 'The manufacture and use of pottery seems to have been a cultural innovation adopted as part of an interconnected set of ideas which define the earlier Neolithic in Britain' (Thomas 1991, 87).

The presence of pottery has, therefore, been used to suggest that high mobility could not exist within the Neolithic as the pottery would break during movement. Indeed the evidence of movement of vessels has always been interpreted in terms of exchange (i.e. an economic or social strategy) (e.g. Thomas 1991, 87-9) and is rarely considered at it simplest level that the pots were actually carried by people not an exchange system. Indeed the equation of pottery with the Neolithic is, however, a fallacy as pottery is found in a variety of prehistoric contexts where farming is not practised (Arnold 1985; Barnett & Hooper 1995). Significantly, although it was once thought that nomadic pastoralists did not utilise pottery there is now sufficient evidence to indicate that they frequently used pottery (Cribb 1991). Furthermore, ethno-archaeological work has shown that nomadic groups leave archaeologically recognisable traces

of their settlements (Hole 1979; Cribb 1991; Avni 1996). Amongst the visible traces of settlement at campsites are a limited number of negative cut features including storage pits and shallow drainage canals around tents. As discussed above remains such as this are the most commonly found traces of fourth to second millennia BC settlement. Notably it has been suggested that one use for pottery amongst pastoral groups was, with the vessels being rocked back and forth, in the production of cheese (Cribb 1991, 78-9). Suffice it to say the majority of the earliest pottery from Scotland has rounded bases, and the emergence of pottery production may relate to the changing demands on storage and transport brought about through the adoption of a semi-pastoral economy.

Of particular note, in the context of this study, is evidence for the intermittent construction and regular use of ceremonial structures that often represent the most substantial and permanent constructions found amongst nomadic pastoral groups. Hole (1978, 154-5) notes that following the death of leader the pastoral groups of the Luristan, Iran, constructed a stone 'house' with fireplace and doorway but did not build the superstructure of the walls. These structures were sometimes accompanied by cairns, which were also built along routeways as shrines. Avni (1996, 27-8) details the erection of stellae, in groups or rows, and the use of low walls or rows of stones to demarcate the extent of open-air mosques. Examples also exist of the modification of natural features, such as the stripping of the branches from a tree and its decoration during the wedding ceremony amongst the Komachi, Iran (Bradburd 1984). Significantly the tradition of monument building amongst groups practising pastoral transhumance goes back to at least the Bronze Age in the Levant (Prag 1995).

A comprehensive survey of mobile groups would undoubtedly unearth more examples of monument construction but this is not necessary, as the point I wish to make is simple. When the above examples of monument construction within mobile groups are taken into consideration with the evidence for monument building in gatherer-hunter societies, they demonstrate there is no *apriori* reason to assume monument building is an indicator of a fully sedentary lifestyle or of a particular form of social structure or hierarchy. The beginning of the construction of monuments in the fourth millennium BC in Aberdeenshire can not therefore be considered to represent the labour of sedentary farming populations. We therefore, have to consider the likelihood that these monuments were established and used by mobile groups. The presence of cultivated cereals from a variety of fourth to second millennia BC contexts in Aberdeenshire suggests that instead of a fully developed nomadic pastoralism, a variety of semi-nomadic pastoralism or mixed gatherer-hunter-cultivation may have been practised by some groups. Thus, the important point to our study is the recognition that landscape and

place, and the act of establishing monuments, will have been considered differently amongst mobile groups, as opposed to sedentary farmers.

This chapter has considered the problems involved in referring to our categories of periodisation of the past. It has suggested that if the Neolithic is to be retained as a concept it must be considered as historically grounded process of the emergence of village based agro-pastoral farming. Thus there is no such entity as *the Neolithic*, as there are in fact *many Neolithics*. We are faced with the situation where different regional trajectories exist for the adoption of certain technologies which ultimately were combined together by the mid second millennium BC to form something which resembled farming. My argument is that in the case of Aberdeenshire one of these routes, as suggested by the limited remains of settlement of the period, involved some form mobile strategy of inhabitation of the landscape. If we recognise this, in contrast to previous models of the introduction or adoption of the 'Neolithic' as a package of things or beliefs, there are consequently associated implications about the changing structure of social relations and how the landscape was conceived during this period.

Chapter 4

Making no sense of circles; the study of the stone circles of Aberdeenshire.

'Indeed it is fantastic to imagine that the ill-clad inhabitants of these boreal isles should shiver the night long in rain and gale, peering through the driving mists to note eclipses and planetary movements in our oft-veiled skies' (Childe 1930, 164).

'Even the associated Druids could be projected, according to taste, either as primitive but pure theologians or as barbarous and blood stained necromancers' (Burl 1976a, 15).

Introduction

This chapter examines some of the previous interpretations of the stone circles of Aberdeenshire, although, when relevant wider reference will be made. The first portion of the chapter approaches this via a consideration of the history of study of the stone circles of Aberdeenshire. As the stone circles have traditionally been a central focus for the construction of models and interpretations about Neolithic and Bronze Age societies in the region, the first section of this chapter effectively traces the historical trajectory of the study of these periods. The next section within this chapter considers the chronology of stone circles in further detail. In particular, the results of the excavation of stone circles is considered in relation to the date of origin of the RSC tradition.

Reaching an understanding of the stone circle tradition has always been, at least implicitly, a central concern for archaeologists studying the Neolithic and Bronze Ages. The final section, therefore, considers in further detail the chronology and recent interpretation of Stone Circles in Aberdeenshire. In particular, the implications of two of the main interpretative models about the function of stone circles will be critically examined; the archaeo-astronomical and the social.

4.1 The study of stone circles in Aberdeenshire

4.1.1 The work of druids?

One of the earliest accounts of archaeological remains from Aberdeenshire is a sixteenth century reference to the stone circles. The distinctiveness of some of the stone circles of the north east was commented on by Boece who wrote '...huge stones were erected in a ring and the biggest of them was stretched out on the south side...' (1527, x). This account undoubtedly refers to the RSCs of the region. What is more, Boece commenced a tradition of study, continuing to this day, which implicitly considers that if you understand the recumbent stone you understand the RSC. Boece, however, interpreted the recumbent stone as an altar for human sacrifice anticipating the emergence of an association between stone circles and druids; an interpretation which is still held by some people (e.g. Nichols 1990).

Although the construction of a druidical past began earlier, it is John Tolands work of 1726 on the History of the Druids which has been considered a keystone in the construction of the stone circle and druid mythology (Piggott 1968; Burl 1976a, 14-18, see also Mitchell 1989). Amongst one of the earliest written accounts of the stone circles from the study area is that of John Garden who, however, writing in 1692, found it difficult to associate the circles he had seen with Druids (Garden 1766). Although he did consider that they clearly represented places of worship in the past, largely through reference to place name evidence. Within Garden's correspondence there emerges another strand to the study of stone circles, that of folklore, in this case an anecdote of the dire consequences of the removal of a stone from its circle (ibid. 315). Garden's letter also contains the first account of excavation within a stone circle in the study area; that of one near Keig churchyard (ibid. 318). This is generally thought to be Old Keig (e.g. Barnatt 1989, Burl 1976a) but in fact Cothiemuir is nearer to the churchyard at Keig.

Despite Garden's early reservations, reference to Stone Circles as Druidical Circles continued extensively (e.g. Anderson 1777; Logan 1829). This correlation is particularly evident within the pages of the *Statistical Accounts of Scotland.* For example, of the 53 parishes within North and East Aberdeenshire (1791-99), prehistoric antiquities are noted in only 21 (39.6%). Of which 13 refer to the presence of Druidical Circles, 25% of the total parish accounts or 62% of accounts of parishes that refer to prehistoric remains. This can be compared with the *New Statistical Accounts of Scotland* of 1845 within which we see an increased awareness of the prehistoric remains within the county of Aberdeenshire. Of 84 parish accounts, 49 (58.3%) refer to prehistoric remains. Yet some fifty years later 24 accounts refer to Druidical Circles,

29% of the total parish accounts or 49% of accounts of parishes which refer to prehistoric remains.

Nearly one hundred and fifty years after John Garden's letter, the first volume of the *Proceedings of the Society of Antiquaries of Scotland* contained a short notice by the active antiquarian John Stuart (Stuart 1855). Stuart's note refers briefly to a series of 'Druidical Circles', in which can be seen broadly the same concerns, which Garden had, to the study of stone circles. He briefly mentions the excavation by Rev. Cowie of the circle at Hill of Mill Leith (ibid. 141). The concern with folklore is again evident (ibid. 142). Predominately, however, a series of short descriptions or comments are given on individual circles. This general formula is largely followed in a paper on the stone circles within the parish of Old Deer (Peter 1885). One observation made by Rev. Peter was the recognition of the inter-visibility of a series of circles within the parish, the reason for this apparent relationship, however, was not considered (ibid. 371). This important observation appears to have gone largely unnoticed by other scholars, in part because of an increasing concern with the observation of celestial bodies from stone circles. For example, this problem was clearly evident some four years later in a paper, also on the Stone Circles of Old Deer, delivered to the Buchan Field Club, where the conspicuous position of stone circles was noted but the implications of which were not explored (Spence 1890, 27). Instead, Spence embarks on another treatise on whether the stone circles functioned as temple or sepulchral:

> 'Again, at a later date, say fifty years ago, even learned archaeologists, in answer to the question-What mean these stones ? would have affirmed without hesitation that they were temples-Druidical temples. But of late years the Druidical theory has been pooh-poohed, and the very existence of Druids in this country has been denied. Other answers have been given, such as that they were places of defence, or that they were sepulture and nothing more. Setting aside the temple theory, those are the principal rational answers that have been made.' (ibid. 31)

The ensuing discussion clearly shows the problems in interpreting stone circles (ibid. 47-9). Yet, the general perception of stone circles as druidical temples seems to have been maintained outside academic archaeology. This probably led to the strong delivery by Rev. Milne at a meeting of the Banffshire Field Club (Milne 1897, 146-7), eleven years after Spences statement. The exasperation in Milne's voice can almost be heard:

> 'The belief that stone circles are Druid temples is so inveterate and unreasonable that it is of no use to argue with one who has taken up this idea' (ibid. 147).

Despite the general association of stone circles with the druids during the nineteenth century a Bronze Age date had been established for them by archaeologists. Thus in the synthetic works of the nineteenth century the stone circles are considered to date to the Bronze Age because of the discovery of forms of urn within them which had been found associated with bronze implements (Wilson 1863; Anderson 1886). This had been demonstrated in Aberdeenshire by excavation at the stone circles at Broomend and Tuack.

4.1.2 A multitude of uses

An alternative interpretation of the RSCs was proposed at the end of the nineteenth century (Maclagan 1881, 1894). It considered that the recumbent stone represented the collapsed lintel of a doorway, the other stones of the circle were the keystones of a robbed out dry stone wall, which together formed a structure. An analogy for the form of construction of the doorway was sought with Maes Howe (Fig 17). Although letters of support were received (1894, 16-23) this theory was not widely accepted.

At the turn of the nineteenth century Fred Coles undertook an extensive programme of survey of the stone circles of the north east (Coles 1900, 1901, 1902, 1903, 1904, 1906a, 1908). The work of Coles provides an invaluable record of monuments which have subsequently been badly damaged or had at the time already been destroyed and were only known of through memory. Yet despite having visited, surveyed and reported on so many stone circles, although critical of previous interpretations, Coles offered no real opinion as to what they represented (1900, 191-8).

Another significant contribution to the study of RSCs was made by Coles (1905) with the excavation of the stone circle at Garrol Wood, Kincardineshire. This was the first attempt at open area excavation of a RSC as opposed to the usual method of small trenches, and significantly employed both a photographic and drawn record. The excavation confirmed the funerary/sepulchral use of the monument with the discovery of five separate deposits of cremated human bone. More significant, however, was the demonstration of the complexity of the internal features (Fig 18).

It was just after the turn of the century that the druid theory had apparently 'died out' (Milne 1911, 27) and this heralded the full emergence of the next phase in the study of the stone circles of the north east, their interpretation as astronomical observatories (e.g. Lewis 1888; Lockyer

1906; 1908a; 1908b; 1908c; Browne 1921). The work of Lewis (1888) represented the first systematic attempt to consider the astronomical orientations/observations at RSCs.

Whilst studying stone circles in Cornwall and Devonshire, Lockyer had noted an apparent correlation between outlying stones and astronomical observations (1906, 150). Having heard of the RSCs, Lockyer wondered whether the recumbent stone may have been used for astronomical observation, using a line of sight perpendicular to the length of the recumbent stone looking across the circle, and began a programme of survey of several of the monuments (ibid. 150). In the first instance, Lockyer's calculations were made at Auchquhorties in relation to Arcturus and Capella (ibid. 151). He considered, however, it would have been possible to observe Cappella about 1640 BC and Arcturus about 600 BC both of which dates fall well after the probable date of construction of the monuments. His observations at Midmar, however, led him to consider that if orientation of the recumbent was on the solstice the monument had to be constructed over three thousand years ago. Lockyer continued to develop his ideas that the RSCs fell into groups which had been constructed for the observation of clock-stars, or May year- or solstitial-alignments (1908b; 1908c). Despite his astronomical approach to his study Lockyer was keen to encourage that the monuments should be considered in terms of having several different uses (1906, 151). Yet Lockyer considered that their construction had been primarily for observations by astronomer priests (1909, 344).

The astronomical theory was considered untenable by Milne who considered that the evidence indicated a sepulchral function for the monuments (1911, 29). Yet the reason for the position of the recumbent stone to the south west was still considered problematic (ibid. 38-9).

Again it was the consistent position of the recumbent and flankers in the south-west portion of the circle which concerned Browne (1921, 23). Browne proposed that the astronomical observations which may have taken place at the RSC were intended to be used as 'an annual calendar and a day clock' (ibid. 24). Despite considering a series of propositions as to what the stone circle and recumbent stone may have been used for he could, however, only find one reason for the south-west location:

> 'On the whole, we cannot escape from the conviction that there is one set purpose for the primary importance in this south-west position; and we cannot suggest any purpose that can compare with the astronomical, astrological, purpose of specifically noting something in the north-east.' (ibid. 35)

It was with the work of Keiller (1934), unfortunately not fully published, that a new rigour to the study of the RSCs emerged. Significantly, Keiller defined several different classes of stone circle. He was particularly critical of the myth that the recumbent is invariably situated to the south-west. What's more, he suggested there are groups of geographically close circles that share broadly similar orientations (ibid. 11-12). As with so many of the previous studies of RSCs, Keiller recognised that the recumbent stone was the feature that required explanation. He considered that the recumbent and flankers were the last elements of the RSC to be constructed, although did not explain why he thought so. Significantly he rejected all previous interpretations of the meaning of the recumbent stone. Instead he considered that as the internal kerb-cairn ran to meet the recumbent and flankers the 'recumbent closed the passage-way to the central grave' (ibid. 15-16). Keiller was also the first to recognise the significance of earlier accounts of discoveries of causeways approaching several of the RSCs (ibid. 18). In particular he suggested that a series of monuments in the Alford basin (Druidsfield to Crookmore to Old Keig) had their causeways orientated on one another. As regards the function of RSCs, Kiellar firmly considered that the evidence supported a sepulchral interpretation (ibid. 21).

4.1.3 Further systematic excavations

Although Coles had excavated an RSC at the beginning of the nineteenth century, it was nearly another thirty years until further systematic excavations of a RSC were undertaken. This was with the work of Childe at Old Keig (1933, 1934) and Kilbride-Jones at Loanhead of Daviot (1936).

The excavations at Old Keig were undertaken by Childe primarily to address the date of RSCs (1933, 37). In the first season of excavation Childe established that an artefact-rich 'clayey' layer extended across the site, which ran partially under the recumbent except at one point where the deposit may have been cut through to hold the recumbent or that it formed around it (ibid. 43). Examination of the west flanker, however, showed that the packing stones rested on the clayey layer, and that the portion of the base of the west flanker which penetrated the clayey layer into the sub-soil was considered by Childe to have been a result of the weight of the stone as opposed to being placed in a deliberate cut (ibid.). Although no stratigraphy could be distinguished within the clayey layer Childe interpreted it as an occupational deposit relating to the construction of the monument or later use (ibid. 45). Significantly Childe considered that the artefacts recovered from the clayey layer offered a date for the monument, although it was not possible to distinguish between those that relate to the erection of the monument or those

that relate to subsequent use. A problem further compounded by Childe considering that the recumbent was erected after the layer had started forming as it had been cut through to hold the stone. Therefore, artefacts would also potentially be present which relate to pre-construction of the monument.

The artefacts which were recovered by Childe included a small assemblage of beaker sherds (class I) from the surface of the lower gravel layer, and sherds (class II) which were predominately found in association with a disturbed central cremation deposit/s, under the recumbent, and below the banks (ibid. 45-7). Significantly in the area where both class I and class II sherds were both found class II sherds were found higher up in the deposit, however, with the lack of observable stratigraphy it is dangerous to place to much emphasis on this apparent relationship (ibid. 47). Childe considered that the 'flat rimmed' pots of class II could be paralleled with both Late Bronze age funerary vessels and other early Iron Age pottery, and, cautiously, concluded that the stone circle had been erected during the Late Hallstat period.

A second season of excavation at Old Keig revealed further details of the interior features, in particular a ring-bank linking the orthostats, internal kerbing, and a central ring-cairn (Childe 1934) (Fig 19). Further evidence of cremation, including a possible pyre site, was discovered in the central cairn. The remains observed, however, did not produce any further information to change the initial conclusions on the date of the monument (Childe 1934).

Childe subsequently discussed the relationship between RSCs and the Clava group of monuments. He considered that the Clava monuments were Neolithic, noting that none need be early, and considered that they provided the precursors to the RSCs (1935, 52). This was thought to be the result of a fusion between the Beaker colonists, who Childe considered the first farmers on the east coast, and the west coast settlers (ibid. 81). Childe was confident that the pottery of the Covesea tradition provided a date for the construction of the RSCs. Yet strangely he notes 'some recumbent stone circles may of course be earlier than this fusion' (ibid. 196). Childe, however, did not consider the implications of his suspicions that some may predate the late Bronze Age.

Excavations at Loanhead of Daviot were undertaken by Kilbride-Jones (1935a) with the aim of undertaking the complete examination of the RSC. This again revealed a central ring-cairn beneath which were found remains interpreted as a pyre site (ibid. 173) (Fig 20). Kilbride-Jones considered that a series of small cairns had been constructed around the base of the monoliths of the circle (ibid. 182-88). These, however, probably represent the last remnants of a denuded ring-bank that ran between the monoliths. Excavation showed that the recumbent sat

in a cut. An inner pavement appears to have been stratigraphically earlier than the cut and upon the pavement rested the outer kerbstone of the ring-cairn. Discovery of a cist containing an incense cup, considered to date to the middle Bronze Age, led Kilbride-Jones to conclude that the stone circle had been erected before this date, and to speculate that the presence of beaker sherds indicated an earlier date (ibid. 193). The considerable quantities of allegedly Iron Age pottery were considered by Kilbride-Jones, in contrast to Childe's conclusions at Old Keig, to relate to a phase of later activity/disturbance (ibid. 177-8, 187).

Kilbride-Jones (1935a) also undertook the excavation of the small circle at Cullerlie. This revealed eight small ring cairns within its interior (Fig 21). Several of the cairns were found to cover deposits of cremated bone within pits or small 'cists' that were in turn sealed by the mound of the cairn. The interior of the circle had clearly seen a substantial amount of burning as the subsoil was heat scorched and the lower portion of the standing stones are fire damaged. The kerbs stones of the cairns were also fire scorched indicating that their construction predated the fire. The kerbed cairns, however, are likely to represent a later phase of activity as opposed to an integral part of the original stone circle, as another nine are known to have existed outside the circle to the south west.

4.1.4 A search for origins

The different conclusions as to the date of the RSCs, derived from the results of excavation, led to a period of increasing concern for the chronology of the monuments. From this concern another element in the study of the RSCs commenced, which had taken a surprisingly long time to emerge explicitly. This element was the consideration of the origins of the tradition of RSC building. Why should such monuments begin to be constructed? How did the idea of a RSC develop? The answers to these questions, however, were usually concerned with the interaction between different architectural forms of monument and cultural groups.

The assigning of a Bronze Age date continued in the work of Piggott who considered the RSCs to represent a devolved form of his type II Clava group (1954; 260). Although Piggott noted that the Clava group Types I and II could be contemporary architectural traditions he could not conceive of a similar relationship to the RSCs. This perception, however, may have stemmed from Piggott's consideration that the cairn at Milduan, situated on the western fringe of the Garioch, was potentially a class II Clava group monument (ibid. 259). Hence there was a potential direct source of inspiration for the construction of RSCs. Atkinson's excavations of

1952, however, had revealed the structure within Milduan cairn to be a Medieval corn drying kiln (Feachem 1959, 47-9).

The Bronze Age date of RSCs began to be questioned after the re-examination of the pottery assemblage from Loanhead of Daviot that had indicated that Neolithic sherds were present. After consideration of the other available evidence this resulted in the conclusion that it was 'overwhelmingly probable' that the RSC was 'current during the beaker occupation of Aberdeenshire' (Atkinson 1962, 17). Atkinson, however, considered that the external origin for the RSC could be found within the Lyles Hill culture, stemming from a movement of people from Ulster through the Great Glen and into the area of the Moray Firth (ibid. 21). This movement of people from Ulster and a second movement of the Windmill Hill culture via Yorkshire both terminated in Aberdeenshire. Notably, Atkinson considered that the ready supply of flint in Buchan provided a source of stability for the primary Neolithic culture which led to the development of a secondary Neolithic which showed little outside influence (ibid. 32). He does not, however, make it explicit what the relationship between a ready supply of flint and a high degree of social cohesion may be.

The concept of a scheme of degeneration was also adopted by Henshall (1963). In a similar manner to Keiller (1934), Henshall viewed that the two stones at right angles to the recumbent, found at some RSCs, represented a feature evoking a memory of the Clava passage grave (1963, 39). Subsequently Burl produced the seminal paper on the RSCs that included a critical review of the tradition and accompanying corpus (Burl 1974). Significantly he also considered that the RSCs are probably derived from the Clava tradition and dated to the first quarter of the second millennium BC (ibid.; 1973; 1976a). Indeed, at this time in the absence of a significant number of radiocarbon dates the tradition of stone circle building was generally thought of as a development of late Neolithic traditions by Beaker groups (e.g. Burgess 1974, 174).

4.1.5 Further excavations

The late seventies and eighties witnessed the excavation of a number of stone circles that firmly established the date and longevity of the tradition. Although several are outwith Aberdeenshire the results of their excavation are so significant to the study of the stone circle tradition that they have major implications for the interpretation of this tradition in Aberdeenshire.

Excavation took place at Temple Wood, Argyll, between 1974 and 1980 to reveal the sites of two adjacent circles (Scott 1989). The northern circle was the earlier site and originally

comprised of a timber circle that was abandoned during the process of being transformed into a stone circle. Excavation of the southern circle revealed it had a number of phases. The first of these was a stone circle dating to the fourth millennium BC. This was modified by the insertion of dry stone walling between the stones. A phase of burials outwith the circle was then witnessed, one of which contained a beaker. The drystone walling was subsequently knocked down and replaced with upright slabs and an external stone bank added. A series of kerbed cairns were then constructed within the interior containing burials. Of these, cairn E produced a radiocarbon date of 1743-544 BC (GU-1299) from charcoal within the primary cremation burial.

Excavation of two stone circles (sites 1 & 11) on Machrie Moor, Arran, was undertaken during 1985 and 1986 (Haggarty 1991). Evidence was found of activity on the site before the construction of the monuments. This consisted of a series of pits containing sherds of carinated bowls and pitchstone. These were dated to 3701-3384 BC (GU-2321), 4468-4156 BC (GU-2320), and 3756-3350 (GU-2315). The first phase of monument construction at both sites involved the erection of a range of timber circles or settings. Notably Grooved Ware pottery was recovered from post-holes from the site 1 timber circle. On of the postholes produced a radiocarbon date of 3339-2927 BC (GU-2316).

The third phase of activity involved the abandonment of the sites and the use of land for what appears to have been agricultural purposes. The surface was heavily scarred by ardmarks and arrangements of stake holes. Analysis of the fill of some of the ardmarks indicates they contained small quantities of barley (*Hordeum*) pollen. The stakeholes were dated to 2575-1986 BC (GU-2322), 2393-1984 (GU-2319), 2397-2033 (GU-2317). It was in the fourth phase of activity at the site that the stone circles were constructed. A *terminus post quem* of 2198-1918 BC (GU-2323) for the construction of the stone circle 11 was provided by oak charcoal within a pit which was sealed by a layer cut by one of the stone holes of the circle. The final phase of activity, which need concern us here, involved the insertion of several cremation burials within the interior of the circles.

In Aberdeenshire complete excavation of two further RSCs took place; Berrybrae and Strichen. Significantly, the excavations at Berrybrae and Strichen provided the opportunity for comparing the date of two monuments of the RSC tradition which were geographically close to one another. Excavation of the RSC at Berrybrae was undertaken by Burl between 1976 and 1978 (1975; 1976b; 1977; 1978). This revealed that the first phase of the monument comprised of the orthostats and recumbent which had been set on the outside of a bank. A small internal ring-cairn was linked to the recumbent by a platform, upon which was strewn

quartz pieces. The exact chronological relationship between these features is not made clear in the interim reports but it would appear that the central ring cairn was a later addition. The second main phase involved the demolition of the stone circle, except the recumbent and west flanker, and the construction of a stone wall along the bank converting the site into a 'enclosed cremation cemetery' (ibid. 1978, 8). Charcoal associated with beaker sherds that had been deposited in a pit provided a radiocarbon date in the second millennium BC. Notably fragments of pottery suggested to be Grooved Ware were found deposited within a niche in the wall. The insertion of late Neolithic pottery into the second phase construction indicates that the first phase took place during or before the late Neolithic.

Shortly after the excavation of Berrybrae, the RSC at Strichen was also excavated (Abramson 1980; Abramson & Hampsher-Monk 1981; Hampsher-Monk & Abramson 1982). Before excavation, the monument had been destroyed with only a low penannular bank being visible on the surface. Excavation, however, established that the visible bank was the result of relatively modern remodelling, and that the remains of the original bank were present to the north (Hampsher-Monk & Abramson 1982, 17) (Fig 22). Excavation revealed a large number of stake- and post-holes within the interior of the monument. Substantial quantities of quartz pebbles had been used to construct the bank, within which was found an anvil stone used for striking quartz and a cremation deposit of an adult female. Beneath the bank, was the remains of a slot trench running parallel with the circumference of the stone circle. Evidence suggesting that kerb stones retained the bank between the orthostats was also found. Most significantly, however, was the discovery of five post-holes set at a regular distance on a circumference central to the circle. These may represent the remains of an earlier wooden monument (see below). Further evidence of an earlier phase of activity was supported in some of the artefacts recovered during excavations. Found adjacent to a disturbed cist were four sherds of (earlier ?) Neolithic pottery, cremated bone, and charcoal. Also found within a stone-lined pit was a cup and ring marked stone.

The complete excavation of Berrybrae and Strichen did, perhaps unexpectedly, not result in a spate of reinterpretations of the chronology of RSCs. This may be a testimony to the comprehensiveness of the previous work by Burl (1974; 1976a) on these monuments. Equally, the relatively slight attention paid to the results of these excavations was because of the concern at the time with the debate about the astronomical use of stone circles. Interpretation was now more concerned with the function or use of monuments and less concerned with their cultural affinities or development.

4.1.6 The circle of the moon

Although having been considered previously, the re-emergence of the debate on the archaeo-astronomical significance of stone circles had largely been instigated through the work of Thom (e.g. 1967). Analysis of accurate survey data on a range of stone circles led Thom to conclude that these monuments had been laid out using complex geometry and a standard unit of measurement; the megalithic yard. Furthermore, Thom believed that the apparent precision employed in constructing the monument was to allow the observation of high precision astronomical alignments. The astronomical work of Thom led to a growing body of literature which tended to polarise into two camps; put bluntly those who considered that the general conclusions were sound, if not always in agreement on the details of them (e.g. Baity 1973; Mackie 1974; 1977; 1981; Freeman & Elmore 1979), and those who considered that at best Thom's work had made a useful contribution through encouraging rigorous survey and analysis but who believed his conclusions were untenable (e.g. Heggie 1972; 1981; Ellegard 1981; Morrison 1980; Moir 1981; Ruggles 1982; 1983).

In an important paper which criticised many archaeo-astronomical approaches Burl stressed that the alignments at monuments were 'symbolic rather than scientific' (1980, 191). Burl outlined a theory that the recumbent stone was orientated on the movement of the moon across the sky (ibid. 194). Perhaps the most incisive aspect of the study was the recognition that different regional groups of RSC were orientated on alternative phases in the cycle of the moon.

A reassessment of the RSCs was undertaken by Ruggles and Burl (Ruggles 1984; Ruggles & Burl 1985). The study involved the resurvey of sites to establish the potential of astronomical orientation of the monuments. In many respects the papers of Ruggles and Burl reiterated previous views and expanded on Burls earlier work. The interpretative study considered the affect of three different aspects on monument orientation: astronomical bodies, absolute directions, and features on the ground. The most useful contribution of the study was the consideration of orientation on prominent topographic features, as it was really the first time when the monuments were considered in terms of their place in the landscape. It was considered, however, that terrestrial features were not a contributory feature to the general trend in orientation (1985, 32). Yet it was noted that at some of the RSCs conspicuous hill tops were visible in the horizon above the recumbent (ibid. 47).

Another significant aspect of the study was an expansion of Burl's (1980) consideration of the regional variations in orientation within the RSC tradition as a whole (Ruggles & Burl 1985, 50-54) in which they concluded that the position of the recumbent stone was unlikely to be exclusively because of astronomical considerations (ibid. 58).

4.1.7 Recent work on stone circles

Shepherd has undertaken interpretation of the RSCs, as part of several general synthetic works (1986; 1987). In these, he makes a number of important observations about the inter-relationship between the chronology and function of the RSCs and social structure. He stresses the probability of a third millennium BC date for their construction and feels that the primary act in establishing these monuments was the erection of the recumbent and flankers, with the stone circle representing a later addition (1986, 124). He claims the primacy of the recumbent and flankers stems from the primary function of the monuments being used for the regular observation of the moon. This is claimed to be of central importance to seasonal fertility rituals that would be needed by small farming communities (ibid. 125). He considers that the general uniformity of the architecture of the RSCs supports the belief that they were constructed by small egalitarian groups. The final point that should be highlighted in relation to Shepherd's interpretation of RSCs relates to their proposed origins. He agrees with Burl's (1976a, 172) model for their sequence of development stemming in the Howe of Alford and feels that the distinctiveness of the RSC tradition means that there is no need to search for an external influence. Moreover, Shepherd feels it was the RSC tradition that has formed the inspiration for features involving grading of height, an emphasis to the south-west and a use of cup marks (ibid. 126-7).

The most recent synthesis of RSCs has been undertaken by Barnatt (1989) as part of a wider analysis of the stone circles of Britain. This study was particularly concerned with considering the regional variation in circles by developing a taxonomy of sites through multivariate analysis of architectural traits. This analysis identified 14 classes of stone circle, which were then considered in terms of their differing relationship to settlement and topography.

Barnatt considers that stone circles represent one form amongst a continuum of late Neolithic/earlier Bronze age monuments whose uses may not have been mutually exclusive. Of these he considers that the stone circles and henges are in essence communal in use as they utilise a shape which Barnatt considers is not the best at highlighting individuals through focal points (ibid. 163-4). Barnatt considers that within the area of eastern Scotland a preference for

equal component complexes can be identified. These complexes comprise of geographically close groups two to four similar monuments which may have operated as a 'contemporary and integral component within the complex' (ibid. 153). Within the study area there are also examples of what Barnatt terms 'small complexes' at Backhill of Drachlaw and Gaul Cross, which may be variants of equal component complexes (ibid. 154-5). Barnatt also distinguishes small henges/hengiform monuments at Crichie and Fullerton/Cairnhall as representing examples of Northern Complexes, within which monuments of mixed design are associated. Significantly Barnatt considers that the presence of distinct groups of monuments in the area represents an opportunity for the study and analysis of 'territories' (ibid. 178).

Recently, rescue excavations have been undertaken at Candle Stane RSC because of nearby illegal quarrying. These were located just beyond the exterior of the stone circle to the west. Amongst the features identified was a slot trench and interior rings of post-holes (Cameron 1996; 1997). These have been interpreted by the excavator as the remains of an Iron Age house. Yet it is worth noting that they are reminiscent of the remains found at Strichen (Hampsher-Monk & Abramson 1982). These remains, however, potentially represent an earlier phase of wooden circle. The chronology, if not the function, of the structure will be clarified by radiocarbon dating.

The most recent reinterpretation of the stone circle tradition has been proposed by Bradley (1998a). Bradley considers that the different types and scales of study which have typically been applied to henges and stone circles has resulted in a misconception of their inter-relationship. He feels that the most satisfactory attempts to interpret these monuments to date have taken into account the topographic location of the monuments. Bradley notes the fundamental feature that many henges and stone circles share in common is they are placed within natural basins ringed with hills. It is therefore suggested that stone circles and henges share their circular form as they mimic the landscape they are situated, an expression that effectively reflects how people perceived the world.

4.2 Finding the right time

As discussed in chapter three, it is important where possible to avoid discussing archaeological remains in terms of a particular period. Archaeological studies should be framed in terms of the chronology available through scientific dating. This section, therefore, critically explores Burl's proposed chronology and model for the development of the stone circle tradition in

Aberdeenshire. It then goes on to consider the implications of the available radiocarbon dating on the potential chronology of the RSC tradition.

Burl (1973; 1974; 1976a) considered that a chrono-typology for stone circles may exist. This was constructed through reference to the architecture, the shape (circle, flattened circle, oval, egg-shape (after Thom) and size of the stone circle. In particular he hypothesised that it is the most imposing sites which are the earliest (1973, 169). These are essentially the classic examples of RSCs composed of larger-sized stones, which show grading in height, and of the greatest diameter forming a circle are amongst the earliest. The problems of generating an architectural typology from the assumption that large classic circles are the earliest was recognised by Burl (1976a, 46). Thus it was felt that the most satisfactory method for generating a sequence of forms is through reference to artefacts recovered at the sites (1976a, 47). Burl considered that as burials were found so frequently at stone circle sites in the north east of Scotland, they were probably primary and, therefore, provided a date. From his analysis Burl concluded that the artefacts from RSCs supported his chronology based on monument form (1974, 61).

It is also important to note that Burl (1988) has also outlined a model that considers the origin and development of the four-poster tradition. The basis for the model stems from an observation on a relationship between variation in monument size and geographical location. The conclusions Burl reaches are based on the absence of antecedents for four-posters in the Tayside area, the presence of the majority of larger 'maxi' four-posters around Aberdeenshire, and the identification of shared traits between RSCs and four-posters. Essentially Burl views the four-poster as a development that originated from the RSC tradition in the Howe of Cromar in the Aberdeenshire region which soon spread in popularity to the south-west. As has been noted previously the dating of all four-posters to the second millennium BC is uncertain.

Despite the importance of attempting to consider the potential chronology of the RSCs as a class of monuments Burl's assumptions are highly problematic on at least five counts:

The first problem with Burl's proposed chronology was recognised through the work of Barnatt (1989). Experimental work of laying out circles by eye suggests that the shape of many circles is not through deliberate design, therefore, in most cases shape is probably chronologically insensitive.

The second is that to consider all the human remains found at these sites as representing burials in all cases masks a variety of deposits which were clearly different in form and meaning.

The third is his hypothesis is based on the premise the tradition of RSC building derives from other architectural traditions that emerged in the Alford basin. It was from here that the idea of the 'classic' RSC moved from the core area to be adopted in the peripheries of the region where degenerate forms were constructed. This argument does not theorise how ideas move between communities and why these ideas should have coalesced in one area; e.g. whether through migration of people, direct emulation or diffusion of ideas. More problematic, however, is the essentially circular argument that early monuments are classic examples because classic examples must be early.

The fourth point is that the evidence from excavation suggests that there may have been several phases to the monument. With monuments such as stone circles, which may have had a variety of different uses or phases of use, any artefacts that have not been related stratigraphically to an identifiable phase of activity offer limited value in dating individual monuments. At best most artefacts may offer a crude *terminus ante quem* for the initial construction of the monument. In some cases artefacts, for example where earlier Neolithic pottery has been found, may derive from pre-monument activity. Indeed, the evidence from excavated sites suggests that the deposits of human bone found at these sites probably relate to later phases of activity. To a certain extent these problems stem from a lack of well excavated published examples but more problematically an absence of depositional theory.

Finally many of the assumptions made by Burl on the relative chronology of various artefact forms have been cast in doubt through developments in the theory of material culture, and further radiocarbon dating. For example, the British Museum dating programme on beaker burials suggests that the chronologies proposed by Clarke (1970) and Lanting and Van der Waals (1972) for beaker pottery are unsustainable (Kinnes et al 1991).

Within Burl's chrono-typological sequence there is an assumption that the earliest forms of stone circle are the largest, most circular, with most stones, from which this ideal form becomes more corrupted. Effectively Burl has proposed a devolutionary scheme for the development of stone circles in general (1976a; 1983; 1988; 1993), and RSCs in particular (1974; 1976a; 1981). As noted previously it would appear that the ready acceptance of a devolutionary scheme stems from the perceived origin of the RSC tradition from the Clava tradition (1972; 1973; 1976a).

This devolutionary scheme can not be sustained if the implications of the evidence from excavated sites is considered in more detail. It is clear from this evidence that the RSC we see today is probably the result of several phases of construction and modification; the internal ring

cairn being later than the original recumbent stone circle and the possibility of earlier wooden circles. In particular, at Berrybrae the stones of the circle, apart from the recumbent and flankers, were flung down later. Equally it is feasible that at some sites these stones may have been re-erected or moved. Clearly, the RSCs should be considered within the framework of a diachronous study. In his scheme, however, Burl has effectively treated RSCs as representing single-phase monuments; his study is essentially synchronous.

Burl's assumption that the largest circles are the earliest with the smallest being latest has had further doubt cast on it by recent analysis of timber circles. The comparison between timber and stone circles has frequently been noted. The three dated Scottish examples indicate that these were built from the second half of the third millennium BC to the second half of the second millennium BC (Barclay 1983; Haggarty 1991; Scott 1989). Significantly recent analysis of timber circles has indicated that there may have been a historical change in the size of circles built throughout this period, starting from small circles increasing in size and gradually decreasing again (Gibson 1994). It is possible that the related tradition of construction of stone circles has a similar currency for construction and may show a similar history of changing size.

The excavation of other examples of stone circle in Scotland have clearly shown that their construction dates in the third and second millennia BC (Haggarty 1991; Scott 1989). It is, therefore, probable that the RSC tradition originates to the third millennium BC. A central issue in how RSCs have been interpreted previously is the relationship to the Clava tradition. Although Shepherd suggested that the RSC tradition may have proved the inspiration for others, the tendency has been to consider that the RSC tradition was derived in some way from Clava. Hence the results of recent archaeological work at Balnuaran of Clava have considerable implications to the chronology and inter-relationship of these two monument traditions.

A programme of excavation and analysis has been undertaken by Bradley at the linear cemetery of Balnuaran of Clava (1996a; 1998b; 1998d). Significantly excavation has indicated that the monuments at Clava are probably single phase constructions, with the stone circles and passage graves/ring-cairn having been erected at broadly the same time (Bradley 1998b; 1998d). A range of radiocarbon dates have been obtained from samples recovered from the SW cairn, the central ring cairn, the NE cairn suggesting the monuments were in use by the late second millennium BC (Bradley 1996b, 1997; see Table 11). Excavation had also indicated that there may be a phase of activity adjacent to the ring-cairn, which may be domestic (Bradley 1996a).

Radiocarbon dating indicates that this is a phase of activity during the later part of the second millennium BC; 2028-1405 BC (AA-21258) and 1739-1268 BC (AA-21259) (Bradley 1997).

The programme of radiocarbon dating indicates that the monuments at Clava were built during the late second millennium BC and as such they have no direct relationship with the passage grave tradition of the third millennium BC. What are the implications of the Clava dates to the interpretation of the RSC tradition. There are two possibilities, the first being that the RSC tradition is of a similar date to the Clava monuments. The second is that Shepherd (1987) is correct in suggesting that the RSC tradition provides an inspiration for many of the characteristics in the Clava tradition. The recovery of beaker pottery from securely dated late contexts at Berrybrae, however, precludes the first possibility. This is confirmed by the associated radiocarbon dates of 1935-1527 BC (HAR 1849) and 1868-1402 BC (HAR 1893) from Berrybrae. Notably these dates only provide a *terminus ante quem* for the construction of the monument; a monument which had undergone at least one major phase of alteration. The dating of Clava means that the RSC tradition must be considered in its own right as a local development in monument construction during at least the third millennium BC.

The excavations at Clava have indicated that in at least one part of north-east Scotland the construction of stone circles and ring-cairns was taking place at broadly the same time during the late second millennium BC. A later date for the ring-cairn tradition would also be supported by the work undertaken by Ralston on the Sands of Forvie. This pattern, however, is not consistent across the north-east of Scotland with the dating of the ring-cairn at Midtown of Pitglassie. Material from a cremation pit below the ring-cairn was dated to 3980-3388 BC (GU-2014) (Shepherd 1997). This evidence would suggest that ceremonial activity was taking place on the site during the first half of the fourth millennium BC, with the construction of the ring-cairn taking place at some point later. The presence of a deliberate deposit of material containing earlier Neolithic pottery directly beneath the ring-cairn suggests it was constructed during the fourth millennium BC.

The evidence that is available for the traditions of timber and stone circle building suggest that RSCs were probably constructed in the third millennium BC. Evidence for the date of construction of ring cairns in Aberdeenshire suggests that this tradition was established during the fourth millennium BC. It is therefore significant that excavation at Loanhead of Daviot established that the kerb of the inner ring-cairn rested on paving which abutted the recumbent stone as it indicates the potential for a fourth millennium BC date for the construction of the RSC.

4.3 The interpretation of function

The final section of this chapter considers the two dominant models which have been applied to the interpretation of the function of stone circles; the archaeo-astronomical and social. Both approaches have made substantial contributions to the understanding of these monuments but they also have several fundamental problems. These problems are addressed in the final two sections of this chapter. The first of these sections highlights an historical legacy which permeates both the archaeo-astronomical and social interpretations of the function of stone circles. The final section raises several other problems with previous approaches.

4.3.1 An astronomical function

The extent of the astronomical significance of standing stones and stone circles until recently received the most debate (Burl 1981; Ruggles 1982; 1983; Burl and Ruggles 1985; etc). Despite reservations in the level of accuracy of astronomical observations/orientations at such monuments this aspect still dominates many interpretations of the use of such monuments. It is not my intention to examine the details of astronomical observation or of the movements of celestial bodies. What I do want to highlight are the implications of the use of some of the terminology, in particular observation, orientation and alignment, to how the RSC may have been utilised.

Living in a city most people have little direct experience of the regular movements of stars, sun and moon; the night sky is polluted by artificial lighting. At best we may appreciate that the sun rises in the east and sets in the west, that the sun is lower in the sky during winter and higher during summer and that the moon has a monthly cycle (see Burl 1983, 16). Both ethnographic and historical evidence suggests that people in the past were more aware of the celestial bodies within the sky above than most modern people. Reference to the movement of these bodies was often important in structuring the cycle of the year, ordering and understanding the world around them (e.g. Baity 1970; McCluskey 1977, 1990; Zelik 1985). It is clear, however, that the alignment and construction of particular monuments is not required to for people to have been aware of the changing cycle in the movement of celestial bodies, to observe, and interpret their meaning. It is possible to recognise and observe these regular motions without monument construction.

Let us consider this issue in relation to the distinction between observation, orientation and alignment as in many respects they are bound together. Observation or to observe, usually refers to the act of visual perception, and the word has its origins in the Latin (*observare*): to watch. Observation in this sense, is something which nearly all human beings do, recognising that the human agent constantly monitors their surroundings. At times these observations are a subconscious monitoring of circumstances and at others more directed and specific. Observation also has a more technical meaning referring to sight taken with an instrument to a heavenly body, often for navigation. This has connotations with scientific method and instruments, telescopic observatories, and surveillance or monitoring. This second meaning was certainly explicit in the work of Thom, who considered stone circles were used as astronomical observatories, and appears to be at least implied in many other studies of megalithic monuments. Perhaps more controversial was Thom's belief that the architecture of stone circles required exact measurement and geometry (Ellegard 1981). It was through this approach that the debate on science in prehistory emerged concerning the level of precision of astronomical observations. The term observation has usually been used to refer to the monitoring of the regular movement of specific heavenly bodies in order to mark the passing of time.

Orientation, with its origins in Latin (*Oriri*: to rise) also has several different levels of meaning. To orientate can also mean to position on a specific direction. The term to orientate, however, implies a more general alignment on a known point, for example either a topographic feature or the point of lunar or solar standstill. In contrast, the term orientation has usually been applied to mean a general alignment of a monument on particular observations (Burl 1981).

The term alignment implies a level of accuracy of positioning greater than that involved in the orientation of a monument. Alignments can be made in two ways utilising a back sight and fore sight. The first method involves the construction of two fixed points that align on the point of the desired phenomenon to be observed. The second utilises a single constructed back sight that is used with a non-indicated fore sight for observation. In the second case the fore sight is likely to be a particular distinctive topographic feature. It is, however, possible that at a stone circle utilising the first method for observation, alignment can be made coincidentally on celestial bodies or distinct topographic features. Therefore, it is difficult to distinguish at individual sites which alignments are deliberate or accidental. Clearly, however, the establishment of a specific alignment will almost certainly involve a permanent construction. Indeed there is a paradox between the idea of monument orientation on particular observations of celestial bodies which utilises an architectural device, at times up to 5.85 m long as at Easter Aquorthies, which is anything but precise. The detailed observations proposed by the

astronomical model would be better undertaken by two uprights set much closer together or simply a backsight and foresight. This perhaps, however, highlights the problem of a misconception of the astronomical model as the data it is based on can at best only support the idea of a general concern with an orientation on the moon (Burl 1980; 1981). In many respects this issue can not be resolved satisfactorily. Yet previous studies have concentrated on the details of particular sites and overlooked the possible implications of some general patterns that I wish to consider next.

If we consider the number of possible alignments at different types of stone circle we see some interesting patterns emerging (Figs 23-25). For example at the four-posters there are six basic alignments representing twelve sight lines. At five stone sites e.g. at Aboyne this increases to ten lines and twenty sight lines. At a six stone site this increases to 15 lines and thirty, etc. By the time we consider a RSC with between ten and 15 orthostats, we have between 43 and 105 alignments or between 86 and 210 sight lines.

There are three major implications of this increasing potential for alignments with the addition of more orthostats. The first is that with the smaller stone circles deliberate alignments should be more readily identifiable. The second is that if there is any chronology to the sequence and development of stone circles it will therefore necessarily involve a chronology of emphasis of alignment. For example, four-posters are considered to be late in the sequence of stone circle development and are thought to have their origins in the classic RSCs (Burl 1988). If this sequence is true, and this is not necessarily the case, it would suggest a decreasing concern with alignments with time. The final implication of increasing the number of sightlines is that it enables almost any topographic feature or celestial event to be claimed to be at least orientated upon, if not aligned on.

Considering the implications of the potential for alignments at different monuments has also shed light on another group of monuments: the Caithness horseshoe settings. Barnatt has speculated that these monuments have strong affinities with the distant Western irregular circles (1989, 50). If, however, the sightlines are plotted on a plan this creates a plot where the area to the south-west of the monument is devoid of potential alignments (Fig 26). This is no surprise as the south-west end is the open end of the horseshoe that faces towards a local horizon. It would therefore seem that the horseshoe settings represent another variant within the east coast Clava/RSC/ring-cairn traditions. The important point of the extent of potential alignments at the horseshoe settings is that they are orientated on the same portion of the sky as those of the Clava/RSC traditions yet no claim for precise alignment could be made with these monuments. This would suggest that it was not the idea that the potential for claiming

alignment was the significant aspect of erecting a stone circle but that if there was any astronomical concern it was with allowing more general portions of the sky to be referred to through claims of orientation.

4.3.2 Social function

Another aspect that has been suggested as a use for stone circles is in the establishing and renegotiating of social relations. This proposition developed through debate on the structure of social systems and how they change. For example, a general model for the reason for changes in monument form during the Neolithic emerged during the 1970s. It proposed that the monuments of the earlier Neolithic were constructed and used by what were essentially egalitarian communities (Renfrew 1973b; 1976). It was argued that as a hierarchy of size, and consequently effort, could be discerned amongst the later Neolithic monuments that society must have become increasingly hierarchical in order to have co-ordinated the labour involved in the construction of these monuments. Although the details of this general model have been queried (e.g. Startin & Bradley 1981; Whittle 1981; Clarke at al 1985; Barrett 1994b, 157-64), it formed the basis for the argument that there may not have emerged authorities *per se* during the later Neolithic but that what was being observed was an increasing social concern with the individual as opposed to the community. This was considered to be particularly evident through the emergence of what has been termed as a prestige goods economy, a form of economy which was based on the acquisition and exchange of the exotic (e.g. Thorpe & Richards 1984). It was this system which enabled the adoption of what was increasingly termed the 'Beaker Package' (Whittle 1981; Shennan 1982; 1986).

It was in such an intellectual climate during the early 1980s that, within the continuing debate on the validity of their interpretation as forms of astronomical observatories, an increasing awareness of the potential social importance of stone circles emerged (e.g. Thorpe 1983; Barnatt & Pierpoint 1983). These studies, however, perceived the erection and use of these monuments by some form of elite social group to maintain their power e.g. astronomer-priests (Mackie 1981), clan groups (Thorpe 1983, 6). Although these studies were significant in attempting to address how stone circles may have been involved in structuring and renegotiating social relations there was a lack of concern with agency. Another problem was that the study of how these monuments were involved in social change never considered the implications of the changing form of their architecture, treating them in terms of single phase monuments. Equally there was little critical consideration of why communities should be involved in the construction of monuments that were utilised to privilege certain social groups

within them. Most recently Barnatt has outlined that although stone circles may have been built in the first instance to provide arenas for exchange the social significance and function of individual stone circles was related to their position in a monument hierarchy based on scale (1989, 221-22). Again the issue of how these monuments were actually utilised by people has been relegated to the box labelled ritual.

4.3.3 The legacy of culture history

Many of the previous interpretative approaches to the study of stone circles, and material culture in general, share a common problem. This problem is that they are concerned with the discovery of an ideal type that formed the inspiration for other variants of the same type. Consequently, since the development of culture historical approaches in archaeology, there has always been a concern with identifying the origin of the emergence of a tradition of monument building. In the case of RSCs, the origin of inspiration was most frequently considered to be the Clava tradition.

The belief that there must be a clear and identifiable origin for a tradition of monument building stems from the way in which we order our data. We look for patterns within that data to indicate a common set of characteristics that define an ideal member of that class of monument. The previous monument type that most closely resembles that ideal type would then be considered as the source of inspiration. Thus we look for meaning in the past through seeking patterns in material culture which are accessible to us in the present by assuming that the patterns themselves must be meaningful.

These perspectives on studying the past have their origins in the tradition of western philosophy established by Plato. In particular it is Plato's theory of forms in which he considered that reality and appearance were different, with reality being a hidden truth behind appearance. This has formed the basis for the belief that there is an objective truth to be discovered within the pattern of the data. The problems of objective truth and relativism have been well discussed in archaeological theory (e.g. LAW 1997).

In many respects the past is unknowable to the archaeologist until we seek meaning in the material remains of the past. Fundamental to the archaeological exploration of meaning in the past is the ordering of the material remains. Thus, we try to bring order to data that was historically constituted through a partially random and changing system of development; we bring order to chaos. Yet we must assume that patterns in material remains are meaningful if

they relate to patterns of human practice and not coincidental. If we consider that patterns of archaeological remains can be the result of repetition of practice we must recognise that as practice is continually transformed there may be repetition but not replication. Thus although patterns in the archaeological record may be meaningful the degree of meaning to the archaeologist to study is only made available through the recognition of the differences within groups.

Thus although patterns in monument form may be meaningful we must look for the many among many as opposed to the one amongst the many. In the case of monuments, the similarity of architecture is potentially important but we must also be sensitive to the fundamental differences of each monument. The idea of the final form being a culmination of a series of projects will be explored further (section 10.1.2)

4.3.4 Making sense of circles

The recognition of the orientation of the recumbent stone on the movement of the moon has been important to the interpretation of RSCs. Equally an awareness of the social implications of monument construction and use has been an important development to the study of stone circles. These approaches are, however, highly problematic because of a number of limitations in their approach.

The first of these is that the interpretations of the monuments are studied in terms of abstracted space, there is no concern for their location and the implications that it has on how they may have been utilised. Furthermore, they are often treated as a vacuum from the rest of society. They were not separate areas from daily life, their meaning would have been understood recursively in relation to other spheres of social activity. As discussed previously, in chapter three, an understanding of the inter-relationship between people and landscape forms an important basis for the interpretation of historical change. The choice of location of monuments within the landscape must, therefore, form a meaningful unit of archaeological analysis.

Another major problem with previous studies is that they rarely consider the stone circles as a dynamic entity. It is generally unmentioned that their use and meaning would have changed throughout the period from when they were probably first conceived and established in the fourth millennium BC to the second millennium BC. Again to understand the changing inter-

relationship between people and landscape we must consider the changing use of persistent places within the landscape.

Fundamentally, I would argue that one of the major problems of past interpretations of RSCs has been an unwillingness to explore the archaeological remains in their own terms, by which I mean there has been limited attempts to interpret, in the first instance, the meaning of the archaeological deposits themselves. The debate has usually taken place in terms of archaeological deposits as representing evidence of one of our descriptive categories (burial, astronomical, ritual etc) as opposed to these deposits forming the basis for analysis of human action in the past which in itself requires further interpretation. In particular, none of these interpretations explore in any detail the aspect of how the architecture of the stone circle informs our interpretation of what activities took place at each monument. I therefore wish to consider several theoretical perspectives in the following two chapters which will address the potential limitations of previous interpretations.

PART II

Chapter 5

Phenomenology and cultural sensoria.

'naming of the points of the body is an awakening of the senses; naming the eyes awakens vision' (Seremetakis 1994)

Introduction

The previous chapters have introduced the archaeological remains that form the basis of study and indicated some of the problems that have been involved with earlier studies. This chapter begins to develop some of the theoretical issues that relate to the interpretation of these archaeological remains. Amongst these is the issue of phenomenology, which has recently been introduced as a theoretical approach in archaeological thinking. The emergence of a phenomenological strand in archaeological theory is of particular relevance to this study as it has been largely applied to address some of the perceived problems of interpreting prehistoric remains in Britain.

The first section of this chapter entails a broad outline of phenomenological thinking and a critique of archaeological phenomenology as recently practised. Ultimately, it is my intention that when I come to interpret the archaeological remains of the study my approach will be informed by a consideration of both the merits and problems of the emergence of a phenomenological strand in archaeological theory. I do not, therefore, provide a definitive account of the history of phenomenological study or a comprehensive critique of the phenomenological method; tasks best left to the philosopher. My interest in phenomenology is because it introduces the need to consider our perceptions and how we derive our understanding of material culture from them when studying the past.

5.1 Phenomenology and archaeology

5.1.1 Phenomenology

> *'Even if there were as many phenomenologies as phenomenologists, there should be a common core in them to justify the use of a common label.'* (Spiegelberg 1976, 653)

In its broadest sense, phenomenology can be considered as the descriptive study of phenomena. It recognises that the experience of a phenomenon, such as an object, does not normally purely entail the perception of its physical characteristics but also involves how that phenomenon is understood in relation to other objects, places and concepts. The study of a phenomena is therefore not confined to direct sensory analysis but is also intuitive. Thus, not only objects (e.g. a hat or a bus) are subject to analysis but also other phenomena that are not physically present (e.g. emotions, ideas, dreams, and concepts). Consequently, phenomenology must be more than just a descriptive exercise as it strives to understand the phenomena of study, at least in the first instance, in its own terms:

> *'Phenomenology explicates those features of any given object without which it could not be truly said to be the object that it is'* (Schmitt 1967, 139).

Thus, the one central point which unifies any of the disparate strands of phenomenological thought is the statement made by Husserl of 'to the things themselves' (*'Zu den Zachen Selbst'*). Thus, as opposed to beginning a phenomenological study with the conceptual baggage of previous ways of thinking, phenomenology aims to dispel all presuppositions about the phenomena of study. This suspension of beliefs, or *Epoche*, results in a bracketing of the phenomena under study.

Phenomenology can, therefore, be considered in many respects as a descriptive methodology for the study of phenomena (Spiegelberg 1976). Yet although there may be some agreement on the 'fundamentals' of a phenomenological method, there are a variety of phenomenological methods including transcendental phenomenology, existential phenomenology and hermeneutic phenomenology. The development of the phenomenological method, therefore, is an unfinishable project (Schmitt 1967, 139).

As with any philosophical idea there are a multitude of different opinions as to what the concept of phenomenology is and how phenomenology should be practised. Although most would agree that it is the work of Edmund Husserl that forms the foundation of most phenomenological approaches, there are several different phenomenologies represented (Schmitt 1967, Spiegelberg 1976; Relph 1981; Garner 1994, 2), for example, by the works of Jean-Paul Sartre (e.g. Sartre 1957), Maurice Merleau-Ponty (e.g. 1962) and Martin Heidegger (e.g. 1962; 1977). Some commentators consider phenomenology to be an outdated mode of thinking, but others consider it has many aspects in common with post-modern philosophy (Ormiston 1986) or as a response to post-modern philosophies (Macann 1996, 5).

5.1.2 The use of phenomenology in archaeology

Although phenomenology represents an established philosophical concept and has been well explored in other disciplines e.g. in geography (Seamon 1980; Pickles 1985; Seamon & Mugerauer 1985; Seamon 1993), it is only in recent years that it has received explicit consideration in archaeological studies. It is in the works of Tilley (1994) and Thomas (1996c) that a phenomenological approach has been most explicitly developed. The phenomenological studies of Tilley and Thomas are, however, different. Tilley (1994) studies a particular phenomenon, that of the landscape. In contrast, Thomas is intent on 'clarifying some of the areas of prehistory which he found intractable' (1996c, 2), or in other words he chooses to study a variety of phenomena. I will now examine these studies to assess their relative success in utilising a phenomenological approach, and the implications of their different schools of thought.

Tilley's phenomenology of landscape.

Tilley is exceptionally clear as to what a phenomenological approach should be and is, therefore, worth quoting at some length:

> *'The key issue in any phenomenological approach is the manner in which people experience and understand the world. Phenomenology involves the understanding and description of things as they are experienced by the subject. It is about the relationship between Being and Being-in-the-world. Being-in-the-world resides in a process of objectification in which people objectify the world by setting themselves apart from it. This results in the creation of a gap, a distance in space. To be human is both to create this distance between the self and that which is beyond and to attempt to bridge this distance through a variety of means - through perception (seeing, hearing, touching), bodily actions and movements, and intentionality, emotion and awareness residing in*

systems of belief and decision-making, remembrance and evaluation' (Tilley 1994, 11-12).

Tilley considers that the work of both Heiddeger and Merleau-Ponty endeavour to avoid the problems of both 'empiricist objectivism' and 'cognitive idealism'. He argues that it is the body that mediates both the subjectivity and objectivity of Being; a dialectic which results in the 'spatialization of Being' (Tilley 1994, 14). Tilley goes on to develop a theory of the human experience of space and place in relation to landscape. He subsequently uses a series of anthropological case studies to demonstrate how landscapes are understood socially. He then considers the concept of landscape in relation to prehistoric remains from Britain.

In the same way as Tilleys, Thomas's phenomenological work is structured in two parts; firstly he outlines his theoretical approach and secondly he deals with the archaeological remains. Although Thomas is at pains to tell us that the separation of the book into two parts is artificial, which does not reflect his study, he does not tell us why he chooses to structure the book in this way (1996c, 1-2). Thomas is, however, clear as to what informed his thinking; that is the work of Martin Heiddeger which he considers to be of 'critical importance to the development of archaeology' (ibid. 3). It is this contribution of Heiddeger's thinking to the work of Thomas that has provoked the most debate (e.g. Gosden 1996; Kuchler 1996; Oudemans 1996; Weiner 1996).

Thomas (1996c) believes that Cartesian thinking which leads to a series of conceptual dualisms, and which is addressed by the concept of Being-in-the-world (*Dasein*), does not 'allow' distinctions to be drawn between mind and body or the external and internal world. Notably Thomas considers that the concepts of 'subject, self, and *Dasein* represent three ways of conceiving different aspects of human Being', and that these have points in common with Gidden's concept of agency and Bourdieus concept of Habitus (ibid. 47-8). Crucial to Thomas's ability to relate these various concepts of Being is Heiddegers concept of 'they-self' (*das Mann*). Ultimately Thomas believes that the application of *Dasein* to archaeological problems is possible through the idea that as *Dasein* is dispersed and temporal it results in the self is effectively being a text; a text which, therefore, can be read (Thomas 1996c, 52-3). Therefore, Heiddeger's concept of Being-in-the-world (*Dasein*) is central to the development of Thomas's approach to the understanding archaeological remains.

5.1.3 Archaeological phenomenologies?

A major criticism of Tilley's (1994) work is that his theory of phenomenology is largely undeveloped; for example, Tilley does not consider the role of suspension of presuppositions (*Epoche*). The introduction of phenomenology would appear to be a device for him to introduce other aspects of the theories of various phenomenologists as opposed to a method of study in itself. Thus, one wonders at his need to introduce the concept of phenomenology in the first instance at all. Tilley's work is concerned with the human creation and experience of landscapes, as a physical and conceptual dialectic. I would argue that although Tilley's study has phenomenological elements it is not strictly a phenomenology. In fairness, Tilley notes that his work is largely 'an exercise in 'blurred genres' (1994, 1). Yet his attempt at a 'Phenomenology of Landscape', a descriptive study of the phenomena of landscape, is flawed because as opposed to suspending his presuppositions about the landscapes he describes, they are prejudiced by a theoretically and anthropologically informed interpretative framework. Tilley's *A Phenomenology of Landscape* (1994) is a well written, interesting and informed work on the concept of landscape. It is not, however, a phenomenology of landscape nor is it, despite its implicit claims, primarily an attempt to understand prehistoric landscapes. Instead, I would describe it as a study of the human understanding of landscapes and this is, indeed, the strength of Tilley's work.

Clearly the work of Tilley is a valuable contribution to landscape archaeology which in recent years has become one of the dominant approaches to the study of British prehistory. This has been an important development contributing towards an increased concern with understanding human agency in the past. I would argue, however, that the study of aspects of landscape has resulted to a certain extent in a decreased concern with the human use and understanding of material culture. In particular, in most of these studies material culture has been considered purely in descriptive terms that depend almost exclusively on visual perception.

Tilley, however, considers the process of 'objectification', which brings about Being-in-the-world, creates a 'distance in space' and that once created this distance between self and world requires bridging. It can be argued, however, that Tilley creates a false dichotomy between Being and Being-in-the world: there is only ever Being-in-the-world. Indeed his quote from Merleau-Ponty of 'I am not the spectator, I am involved' (Merleau-Ponty 1962; 303-4 quoted in Tilley 1994, 12) contradicts Tilley's belief that the Being sets themselves apart from the world effectively creating a gap to spectate from.

The approach of studying the human understanding of landscapes, as opposed to landscapes themselves, may be a reflection of how landscapes are constituted. Landscape does not exist as an object, there is no thing that we can point to as landscape, there may be trees, rocks, flowers,

clouds and rivers, but these only become landscape when they are perceived within a field of vision or in a cognitive environment such as imagination. Landscape is not purely the sensory perception of environment but more fundamentally the cognitive understanding of those perceptions. Therefore, it can be argued that there is no such thing as 'landscape', only the human perception of landscape.

Both Tilley and Thomas are aware of the problems of a subject/object dualism and both attempt to overcome this by a concept central to their works, Heiddegers concept of Being-in-the-world. The work of Heiddeger may inform on one particular phenomenological approach but to refer to the work of a phenomenologist does not result in the practice of phenomenology. Thomas demonstrates a good understanding of the work of Heiddeger but does not explicitly theorise the concept of phenomena or phenomenology. It may be, however, that Thomas is mimicking Heiddeger in his tendancy to avoid using the term and theorising phenomenology (Muchall 1996, 22-3). Although Heiddegers work does indeed have some importance to archaeology, Thomas' adherence to it, with him adopting concepts apparently wholesale, may be at times some what 'uncritical' (Thiele 1995, 257).

Thomas pertinently notes that a human body of the '10th century is entirely different from a 20th century human body' (1996, 17), yet the concept of *Dasein* (to be here) is developed from the experience of the 20th century. Indeed it has been argued that *Dasein* may be no more than a Heiddegarian autobiography (Earle 1960), with all the flaws and prejudices that an autobiography entails; for example his romanticism of peasantry (Thiele 1995, 187). Therefore, does Thomas suggest that *Dasein* is a universal condition which in effect results in an essentially reductionist approach to the study of the past? Surely, historical context is fundamental to the constitution of Being. Therefore, *Dasein* is potentially highly problematic as it is ahistorical. The concept of *Dasein* certainly offers an interesting heuristic device for understanding how people are both in and outwith their world. Yet, we must question whether *Dasein* offers any further understanding of Being at a particular time, context or place. Furthermore, the development of the concept of *Dasein* took place in dualism to the concept of 'they' (*Das Mann)* resulting in the creation of the Other. In effect the claim that Heiddegers work has over come a dualism is not entirely true as it has been done by a slight of hand through the definition of an authentic *Dasein* and inauthentic other (Waterhouse 1981, 82-3, 179-92; Wolin 1990, 33-5, 50-51).

The work of neither Tilley nor Thomas is strictly a phenomenology. Which in itself is no bad thing as the phenomenological method has several problems. For example, despite the good intentions of a phenomenological method, it must be asked can we actually suspend all our

preconceptions before studying 'the things themselves'? We may not adhere to a particular theoretical stance during a study but our Being is still permeated with the World as we know it. This embeddedness in our own world means that we inevitably bring preconceptions to how we perceive that world. Furthermore to turn our attention to the things themselves presupposes that the things themselves are things in themself and therefore have a self identity which may involve reference to Other (Sallis 1983, 117), a situation which brings us back to the subject/object dualism.

Bearing in mind that, as they develop a theoretical framework as opposed to suspending their presuppositions, neither author is practising phenomenology it is perhaps surprising that no theory of the senses has been developed. The work of Tilley may have benefited from a theory of the senses, for example, in terms of a visual understanding of landscape he does not consider the difference between perception, seeing and looking and how these are different in terms of sensory experience. Indeed, the nature of perception and its relationship to the senses is largely untheorised in recent archaeological studies of phenomenology or perception (e.g. Johnston 1998). A more critical appreciation of the inter-relationship between the senses and perception is fundamental to archaeology as an important way in which human groups differ is in their sensory experience of the world, with different groups prioritising different senses. Thus, our experience of a phenomena will be in part socially defined and entirely different from a member of another group's experience of it. How then can we begin to talk about that experience? I will suggest that it is the physicality of the objects, which we encounter as archaeologists, that allows us to discuss how they may have structured human action in the past. Thus, the real value of phenomenology is to turn our focus of study, at least in the first instance, to the objects themselves instead of trying to preconceive them within models or intepretative schemes as to what they may represent. The next sections will go on to consider the significance of sensory differences in relation to material culture.

5.2 A cultural sensorium

The human senses are a fundamental means of how we come to know and understand the world. Without our senses the world would not exist to us; the Being-in-the-world is a sensuous Being. The following section (5.2.1) will review how the human senses operate in the world. It is the aim of this section to consider the senses in cognitive terms, what the abilities of particular senses potentially allow us to know. Knowledge of certain abilities and limitations of the various senses may inform our interpretation of material culture in terms of how people produce and engage with objects and architecture. I will not, however, consider the

details of neurology or sensory coding of the senses as it is outwith the scope of this particular study. It is important to stress that, in most studies of sensory perception, the five senses outlined below are considered to be no more than a cultural construct of Western thinking stemming from Aristotle. Depending on what criteria we utilise to define an individual sense there are clearly many more senses than the five senses we usually define. The important point, however, is that individual senses do not usually operate independently. None-the-less, I present the five senses in this manner as it is the way most people still consider they experience the world.

5.2.1 Sensory perception

The information within this section is largely from Gibson's (1968) *The Senses Considered as Perceptual Systems*, Goldstein's *Sensation and Perception* (1996) and McBurney and Collings's *Introduction to Sensation/Perception* (1984).

Vision (Fig 27)

The human visual system is a mechanism to convert electromagnetic energy into electrical signals. It is important to distinguish between two different types of source of electromagnetic energy or light; radiant light and ambient light. Radiant light comes directly from a luminous source, such as the sun, a fire or candle and ambient light is light reflected back from an object, be it the earth, a wall or a chair. The eye accepts light through the cornea and pupil that is focused with the lens on the retina. The rod and cone cells of the retina transform the light energy into electrical signals through a series of neurons. The signals are transmitted along the optic nerve to the visual cortex in the brain where the image is perceived.

There are about twenty times more rods than cones in the retina. Cones, which are responsible for colour vision, only function during daylight and rods, which are more sensitive to light, function during night. The rods and cones are not evenly distributed across the retina. They are totally absent at the point the optic nerve leaves the eye, resulting in the blind spot in human vision because of the lack of receptors at this point. The second point where distinct variation in distribution occurs is at the fovea. The fovea is an area on the retina that contains only cones. Another way in which rods and cones differ is in how they connect to the other neurons in the retina: bipolar, horizontal, amacrine and ganglion cells. Many more rods connect to individual ganglion cells than cones to ganglion cells, and in the case of the fovea there is nearly a one to one connection between cones and ganglion cells. Therefore the area of visual cortex used to process information from the fovea is out of proportion being much magnified. The fovea is, therefore, responsible for high acuity allowing us to see details. Whenever we

look directly at an object its image falls on the fovea. Clearly, because of the different light conditions which the cones and rods of the eye operate in the fovea does not operate at night time.

The human eye is sensitive to a spectrum of light with a wavelength between 380 nm to 760 nm. Human vision is able to process light energy within this visible spectrum to distinguish a variety of levels of information. Much of this information we take for granted on a day to day basis such as the perception of colour, objects, movement, depth and size.

Human vision is highly sensitive to colour and can distinguish up to 2000000 different colours of varying hue, brightness and saturation. Different objects have different colours because of the amount of light reflected back off the object. Reflectance that is broadly equal across the spectrum is perceived as achromatic colours; black, white and gray. Reflection of light is, however, often selective with some portions of the spectrum being absorbed by the object, the chromatic colour perceived being the portion not absorbed. Hence at night time, without the moon or an artificial source of light, objects, if visible at all, have no distinct colour, as little light is available to be reflected back.

The position of two eyes at the front of the head results in two slightly different perspectives. The two eyes are, therefore, co-ordinated in movement by compulsory conjugation to produce binocular stereoscopic vision that results in the perception of depth. This is fundamental to the ability to distinguish objects from their backgrounds.

Hearing (Fig 28)

The ear is perhaps the most complex of the sensory organs with an outer, middle and inner part. The outer ear is comprised of the pinna (the fleshy protuberances we call our ears) and an auditory cannal which leads to the tympanic membrane or ear drum. Hearing is through the vibration of objects reaching the sensory receptors within the inner ear. These vibrations manifest themselves as changes in air pressure or sound waves. Frequencies of between 20 and 20,000 Hz can be heard by the human ear. The auditory cannal can, through resonance, amplify sounds with a frequency of between 2000 and 5000 Hz.

The tympanic membrane vibrates when airborne sound waves reach it and transmits the vibrations to the middle ear. Small bones within the middle ear called ossicles are then set into vibration. These bones amplify the vibration, by at least 22 times, to compensate for differences in density between the middle and inner ear.

The inner ear comprises of the structures of the cochlea and semicircular canals. The semi-circular canals play a fundamental role in balance of the human body, but it is the cochlea that allows hearing. The cochlea is a liquid filled structure which is divided into three parts by the cochlear partition; forming the upper scala vestibuli, the central scala media and the lower scala tympani. Attached to the cochlear partition is a structure called the organ of Corti. The organ of Corti has three significant structures to it, a basilar membrane, the tectorial membrane and hair cells. When vibrations are transmitted from the middle ear to the inner ear the cochlear partition moves up and down, vibrating at the same frequency as the middle ear. This means that the organ of Corti also moves up and down. Therefore, it is the hair cells within the organ of Corti which ultimately receive the vibrations which have entered the auditory canal. When they bend they result in the release of a chemical transmitter which causes a nerve fibre to transmit electrical signals to the brain.

Hearing allows us to monitor the world around us. Vision necessarily has a restricted field because of the position of our eyes on our head. In contrast the sense of hearing perceives stimuli from all around. We are always immersed, therefore, in our audio-world and our visual world is one of constant revelation and becoming. How do we manage to tell which direction sounds emanate from? When we consider this question the reason for having two ears becomes apparent. They allow us to locate sound through differences in interaural time and intensity of sound. A sound straight in front of a person will reach both ears at the same time but a sound coming from one side will reach the furthest ear at a later point in time which gives an interaural time difference. Interaural intensity difference occurs because of the head creating a shadow with high frequency sounds bouncing off the head resulting in a lower intensity of sound on the distant side of the head. It is important to note that interaural time difference and intensity only act as cues to sound direction as opposed to giving a location of the source of sound. Although it is not clear whether they exist in humans, there is, however, evidence in other species of panoramic neurons which locate sound.

Auditory location is less precise than visual location. Sounds directly in front of a person may have a location error of up to 3.5 degrees from the actual source whereas sounds behind may have a location error of up to 20 degrees.

An aspect of sound perception which is of great relevance to archaeological studies of architecture is the contrast between direct sound and indirect sound. Direct sound is perceived directly from the source but indirect sound is reflected off architecture such as ceilings, walls and floors. Thus, the acoustics of a building depend on the proportion of indirect sound that is absorbed or reverberation time.

Touch (Fig 29)

The skin is one of the largest organs of the human body and protects us from chemical and bacterial infection. Skin is important in its role in defining the inside/outside of a being, it allows us to sense our limits of being and the world we are within through touch. The sense of touch is cutaneaous sensations through the stimulation of skin receptors. Four different receptors are located within the dermis of the skin; Merkel receptor, Meissener corpuscle, Ruffini cylinder, and Pacinian corpuscle. The different receptors specialise in perceiving different kinds of frequencies of stimuli: with the Merkel receptor pressure, Meissener corpuscle flutter, Ruffini cylinder buzzing through stretching of the skin, and the Pacinian corpuscle vibration.

High tactile acuity is found on the hand, foot and face where fine spatial discrimination is required. Like the fovea in the eye these areas of high tactile acuity have a larger proportion of cortex assigned to them. The finger tips of the hand can be considered as analogous to the fovea of the eye in terms of their high sensitivity. The folded surfaces of the finger tips, known as our finger prints, may be involved in tactile stereognosis (Quilliam 1978, 5).

The sense of touch is not only the feeling of objects against the skin but, although they may be classed as separate senses, also involves the perception of temperature and pain. Temperature is monitored by thermoreceptors; warm fibres which respond to 30-48 degrees C and cold fibres which respond to 20-45 degrees C. Pain is felt through stimulation of nocireceptors by intense pressure, extreme temperature or burning chemicals e.g. a human begins to feel pain at about 45 degrees C.

The sense of touch along with proprioception and kinesthesis, which again could be considered as separate senses, form the somnasensory system. Proprioception is the sensing of limb position and kinesthesis is the sensing of the motion of our limbs. Wrapped around specialised muscle fibres are muscle spindle receptors, mechanoreceptive fibres which sense movement in muscles.

The chemical senses (Figs 30 & 31)

Included amongst the chemical senses are those of smell and taste. In contrast to the other senses, the stimuli responsible for smell and taste become part of the body through breathing

and eating (Scott & Giza 1995). It has been long recognised that the sensations of taste and smell have a large emotional element with good and bad tastes and smells being distinguished perhaps more sharply than concepts of beauty and ugliness (Classen et al 1994).

The sense of smell is the perception of airborne molecules in contact with receptors in the nose. The receptors for smell are located within the olafactory mucosa of the nose. The receptors are olofactory cells from which fibres run to the olofactory bulb. Although able to detect one molecule of odorant, the human sense of smell is less acute than smell in other animals because of a fewer number of receptors in the nose.

Odors have been attempted to be classified in a number of ways. A well known attempt is Henning's odor prism which has six corners representing different qualities of the odor; putrid, ethereal, resinous, spicy, fragrant, and burned. Interesting although Henning's odor classification is, it tells us nothing of how olfaction works on either a physiological or a cognitive level. Experimental work on how odor identification suggests that there is a close correlation between knowing the name of odors and the ability to identify them.

The sense of taste is the perception of liquid molecules in contact with receptors in the mouth. It is generally agreed that there are four basic sensations to taste; salty, sour, sweet and bitter. Tasting begins with the tongue which contains about 10,000 taste buds. These taste buds are located in a series of structures called papillae, which have various different forms (fungiform, foliate and circumvallate) located at several places on the tongue. Each taste bud is composed of several taste cells all of which protrude into a taste pore. Different chemicals touching the end of the taste cells results in a different response on receptor sites; with bitter and sweet binding to them releasing chemicals into the cell, sour substances blocking channels and salty substances pass straight into the cell.

The sensation of different types of taste is not even across the tongue with the tip of the tongue being sensitive to salty and sweet. The edges of the tongue are most sensitive to sour and the front detects bitter tastes.

5.3 Cultural sensoria

It is easy to separate the five major senses for the purposes of describing them. In our daily life, however, we orientate ourselves in the world and undertake actions which are informed by all our sensory perceptions. Although at times our attention is captured dominantly, although

not exclusively, by a single mode of sensory perception (e.g. through music (aurally), perfume (olofactorally), television (visually) this happens without really thinking about which particular sense we use. Indeed, most of the time we are using all our senses to inform us about the world we inhabit. How then do we come to understand this combination of the senses.

5.3.1 A combination of the senses

Perception is a difficult subject with no unified theory to explain all complexities of sensory perception and human understanding. Most recent attempts to explain human perception would consider that there is not a one to one relationship between the world and our sensory perception of it. That the reality of the world may differ from our sensory perception of it is exemplified by the case of illusions and hallucinations. Something is illusory when our perception of something is in conflict with 'objective reality'. As many illusions can be a red herring, however, to understanding how we perceive the world (Gibson 1968, Deregowski 1980) this may not be a productive avenue to follow. Let us, instead, consider how the senses may operate in combination.

If taste is the sensation of taste buds what then is flavour ? Flavour can be considered as the combination of sensory experiences when material is taken into the mouth. It is through a combination of the sense of smell and taste that flavour is perceived. Odor stimuli from the food passes through the nasal pharynx to the olofactory mucosa. This is strikingly illustrated when a drink with a distinctive taste is taken holding the nose shut and then contrasted after a swallow with a drink with the nostrils open: flavour. Our experience of flavour is not confined to taste and smell but also through the somnasensory system of temperature, touch, and pain, the visual 'feast for the eyes', previous experiences of eating such material, and how such material is conceived in social and religious terms (e.g. cuisine, stable goods, luxuries, feasting, abstinence). Flavour is, therefore, a good example of how the senses combine to produce a holistic social experience of an object. In a similar way that flavour can be considered as the socialisation of taste, smell can be understood in terms of aroma.

Other than which organs are responsible for the various senses they differ on another way in the type of the bodily experience. A visual experience has traditionally been considered a surface experience, it is the surface of an object which is visible to the eye, which from a distant can result in the gaze or view. In contrast, the other senses involve an increasing degree of intimacy. Touch is the physical engagement with an object, we can not keep the respectable distance that vision allows, as the surface of Being is in contact. Sound affects us on a more

intimate level; at low levels we must strain our body to the source of the sound to hear better, at high volumes we not only hear the sound but feel the force of that sound; touch therefore ultimately becomes involved. The most intimate of the sense, however, are the senses of smell and taste as something enters our body. With taste we usually have degree of choice, albeit a culturally constrained choice, as to what we eat. With the sense of smell, however, we often have no control as to what we smell. Vision can be obscured by architecture or by the rise and fall of the contours of the land when we move and by the encroaching darkness. Smells are not affected to this extent, they can seep beneath cracks under the door, waft from the inside of a building (remember the smell of bakeries and breweries), indeed phantasm like, strong smells can pervade our body and exude from our pores.

As the different senses affect our body on different levels of intimacy we are constantly reminded of our corporeal self. As discussed above (see section 5.1.1) the landscape is not the scene before us but the visual world we are immersed in. This visual world has a series of different scales of perception, as we are able to perceive distance and depth, the world is perceived in three dimensions. Within the foreground individual buildings, animals and people can be seen, farther afield the eye can distinguish the patchwork of river, field, forest and settlements. In the distance, prominent peaks, clefts and ridges can be identified from one another. Similarly, the senses presents us with a knowledge of smellscapes and soundscapes. For example, the experience of sound is experienced on a series of different levels of intensity. Different sounds will carry across the landscape to a greater or lesser degree depending on their source, acoustics and volume. There will be a general background of noises which are largely unnoticed, other more prominent or uncommon noises will attract further attention perhaps causing one to briefly turn their head from the task at hand, other sounds may bring about an abrupt halt and change of task. Our understanding of place is therefore through a combination of these different sensory scapes which combine to form the World-in-Being.

Considering the social understanding of flavour and aroma raises the issue of hedonics or the study of pleasantness. Hedonics recognises that our response to flavour and aroma are often conceived in terms of what is pleasant or unpleasant. This response can involve a powerful emotional content which usually relates to the biography of experience. Experiences which are often culturally shaped during ontogenesis.

Perception is, therefore, more than the sum of all the parts. We may be able to see an apple, touch an apple, smell an apple and taste an apple, we can perceive the apple by all the senses but our perception of it is through the *active interrelation* of all the senses. How we perceive it will also depend on what apples mean; exotic imports or ready to hand on the tree, taboo or

food, delicious or distasteful, a healthy snack or a missile. The key aspect of understanding how the senses work in combination is that our sensory perception of an object is usually active. Significantly as Gibson notes 'action-produced stimulation is obtained... by the individual...not imposed' (1968, 31). Gibson distinguishes between the passive senses to see, to hear, to feel, to touch and to experience smells and tastes and perception that stems from the active orientation through looking, listening, touching, smelling and tasting (ibid. 49-50). Thus we rarely sit and passively view an apple: we are normally in the act of passing by it, buying it, glancing at it when walking past, eating it. Usually perception takes place when we are engaged in a tasks or activity whilst using a variety of senses (Coulter & Parsons 1990). During certain of these activities particular senses may be more privileged or powerful but all the senses are in operation. This interplay between emphasising particular senses but at the same time relying on the other senses is particularly striking when considered in a ritual context. It is, however, in this ritual context where the senses would become overpowered by sensory information if it were not for the orchestration if the senses through performance (Sullivan 1986, 7-8).

5.3.2 The sensory order

Something we may often take for granted is the privileged, at times ocularcentric, position that vision has had within western thinking (Tyler 1984; Howe 1990, 1991a; Bregman 1994, 1-3; Jay 1994, 1996; Rodaway 1994). In the Western world there has been a repression of smell as an important sense and it is clear that in many other cultures that the senses of smell and taste are closely related in many cosmologies (Classen et al 1994). In other cultures vision may not have such a privileged status with, for example, the sense of hearing (Stoller 1984; 1989) or odor being considered most important (Siegel 1983). How the 'senses' are conceived and emphasised, therefore, can constitute entirely different sensory orders.

The sensorium has been defined as the 'entire sensory apparatus as an operational complex' (quoted after Ong 1991 in Howe 1991b, 167). The emphasis given to alternate senses varies amongst different human groups, indeed the type and number of senses recognised is neither universal, for example in the west the five senses of touch, taste, vision, smell, sound, in contrast to the Hausa who only recognise two senses; the ji-complex and sight (Ritchie 1990; 1991, 195). Nor, like the Shipido-Conibo Indians of Peru experience of glyphic books, are senses immediately comprehensible in ways familiar to our experiences (Howe 1991a, 5-6). Furthermore in contrast to our monomodal categorisation of the five senses, senses operate and, like the Shipido-Conibos experience of glyphic books, can be understood pluri-sensorially

(ibid.). The study of sensory order within a particular society is even more complicated as there can be a series of different sensory orders which vary with age, gender or even status (Howes & Classen 1991, 259). The balance of sensory orders, and how they are understood, is a social construct as opposed to biologically determined (Classen 1991). Therefore, the sensorium of any society will depend on the balance of sensory orders and how the senses are explained in relation to the experience of the world. Clearly an important aspect to bear in mind in the study of sensory orders is that they change with time; historically, on an annual cycle, with the daily and monthly changing physiological cycles of the body, and with the process of ageing. The sensory order is, therefore, a powerful value system which allows the world to be categorised and understood. These systems can be used to classify the place of different groups of people within society (Feld 1984; Howes 1991a; Classen 1990; Classen at al 1994). Maintenance of the dominant sensory order is necessary by privileged groups to ensure their position in any society.

5.4 The perception of objects

How the individual senses operate on a physiological level has been outlined in the previous section. We then considered how it is through the combination of the senses that complex emotions and meanings are created and understood. What I wish to consider now is how the senses combine to create an understanding of a particular object. Perhaps the most pertinent question is how are objects perceived? Object perception is so taken for granted in archaeological studies that it would seem that an appraisal of how objects are perceived may give some indication of how objects come to have meaning, and whether there is any relationship between the act of perception and the ultimate meanings of objects.

When asked how objects are distinguished from one another or from their background, we may answer that it is because of differences in shape and colour. Colour perception is, indeed, an important part of how we distinguish the boundaries of different overlapping objects. Perception of an object's colour does not change greatly with most light conditions. This is partially through a memory of colour of particular types of object but significant is how it is perceived in relation to its surroundings. How is it that we can distinguish distinct entities within a complex scene which in terms of sensory input is a mass of different lines and colours.

One school of thinking which may give some insight on how objects are perceived is that of Gestalt psychology. Gestalt psychologists considered that in terms of sensory perception 'the whole is different from the sum of the parts'. This idea is supported by our experience of some

examples of illusions where the 'gaps' in a visual image are filled in during the act of perception an experience which proves there is not a one to one relationship between sensory stimuli and perception.

Gestalt psychologists were interested in establishing how we organise the small parts of a visual image into distinct parts or objects; for example how do we distinguish an object from its background. Six main Gestalt principles outline how perception may be organised. The principles of Gestalt psychology have received criticism as instead of explaining why we perceive things; they tend to describe them. The principles are, however, worth outlining as they give an indication of how objects may be perceived as organised.

(1) Principle of simplicity (Praganz)
It is thought that any pattern will be seen in such a way that the structures composing it are as simple as possible e.g. when we look at fig 32 we would normally consider the arrangement to be composed of a square and oval as opposed to a series of three different shapes.

(2) Principal of Proximity
If we look at figure 33, we see a series of vertical rows of alternating squares and triangles instead of horizontal rows of squares and horizontal rows of triangles. This is because of the principle of proximity that considers how things near to each other appear to be grouped together. (This may be important in how we come to understand monument groups)

(3) Principle of similarity
This considers that similar things appear grouped together. Therefore, in figure 33 the squares are grouped with other squares to form vertical rows not alternately with circles to form horizontal rows. Grouping such as this can occur with other visual information such as colour, orientation and size.

(4) Principle of good continuation
This principle considers that points are seen to be connected in a way that follows straight or curving lines to form the smoothest path. This is another reason why in when look at figure 32, at least in the first instance, we perceive an oval and square.

(5) Principle of Common Fate
This considers that when things are moving those that move in the same direction will be grouped together.

(6) Familiarity

Many things form groups when they appear familiar or meaningful. What we perceive is partially a result of the anticipation of what we perceive means.

These principles suggest some of the ways in which we may distinguish individual objects or groups of objects within complex scenes. They do not, however, enable us to say how we perceive objects.

Another way it has been suggested that objects are perceived is in a number of stages; the first of which breaks down an object into it elementary units such as textons and geons. It has been demonstrated that different perceptual separation occurs, instantaneously in a pre-attentive stage, through different textural fields (textons), such as orientation or line crossing (Julesz 1981, 1984) (Fig 34) or through identification of a series of volumetric primitives (geons) (Biederman 1987) (Fig 35). Object perception occurs when a three-dimensional object is perceived when more focused attention takes place. This is then compared to representations within the memory, with an object being identified if a match is found. This process of object identification takes place almost instantaneously in most cases, the exceptions being when we have to wrack our brains when our memory fails or when we have not encountered a similar object.

Whilst these explanations of how objects are conceptually understood offer useful analytical tools to the study of material culture they do not explain how objects are perceived. A variety of psychological experiments have indicated that when people are asked to focus there attention on one aspect of a visual field (position), and are then questioned on another part (e.g. colour) they find difficult or impossible to answer on the part they were not focused on. This can be further exemplified when we consider the reliability of eyewitness testimonies (see below).

One of the main problems with the above attempts to understand the human perception of objects is that they treat perception as a mental process as opposed to an integral part of the bodily experience of the world. Although the Gestaltist principles of organisation recognise the importance of motion for distinguishing between objects (foreground and background) the observer of the object is implicitly static. The scene that is analysed is essentially static representing snap shot (aperture) vision instead of ambient vision or ambulatory vision (Gibson 1986). Fundamentally, although the Gestaltist principles or the concepts of textons and geons may offer heuristic devices they do not consider the context of observation. In contrast, as the

context of observation is central to the ecological approach of Gibson, it potentially provides a more useful interpretative approach to the perception of objects.

Of particular interest is the implication of Gibson's concept of affordances;

> 'affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. ... It implies the complementarity of the animal and the environment' (ibid., 127).

We can, therefore, consider affordances as potentialities within limits or as Gibson puts it 'an affordance is an invariant combination of variables' (1986, 134). As Gibson continues to outline, an object is defined not by what it is called but by how its is used or by its affordances. Meaning in this sense, of a particular object, therefore stems from the bodily engagement with it.

> 'affordances are properties taken with reference to the observer. They are neither physical nor phenomenal' (ibid.)

The concept of affordances results in us avoiding many of the perceived problems with Cartesian dualisms, which underlie much social theory, as

> 'an affordance is neither an objective property nor a subjective property; or it is both if you like (1986, 129)'.

Eyewitness testimonies are a good example of how in most circumstances our engagement with objects is in the context of the life world where we rarely have the opportunity to step back and view a scene in analytical terms (McBurney & Collings 1984, 339-41). We are usually within the sphere of the life-world. Our perception of objects when we are within the life-world is often inattentive, they fill our vision and we are aware of their presence but most are not the focus of our attention at any one time. In many respects what we do not consciously notice in a scene is as important to the structuring of it and our ultimate understanding of it as is what we do notice.

It is clear from the preceding discussion that most studies of material culture have been concerned with how objects are understood in terms of there visual perception. If we consider how we come to know objects through the other senses do we come to another answer as to how objects are understood? For example, let us consider haptic perception, the perception of

three-dimensional objects by touch. To begin with, we must distinguish, however, between active and passive touch. Active touch being the deliberate engagement with an object and passive touch being incidental, with an object meeting the skin. The main difference is that with both passive and active touch, the skin receptors are used but with active touch those in the active joints and tendons are also used.

The tactile perception of a three-dimensional object is usually an active experience involving information on touch, texture, temperature and the movement and position of the hands and fingers in order to identify an object through touch alone (Gibson 1968, 123-9). A variety of exploratory procedures involving stereotypical hand movements may be undertaken during the identification of an object (Quilliam 1978, 12; Lederman & Klatsky 1987; 1990). For example, the application of lateral motion and pressure establishes texture but through enclosure and contour shape is established (see Fig 36; Table 12).

The manipulation of an object by the fingers and hands effectively overcomes two-dimensional sensory perception of the skin and offers an excellent means for identifying known objects (Klatzky et al 1985). Haptic perception concentrates on a single object and is not, however, comparable with vision which, with a glance, can take in a whole scene (Lederman & Klatzky 1987). It can be suggested that in the case of some objects it is their haptic qualities which are more important in how they are classified and understood.

5.5 Towards an archaeology of cultural sensoria

This final section further considers how perception is socially and culturally constructed and addresses the issue of the cultural mediation of experience. It highlights that the perceptual experience of the world is not simply the result of individuals sensing phenomena but of the enculturation of certain perceptual propensities. Finally, I discuss the implications of the culturally mediated nature of perception, from a $20^{th}/21^{st}$ century's perspective, in relation to the development of archaeologies of cultural sensoria.

5.5.1 The socially and culturally constructed nature of perception

Previously (section 5.3), we have considered how the different senses work in combination during perception, which results in experience of the world, and highlighted that different cultures emphasise the senses differently to form varying cultural sensoria. Let us now begin to consider how the different senses are socially and culturally constructed:

Touch

The socially constructed nature of tactile or haptic experience can be exemplified through different cultural attitudes to personal and social space. Although bound with the temporal rhythm of life, the enculturation of touch is most evident through spatial relationships.

The nature of our tactile experience of the world is socialised from an early age. This socialisation of the haptic system is manifest through the social attitudes to acceptable proximities between people (Proxemics), the degree of physical contact between people and the levels of public/private intimacy in inter-personal relationships (Kinesics) (Birdwhistell 1971; Burgoon & Saine 1978; Druckman et al 1982). The type and degree of inter-personal contacts, thus, all relate to value judgements as to appropriate types or levels of perceptual experience.

Similarly the nature and form of architectural construction and how it is engaged with represents another means through which the body and consequently sensory perception is socialised (Parker-Pearson & Richards 1994). This variation in tactile experience of the social and cultural world is, perhaps, most evident in the organisation of social space between different cultures. For example, in contrast to the Western tradition of private rooms for individuals, in many other cultures dwellings have no private rooms for family members.

The Chemical Senses

As discussed above (section 5.3.1), the perception of taste and smells are socially expressed as aromas and flavours. Of all the senses, smell and taste are probably most emotive. Certain places will be associated with certain smells/tastes and the experience of those smells/tastes in novel places will evoke original context experience and the associated meanings or emotions. The association of certain smells or tastes with places relates these senses to wider social geographies.

For example, the sense of smell will be emphasised/experienced differently between gatherer/hunter groups and those groups living in permanent domestic dwellings. For many gatherer/hunter groups, the sense of smell is particularly important in locating and procuring food and will be a perceptual basis for orientation in the world. Such smells are manifold but dispersed and often very subtly present. In contrast, many groups based in permanent domestic dwellings will experience a more intense and mixed range of smells in areas of domestic activity through the enclosure of smoke, aromas from food, scents of animals contained.

As with the other senses novelty and habituation can heighten or dull taste or smell, the temporality and spatiality of smell-scapes relate, therefore, to wider forms of social practice.

The potent nature of the experience of smells and tastes has resulted in different cultures historically referred to aromas and flavours in wider cosmological systems (Kern 1974; Classen et al 1994; Gronow 1997). Such potency of smell is particularly marked by the low tolerance for body odours in the west and the ideologies that underpin such attitudes (eg McBurney et al 1977).

Hearing

The sonic-environment of any culture is largely socialised through people's experience of language and music. For example, Gell (1995) proposes that the languages of peoples living in densely forested environments are particularly rich in phonological iconisms such as onomatopoeia. He raises the limitations of our cultural conception of sounds by asking the question 'What is the sound a mountain makes?' and answers through the example of the Umeda word for mountain *sis*: "the sound that a mountain makes". Gell analysis of phonological iconisms in the Umeda language highlights the way in which language and consequently sounds are not merely an explicit form of dialogue but an inherited system of attitudes and values in the world.

The socialisation of the perception of the world can also emerge through linguistic mimicry. Many societies imitate the animate and inanimate sounds of the world around them (eg Saami and Inuit) (Rodaway 1994, 109-12). Such linguistic mimicry results in a different perception of the inter-relationship between human groups and their ecological environment. Attitudes to music are also particularly important, as linked to embodiment and rhythm through movement and dance (e.g. Turner 1988; Beeman 1993). Similarly, the form of architecture of buildings and monuments has consequences on the direction, intensity and quality that sounds are experienced (e.g. Watson & Keating 1999). The experience of sounds is not, however, purely spatial, as rhythms of many sounds are effectively temporal systems. This is most explicit in culture where time keeping has been systemised and mark particular times or passing of blocks of time through sounds such as a church bell or drum.

The social traditions of music, linguistics, architecture of result in historically different sonic environments. These traditions represent a significant component of the temporal and spatial nature of embodiment and consequently how the world is perceived.

Vision

The socially and culturally constructed nature of vision is most evident in terms of attitudes to visual abstraction through historically different traditions of art and maps. In many cases we are socialised to see the world around. The difficulty that members of many traditional

societies had in perceiving the nature of photographs exemplifies that vision is not simply a sensory experience but is ultimately cognitive too. Such an example of the socialisation of vision may exist amongst the boys and young men of the Abelam, New Guinea. Forge considers that in the use of polychrome two dimensional paintings in the context of the tambaran cult results in the expectation of seeing in two dimensions, as distinct from the three dimensional forms of sculpture (Forge 1970).

Different traditions of representation and perspective are evident through the history of western art; contrast the Cubist and Impressionist traditions. Indeed the social and cultural nature of visual perception is most evident through the emergence of the cartographic tradition resulting in an increasing degree of abstraction in how we represent and conceive of the world. Reference to maps not only changes our sense of geography, our concepts of landscape and place, but also fundamentally affects how we engage with them. We can anticipate certain features in the landscape and can consequently prepare ourselves for there experience prior to reaching them. Whether such cartographic preparation results in a degree of nonchalance, disinterest or eager anticipation it will certainly produce a different perceptual experience than without a map. Clearly, the representational traditions of other cultures develop a propensity to certain form of visual experience but also provide a series of historically grounded visual cues.

5.5.2 The Cultural Mediation of Experience

It is clear that the ecological context of perception affects the nature of our perception (Gibson 1968, 1974). Thus, the colours, forms, textures, audio-properties and smells of the built environment or material culture impinge on the nature of perception in any social context. Indeed, material culture can modify or enhance the perception of the world (e.g. spectacles, hearing aids). Consequently, the cultural mediation of experience is manifest through certain ways that we have been enculturated to engage with and conceive the world. Let us consider two further examples of how culture mediates perception of the world.

The first example is of distinctions between groups of fishers and herders occupying portions of the same landscape in Northern Norway and how they observe the same phenomenon of JASSA but perceive it entirely differently (Meløe 1989). The dictionary defines a JASSA as a 'patch of snow in late spring or summer'. The Saami, however, reserve the word for 'a permanent patch of snow'. In summer the reindeer group together and go to grind the JASSA to cool themselves and in practice it is only those patches that can sustain a large group of reindeer that are JASSA. Thus, in practice it is not the permanence but the hardness of the

snow patch, that allows it to survive a reindeer grinding, which defines a JASSA. In contrast, the fisherman refer to JASSA as permanent patches of snow. In this case, the JASSA are landmarks to navigate. Perception is culturally mediated, therefore, as the observation of the same phenomena is recognised as socially relevant but differently conceived by various social groups.

In the second example, Gell (1995, 237) also raises the enculturated nature of perception in an account of the first experience of the coast and sea by a group of Umeda. The Umeda are a New Guinean forest living people in an environment with limited visual surroundings that abhor distant vistas. When they first encountered the shoreline with sea and distant horizon, they perceived the water as a vertical wall rising into the sky. In the case of the Umeda, their environmental and cultural context not only resulted in certain visual expectations (encoding) and social behaviour but also a greater reliance on acoustic and olfactory orientation in the forested environment.

The Umeda's expectations of how the world is structured is a good example of how we learn to perceive the world. The cultural mediation of perception is not restricted, however, to how we experience landscapes but also how we engage with material culture. As discussed above, (section 5.1.1) the way that we engage the world with our senses is influenced by the nature of our cultural and social context. Yet, our expectations of the experience of the world is not simply a set of anticipated temporal or spatial relationships of engagement. In many cases, our expectations may influence or structure the very way that we conceive of the world. I now wish to develop this point further through briefly considering the nature and role of aesthetics.

Aesthetics is an area of much debate and disagreement about the nature of aesthetics (Oswald 1992), aesthetic attitude, aesthetic experience (Collinson 1992; Zangwill 1998) or aesthetic value (Shibles 1995), the inter-relationship between art and aesthetics (Dziemidok 1988; Wolff 1983) or art, beauty and pleasure (Osborne 1952; Levinson 1996). The origin of aesthetics is in ancient Greek philosophy and was experiential in nature: stemming from Greek *aesthesis* 'perception by means of the senses'. It was during the Eighteenth century that term began to be associated with the perception of art and beauty (Collinson 1992, 111-2). Thus, in a narrow technical sense, aesthetics is a philosophical branch concerned with the principles of beauty and tastefulness. Firth (1992, 15), however, notes a broader definition of aesthetics as 'the study of the conditions of sensuous perception'. Clearly, however, the 'historical, ideological and contingent nature of ...'aesthetics' and... 'aesthetic judgements' is apparent (Wolff 1983, 11). The ideological and political aspects of aesthetics are most evident when we consider the concept of high art. Indeed, aesthetics not only relates to art or to pleasure but also relates to

systems of taste (Bourdieu 1984; Wegner 1992; Gronow 1997).

Aesthetics is not restricted, however, to the experience of art works but also natural phenomena, consequently there is an aesthetic of landscapes, sunsets, etc. Aesthetics is most frequently associated with a certain type of pleasure experienced through works of art. An aesthetically pleasing work of art is often considered beautiful. Yet, aesthetics is not simply concerned with the inter-relationship between art, beauty and pleasure. As Gombrich (1979, 9) notes 'we must ultimately be able to account for the most basic fact of aesthetic experience, the fact that delight lies somewhere between boredom and confusion'. Recognition of the aesthetic significance of a work of art does not necessitate that we, therefore, consider it is beautiful (Hanfling 1992, 53). Aesthetics are not simply concerned with the concept of beauty but also form and the sublime (Hanfling 1992). Collinson (1992) considers that an aesthetic experience is essentially contemplative and that distinterestedness is an essential characteristic of aesthetic contemplation. Thus, the phenomena of contemplation are considered on their own merits. Several approaches to the study of aesthetics have much in common with phenomenology (eg Natanson 1962; Bensman & Lilienfeld 19xx).

The study of ethno-aesthetics shows, however, that many cultures do not have concepts of beauty (Roe 1995, 35) or art (Wollheim 1980; Geertz 1983; Sparshott 1997; Novitz 1998). Without concepts of beauty and art, there can be no aesthetic in the sense we may understand. Yet in other societies material culture or architecture may provide an 'aesthetic locus' (Maquet 1986, 70). For example, Morphy contrasts the aesthetic response of the Yolngu to paintings. Those paintings that are experienced for a relatively short period of time (limited or no aesthetic response) and those that are on more prolonged public display (aesthetic response). He notes that the distinction has nothing to do with the length of experience but relates to the intention of the artist (1992, 186-7). An important factor in producing an aesthetically pleasing Yolunga painting is the quality of *Bir'yun* or 'brilliance'. Morphy considers, however, that although we may experience the same visual properties of an aesthetically pleasing Yolunga painting (setting aside whether we find it aesthetically pleasing) we would not recognise it as aesthetically pleasing to the Yolunga without translation (ibid 202).

What is, therefore, clear is that the criteria for what is aesthetically pleasing is historically and culturally specific. Aesthetically pleasing objects are those that successfully embody traits, characteristics, or forms of value systems. Value systems that themselves are encountered and sustained through histories, mythologies, activities, sounds and smells.

The concept of aesthetics is a good example of how we come to the world with certain

expectations or preconceptions about how we can experience it. The concept of aesthetics is modern, it has been suggested that there is an increasing aestheticization of modern society (Gronow 1997, 167), and has, therefore, limited direct applicability to past cultures. It does, however, highlight that in the past the perceptual experience of the world was probably embedded in conceptual systems that referred to material culture and as such was a way of creating or sustaining value systems, through reference to pleasure or taste.

5.5.3. A product of our own time?

It has been suggested in this chapter, that one of the problems of recent phenomenological approaches to the study of prehistory is that they lack a theory of the senses. Now it is clear that some of the smells, sound and tastes which would have been experienced in the past, may be interpreted from archaeological remains, e.g. palaeo-environmental evidence of extent and texture of tree cover, for evidence of flowering or scented plants, evidence for food will suggest elements of the smells and tastes which may have been experienced, etc. These aspects of the sensory order are, however, difficult to identify archaeologically. Apart from the visual the one other element of the sensorium that survives to the greatest extent, archaeologically, is evidence for the experience of touch. It has been stated that an understanding of the haptic system is important to the archaeological study of material culture. The artefacts and monuments that we try to understand are predominately studied from a visual basis but they are open to study in terms of their tactile qualities too.

It has been noted that most types of sensory perception have active and passive forms. Active perception can often be observed to occur in several different stages of exploration. These different exploratory stages of material culture may have important implications to archaeological interpretation of how objects were understood in the past.

It is clear, however, that the significance of these remains, as understood in the present or the past, does not lie in individual objects themselves but in how they were understood in relation to one another. Objects are never perceived in isolation as they are present within a visual field, or as part of a soundscape or smellscape. They are usually viewed in groups or in association with other phenomenon. As attention changes some objects come to the fore, become the focus of attention, and others fade into the background. Objects are rarely viewed in isolation from other objects. The idea that these remains would have been understood relationally in terms of their associations, contexts and history is fundamental to any interpretation of them. As archaeological artefacts, their history now involves a new and different phase of engagement that of archaeological interpretation. We have already discussed

the cultural mediation of perception in this chapter. How then as culturally mediated archaeologists can we ever experience the past in anything but our own terms? While we cannot entirely escape our 20th/21st century perspective, an awareness of the potential variation in human sensory perception should make us more self-critical of our archaeological interpretations. We may not be able to escape our culturally mediated perspectives but we can be sensitive to how they may influence our exploration of the past.

This chapter has considered human perception in terms of the senses and suggested that how the combination of senses produces perception through the active human body has implications to the archaeological study of material culture.

Chapter 6

Perceiving the monumentality of objects

Introduction

This chapter will continue to develop the approaches raised in the previous chapter. It has been proposed in chapter five that one of the shortcomings of recent phenomenological archaeologies was that a theory of the senses, or perception, had not been developed. This lack of a theory of perception leads to a situation where material culture is considered largely, albeit at times implicitly, in ocularcentric terms. It was, therefore, suggested that fundamental to the practise of archaeology is the recognition that the senses are actively inter-related and in the main that human perception is embodied. Furthermore, it was suggested that the implication of a greater awareness of different sensory orders may lead to more sensitive and self-critical interpretations of the past. It was proposed that this approach requires us to re-conceptualise how material culture may have been understood in the past and it is this aspect which I wish to develop in this chapter. The first section of the chapter will consider how archaeologists have approached the interpretation of material culture in general and the second section will consider how monuments, in particular, have been conceived in recent years. Ultimately this chapter aims to develop the ideas of the cultural sensorium and embodied perception in relation to how people interact with and understand objects. This has implications not only to how people may have utilised material culture in the past but also to how, as archaeologists, we interpret past remains.

6.1 Material Culture

6.1.1 Archaeologists and objects

I would define the discipline of archaeology as the study of past societies through their material remains. Material culture is any object utilised by people ranging from the picking up and use of an unmodified pebble as a hammer-stone to the most complex composite artefact such as a monument. Until recently, however, there had been limited theorising about the relationship

between society, human action and material culture. The relationship between each was either implicit or was addressed in passing in relation to other issues, such as the cause of social changes. How then do archaeologists consider how objects are understood and what they may mean? To begin to answer this question I want us to illustrate how archaeologists have historically come to interpret material remains. The history of archaeological thought has been well covered in recent years (Trigger 1989; Hodder 1991) and all I propose to do here is highlight several of the major changes in the approaches to the study of archaeological remains. Any such broad brush approach necessarily masks the complexity of the development of material culture studies, thus it is important to stress that there was not a simple linear development from one phase to another and that there was considerable diversity within each approach. There are four approaches to the study of material remains which I wish to distinguish; Object = Object, Object = Culture, Material Culture = Process, Object = Symbol.

Object = Object

This approach has its origins in the antiquarian tradition which considered that objects were the object of study in their own right. In particular, the generation of sequences of objects and typologies was a central concern to this approach. This approach has never entirely disappeared with a fetishism for the object manifesting itself in a variety of different contemporary forms.

Objects = Culture

This approach has its roots in the traditional or normative archaeologies which emerged during the first part of the twentieth century. Like the antiquarian approach, culture history was data driven which resulted in a belief that sequences or cultures could be better defined by further data collection. Although it was clear that culture was considered to provide the link between people and artefacts there was limited explicit theorising about the type and degree of this relationship. It was Childe who made the clearest statements about what constituted the culture historical approach:

> '*Archaeologists define a culture as an assemblage of associated traits that occur repeatedly*' (1951, 30)

> '*Similar assemblages of archaeological types are found repeatedly associated together because they were made, used or performed by the same people at the same time. Different assemblages of associated type occur at the same time because they were made by different peoples.*' (1956, 111)

Material Culture = Process

The development of processual archaeologies in the 1960s and 1970s led to a proliferation of different approaches to the study of objects and material culture. Many of these involved the application of new analytical techniques, methodologies and, perhaps most fundamental, a change in the philosophy of the object. The archaeological object was now considered a means to study, not just culture, but the dynamics within culture. A central concern with many processual studies was the quest for cross-cultural generalisations, one of which was the correlate between material culture and human behaviour (e.g. Schiffer 1976, 1988). A notable area of study which emerged out of processual thinking was a prolonged debate as to the relationship between style and function in material culture. This need not be considered in detail here as the history of this debate has recently been well reviewed (Shanks & Tilley 1987b, Boast 1997).

The contribution of processual archaeologies to the practice of archaeology have been significant, particularly in term of methodological developments and an awareness that model building and theory are a fundamental part of archaeological practice. There was, however, a series of problems perceived with the positivist, structuralist and functionalist philosophies underlying many processual archaeologies, which have formed the basis of sustained critique and the consequent emergence of post-processual archaeologies (Hodder 1982, 1986; Shanks & Tilley 1987a, 1987b, 1989; etc). I do not propose to review or reiterate this prolonged debate, which would be a substantial undertaking in itself, I merely wish to highlight several of the criticisms of processual archaeologies in relation to how they conceived material culture.

A major criticism of processual archaeologies was that the theory proposed by Binford, that material culture was an extrasomatic means of human adaptation, led to material culture as largely being conceived as a passive medium reflecting the changes in social systems. Furthermore, particular criticism was levelled at the attempt to discover law like generalisations, or correlations, which would be universally applicable to the study of the past. These concerns led often led to an ahistorical archaeology which rarely explicitly consider the role of people in society.

Object = Symbol

In the main, previous phases in the study of material culture considered that all an archaeologist had to do was find order in the material remains to show patterns of human behaviour in the past. The emergence of an awareness of the active use of material culture led to a growing critique of earlier phases of thinking (Hodder 1982; 1986, 6; Patrik 1985).

The predominant approach which developed from the critique of processual archaeologies, through the development of a contextual approach, was to consider that material culture is like a text which can be read (Hodder 1986, 1989; Tilley 1989, 1990). Hodder made one of the most explicit statements as to why material culture could be considered as text, claiming that it was the simplicity of the 'language' of material culture which made it 'readable' to archaeologists (Hodder 1986, 122-4). Similarly, it was claimed that although material culture was different from language in terms of its 'communicative form and effect' this did not make it too ambiguous to study (Shanks & Tilley 1987a, 85). The greater significance of material culture in preliterate societies would have resulted in it as a form of writing, representing a 'structured sign system' which requires translation by the archaeologist (ibid. 96, 115-6)

It was considered that there was not necessarily a direct correlation between material culture and society, as material culture is understood as part of a system of signification so ultimately no single meaning could be assigned to objects. Only by interpreting objects in relation to their context could meaning be considered (Hodder 1986; 1987; Barrett 1987). Furthermore, it was recognised that the problem of trying to understand the meaning of past material culture is further complicated through the probability of multiple perspectives in the past which results in polysemous objects. For some, this position was negative resulting in a hopeless relativism; for others, it was considered liberating through allowing a plural and self critical archaeology (Shanks & Tilley 1989).

6.1.2 Beyond Text

Whilst recognising the importance of the theoretical perspective which considers material culture as text, in moving beyond a search for universals and simple functional explanations, it has several problems.

Amongst these problems, is that the material culture as text model privileges one type of visual experience when there is a complex variety of ways in how we inhabit our visual world. As discussed in the previous chapter, the visual world is not experienced from a distanced position, as one does when one reads, but it is inhabited through human activity. Our experience of that world is far less focused and more complex than our experience of the world when we sit and read a text. Fundamentally, although our understanding of material culture can be reduced to a textual simile, which is only one of many similes that could be signified, I will argue that material culture is not strictly text like.

Let us consider one of the greatest problems with this approach which is that it is excessively mentalist. By this I mean that the articulable components of conceptual systems are given privilege over other forms of understanding or expression. At this point it is worth remembering the distinction which is frequently proposed between discursive and practical knowledges, as it is discursive knowledge which is typically, albeit usually implicitly, privileged in the material culture as text model. Although abstract, cognitive systems play a dialectical role in the understanding of material culture, it can be argued that it is practical knowledge which forms the foundation of how material culture operates.

It is generally assumed as opposed to proven that material culture is simple in its communicative ability through contrasting it with a system we understand as complex i.e. written language. I would argue that it is apparently simple modes of discourse which are most complex because they are fundamentally ambiguous, in contrast to the relative specificity of language. Whether material culture is a complex or simple system of signification is not really the point, we must consider how objects mediate meaning or understanding. This question may be difficult to answer when our day to day understanding of the object frequently does not go beyond that of the commodity.

Although agreeing, in principle, with Shanks & Tilley's claim that archaeological remains in some way require translation to bring about meaning, their simile of material culture as writing is problematic. They appear to be suggesting that the material culture as text model represents a cross-cultural universal, although this is not entirely made clear as to why we should expect it to be so. Are we to infer it is due to 'hard-wiring' in the human brain !

The adoption of a technology of writing has fundamental implications to how people conceive and structure their world (Latour 1986; Dannet 1997). It is unlikely that in pre-literate societies that material culture was utilised and conceived of in the same way as writing. Perhaps, therefore, material culture studies face the same dilemma that faces the study of agency. As was discussed in the previous chapter, agency is itself likely to be historically constituted and therefore vary from period to period and place to place. The potential exists that how objects are understood is itself historically variable. Indeed this would appear to be the case if we consider the contrast between gift exchange systems and the emergence of mass consumption (Miller 1986). It is unlikely, therefore, that a single unified theory will capture the variability and complexity of how material culture is understood cross culturally. It can, however, be considered that even though there may be a considerable number of ways how material culture operates, the understanding of material culture in any historical context is grounded in the physicality of the material remains themselves.

As this physicality which remains to us to this day, although the conceptual meanings which may have been associated with particular objects is lost to us, we do have the ability to experience the remains in a similar way to how they may have been experienced in the past. When we study archaeological remains, perhaps apart from those of early hominids, we share a certain degree of common ground with their original makers. The artefacts we study were not the product of a parrot society or a Vllarg slime monster. The fundamental point about the study of the material culture of human beings is that we share certain physical, physiological and psychological traits across time and culture. It is clear that our experience of past remains is permeated by our preconceptions and contemporary categories of understanding. This can however, in part be accounted for by a phenomenological approach and self critical awareness. Bearing these points in mind I now wish to begin to consider an approach which I feel does offer **one** acceptable method for understanding the study of archaeological remains, in particular in a preliterate context.

6.1.3 Object = Action

Most recently Boast has developed a position which considers that the term style should be abandoned in archaeological studies as it is a contemporary concept, based on Cartesian dualisms, and instead that analysis should focus on how people and objects are situated in heterogeneous networks. Problematically, however, Boast considers that:

> 'Objects are meaningful because they are constitutive of the active networks - they are meaningful because they can build, and can have built, subjectivities of their own.' (1997, 188)

It is worth examining in further detail the work which has formed the basis for Boasts conclusions, that of Michel Callon (1991) and Bruno Latour (1992). In the first instance, it is important to note that the work of Callon and Latour relates to a wider area of study into the relationship between science, technology and society (STS), and employs the analytical tool of actor network theory (Law 1991; Ashmore et al 1994). This area of study has particular emphasis on the technology of machines (Law 1991). The relationship between technology and society is, therefore, largely considered in terms of the emergence and operation of the Western industrial complex. A good example of this approach is Latours (1988) study of Pasteur (see also Schaffer 1991; Lowy 1994).

The basis for this approach stems from a network model which recognises that people and objects are actants within heterogeneous networks. As Latour states:

> 'we are never faced with objects *or* social relations, we are faced with chains which are associations of human *and* non-humans' (1991, 110)

Is it, however, justified to consider that such a conceptual approach allows the possibility of the agency of objects in general. An argument can be made that there is agency of some sort in mechanised technology when machines are 'where tools are related to one another' (Latour 1994, 799). It is more likely, however, that the issue of whether machines have agency or not only arises in the context of artificial intelligence (Woolgar 1985), when the potential for self-awareness and intentionality may exist.

In his determination to avoid a dualism between object and subject, Boast has given agency to something non-cognoscent. It is the stuff of myth and legend which assigns intentionality to the north wind. Thus, it is not impossible that people may have perceived certain objects, or indeed all objects, as having some degree of agency but this is clearly not the same as objects actually having agency. Boast is indeed correct in recognising that the relationship between *us* and *it* is interconnected and complicated; not simply a polar relationship. Yet in his determination to banish the difficult concept of style, Boast has followed a long tradition of archaeological criticism of the Cartesian dualisms in order to justify a complete inversion of thinking; is there not, however, a danger in the bath throwing the baby outwith the bath water. None-the-less, the idea that objects may have there own subjectivities is an interesting possibility which challenges many of our common sense preconception as to what an object represents. For example, the concept of networks of actants may have potential for archaeological analysis.

Action = Object

Central to the previous approaches to the study of material culture has been the idea that an object is a bounded entity. Meaning may be multiple and dispersed but the object is unified. With the material culture is like text approach, meaning relates to the combination of the association of different objects and the place that they are present. There exists an almost infinite number of combinations of objects and places and, therefore, potentially an almost infinite number of meanings. In reality, however, this is not the case as there are patterns of associations and place that indicate there were constraints or parameters to the number of meanings. The problem would seem to be not how meaning is read into an object but how meanings which are associated with particular objects are tied down. This brings us to an

aspect which is not normally considered in any detail in the material culture like text approach which is how the objects are used is an important source of meaning. By this I am not suggesting that meaning lies in purely functional terms, what I suggest is that the embodied use of objects mediates perceptual experience and ultimately conceptual meanings. Bearing this in mind, let us now consider the model outlined by Miller (1986) which levels important criticisms of the semiotic approach to how objects are understood.

Miller proposes that how objects are understood relates, at least in part, to the process of ontogenesis. He suggest that objects, in part, gain their social significance through their ambiguous position between self and outside-self (1986, 95). He goes on to consider that the semiotic approach often ignores the difficulty that every day language has in describing and distinguishing between different objects or phenomenon (ibid. 98). Miller recognises that the fundamental difference between language and objects is physical:

> 'An analysis of the artefact must begin with its most obvious characteristic, which is that it exists as a physically concrete form independent of any individual's mental image of it. This factor may be the key to understanding its power and significance in cultural construction. The importance of this physicality of the artefact derives from its ability to act as a bridge, not only between the mental and physical worlds, but also, more unexpectantly, between consciousness and the unconsciousness' (Miller 1986, 98-99)

Miller develops his model suggesting that as the child develops and relies more on language, objects operate through there ability to order the unconscious, which is demonstrated by the difference between perceptual ability and linguistic competence (Miller 1986, 99). This contrasting relationship between objects, consciousness and the unconsciousness is worth considering in further detail. It has been suggested that the human consciousness requires an external order to enforce stability and that objects may perform a role in this (Csikszentmihalyi 1993, 22). Clearly there is a dialectical relationship between objects and the maintenance of a stable conscious, but the conscious awareness of objects is limited by the constraints of attention (Csikszentmihalyi & Rochberg-Halton 1981, 5-6).

6.1.4 Attention theory

The critical aspect about human attention, which requires us to consider it in more detail, is that at any one moment there exists a vast number of stimuli but we can only attend to a small proportion. Our capacity for attention is, therefore, a limited resource. Thus one of the

potentially significant aspect of attention studies, to the study of archaeology, is that it helps us to consider how attention is selective or split in relation to material culture.

The majority of discussions on the theory of attention has been largely limited to visual, and to a lesser extent aural, attention. These discussions have predominately been undertaken within the context of experimental psychology where attention is typically considered in terms of aperture vision within the laboratory as opposed to ecologically valid research. Despite these potential problems, the value of considering the conclusions reached by this work is it stops us using 'common-sense' psychology when we consider the relationship between human perception, material culture and action. It is not necessary for the purpose of this discussion to consider the details of the methodology and results of particular experiments. What I want to do is introduce some of the broad principles or concepts that are utilised in attention theory in order to discuss them in a later chapter.

Attention can be distinguished as either passive or active. Passive attention (bottom-up or stimulus-driven) is when something grabs our attention within a particular scene. Active attention (top-down or goal-directed) is when attention is deliberately employed. Passive attention can be captured by a number of stimuli such as feature singletons and abrupt onsets (Egeth & Yantis 1997). A feature singleton is something that jars or stands out through differences from its background and abrupt onset relates to the movement of an object in the visual field. Clearly, these have much in common with the Gestaltist ideas outlined in the previous chapter.

Underlying the concept of attention is a range of different theoretical positions about how stimuli are attended to and identified which together fall under the umbrella of selection theory. This considers how we attend to a limited number of perceptions from a large number of sensori-stimuli. Selection theory aims to clarify how allocation of resources takes place during perception. Broadly speaking there are two extreme positions as to selective attention represented by theories which can be termed as either early selection or late selection. It is considered that in early selection, as capacity limits are severe, all stimuli are computed but only the attended stimulus is identified but in contrast in theories of late selection it is considered that the identity of attended and unattended stimulus are computed alike and it is only the attended stimulus which accesses a system for awareness, memory and response (Pashler 1998). Some theories of attentional processing, therefore, consider that there is a pre-attentive phase of processing which involves an individual scanning and registering features across a visual field. Focused attention in contrast occurs serially with an individual identifying objects one at a time.

Another aspect of attention theory considers how effectively people can operate when their attention is divided. Experimental work has shown that when attention is split between two different types of stimuli that it is capable of attending to both, for example sounds and sights can be concentrated on at the same time but in contrast it is difficult to attend to, or give full concentration to two similar stimuli, for example two different sources of sound (Allport et al. 1972).

Attention & intentionality

Sustaining attention on something boring is difficult but in contrast something novel or exciting can grab our attention immediately causing us to ignore other sources of stimuli. Significantly it is considered that sustained attention can in some cases enhance the performance of a given task.

Attentional set theory considers that in some circumstances the perceptual system is 'set' to process or discriminate some stimuli better than others. Advanced information about a stimulus can be gained through cues or uncertainty effects, for example, it is often argued that knowledge of location can enhance perception through the allocation of 'processing capacity' prior to stimulus (Pashler 1998, 168). Therefore, as certain types of stimuli may be expected or anticipated from particular sources the perceptual system would be set to them. Similarly repetition of tasks may set the perceptual system to certain stimuli.

There is some evidence to suggest that there is a set for object identity. This means that when certain objects are anticipated in particular contexts this will increase the accuracy of discrimination between them (Pashler 1998, 205). Clearly in some circumstance our anticipation of certain stimuli or objects will alter our perception of them.

There are a range of internal and external factors which can affect a persons attention (Hockey 1984) (Table 13). Clearly some tasks require more attention than other tasks, this relates to the mental effort required for a particular task and the person's level of arousal or alertness. A person's state of alertness can be determined by a combination of environmental stimuli, intentions or goals and circadian rhythms, e.g. physiological functions are at there lowest in the early morning.

Attentional Ontogenesis

The results of experimental work suggests that all aspects of attention show improvements with age until an 'adult' performance level is reached (Davies et al 1984). Clearly there is

potentially an important relationship between the development of attentive capacities during ontogenesis, forming unconscious structures in relation to objects, and the goal orientated conscious use of attention. As Fischer and Pipp state:

> 'the person is not seen as a passive recorder of events; but instead as an active constructor of them: An object is perceived through the processes by which the person can act upon it. Likewise for memory, a remembered event is a reconstruction' (1984, 90).

Within Fisher and Pipp's model they propose that the mind is fractionated due to people acquiring certain skills in specific contexts and particular states of emotion. Therefore, skills are organised in a way in which they are not immediately transferable as they relate to particular contexts or states:

> 'When a person learns to walk on the ground, he cannot automatically walk in snowshoes through deep snow. When a child comes to understand one situation where his mother acts nice to him and another situation where his mother acts mean to him, he does not automatically relate those two understandings.' (ibid. 92)

The ability to integrate or generalise skills from different contexts does not take place automatically as this is a difficult task which must be learnt. The development of unconscious skills can be divided into a series of phases which take place during human growth and development. Three broad developmental tiers can be distinguished (Fischer & Pipp 1984); a sensorimotor tier, representational tier, and abstract tier. The sensorimotor tier involves the development of sensorimotor actions during the first two years of life. The second, representational, tier involving the ability to evoke thoughts of concrete objects as opposed to solely experiencing or acting upon them, begins development at an age of c 2 years of age. The third tier of development is entered at about the age of ten years old with ability for abstractions.

Within each developmental tier there are a series of four levels. The first level is when a single action, representation or abstraction can be attended to at any one time. At the second level, mapping skills emerge which involve the recognition of the relationship between two phenomena. The third level involves the ability to combine a number of mappings to form a system. The fourth level, also marks the start of the next tier, is when a system of systems can be co-ordinated.

How representative the details of the developmental sequence, in particular the emergence of different skills at particular ages, are to the study of other cultures is uncertain. It is, however, particularly striking that the research that forms the basis of these conclusions suggests that the emergence of abstractional skills continues well into adulthood. If we do, however, accept the broad structural model for skill development it has implications on how during each phase the experience and understanding of objects is different, with the compound skills learnt producing an increasingly complex perception of objects.

Paying Attention to Objects

The concepts involved in attention theory clearly have implications as to how, as archaeologists, we come to interpret material culture. Before considering these any further I wish to shift attention to what constitutes a monument and consider how it differs from other types of material culture. After which we will consider the archaeological interpretation of material culture in light of the concepts outlined in part II.

6.2 Monuments and monumentality

6.2.1 Making sense of monuments

What exactly constitutes a monument? Two main answers could be anticipated. The first considers that a monument is a thing, usually a structure, which is used to commemorate a person or event. The second might consider any large structure, no matter what its reason is for being built, as a monument. Clearly with the first definition, size does not matter. It is the social and political motives behind commemoration that is of most significance. In the second definition, any exceptionally large structure would qualify as a monument; thus this ages monuments are nuclear power stations (Fig 37). With the second definition of monument, it is important to bear in mind that monumental structures are relative to the range in scale and types of construction employed during any one period. Although the second definition raises interesting possibilities, such as shell middens as monuments in the seventh to fifth millennia BC, it does not capture the spirit of monument as many people would understand the term. Therefore, it can be argued that it is the idea of commemoration through materially marking space and time, and the social and political implications, of monument building that probably defines a monument.

Monuments are considered to form a distinct class of material remains found in the majority of societies which archaeologists study. Much of the analysis of prehistoric monuments has been undertaken at a macro-level. By this I mean that as opposed to considering how the

architecture of monuments structured how they were utilised by people, the macro approach considers that we will begin to understand how monuments were employed and what they meant by analysing patterns of distribution and form (Renfrew 1973b; Harding 1995). Admittedly these studies take such a broad brush approach because they are interested in understanding long term social change. As such approaches, however, do not consider the implications of changing architecture in relation to changing social practice, which constitutes the basis for social change, they therefore result in no more than a description of changes in patterns of monuments.

One line of thought, which underlies many of these macro-level analyses, considers that monuments are monumental architecture, representing a particular class of big-material-culture, intended as a form of conspicuous consumption (Trigger 1990). Underlying such studies of monumentality, however, is the belief that the construction of monuments takes place in hierarchically divided societies (Renfrew 1973b; Armit 1990, 94; Trigger 1990). In these models, therefore, monument building is no more than the mobilisation of resources by a ruling elite, to consume conspicuously, as an overt demonstration of their power.

A recent critique of these approaches has stressed that prestige groups maintain their status through differential access to monuments (Barrett 1994). There is, however, no *apriori* reason to assume a correlation between monument building and elite social groups as there are possible examples of monument building in societies which may have been largely egalitarian in structure. Let us take the example of the mound builders of the south-east, North America.

6.2.2 The Mound Builders of the south-east, USA

The prehistory of the south-east America has four broad periods: the Palaeo-Indian (?-8000BC), the Archaic (8000-700BC), the Woodland (700BC-AD1000) and the Mississippian (AD 1000-1700). A tradition of monument building emerged within the Archaic cultures of the Eastern Woodlands, and continued through out the Woodland and Missippian Periods.

It is with the earliest phases of monument building during the late Archaic and early Woodlands (Adena) periods which are of interest to this study. Although other similar smaller complexes of earthworks are known elsewhere in Lower Mississippi Valley the best known example is found at Poverty Point, Louisiana, where a complex of massive earthwork monuments were constructed (Webb 1968). At Poverty Point the main part of the complex comprises of an arrangement of six concentric interrupted embankments forming a semi-circle

1.2km in diameter enclosing an area of land immediately adjacent to the river Bayou Macon (Figs 38 & 39). Outwith this are several earthen mounds, the largest of which is 21m high and 183m wide.

Excavation of the surfaces of the embankment has indicated that they were used as living surfaces (Steponaitis 1986). It might be anticipated that the people who constructed and used the monument were fully sedentary agriculturists, however, the evidence suggests that they were largely reliant on gathering/hunting and limited garden horticulture for their subsistence. It is thought that a complex system of craft production and exchange was in existence between the communities of the Late Archaic, with 40% of the excavated stone points at Poverty Point having a non-local source. The construction and use of the monuments at Poverty Point took place between 1700 - 700 BC.

Although in the past it was considered that Poverty Point provided evidence for societies organised as chiefdoms, it is now considered to be more likely that seasonal aggregation and dispersal of 'egalitarian' communities may explain the ability to construct such massive monuments in the Late Archaic period (Steponaitis 1986).

Notably another example of what may be considered as early monument building is the shell/midden mounds and rings of the Middle and Late Archaic periods (Steponaitis 1986; Russo 1997). Another tradition of monument 'creation' was the use of natural glacial mounds for the insertion of burials amongst during late Archaic in Ontario and Indianna (Fagan 1991). It is generally considered that more wide spread monument building began to be undertaken after c 700 BC , most intensively amongst the Adena complex, Ohio, within the later Woodland period (Clay 1991). There is, however, increasing evidence that a wide tradition of monument building may have begun much earlier (Saunders et al 1997).

The examples of monument building in the Archaic and Woodlands of South East, USA, are not only interesting in there own right but are important examples of the variety and complexity of monument building which is possible in groups which are organised in a less hierarchical fashion than the organisation which has been suggested for the late Neolithic in Britain. If we reject the interpretation that in Britain, during the third and second millenniums BC, ruling elites created monuments to establish and maintain their status, how do we begin to interpret these monuments. Although I shall return to this point in relation to the archaeological remains from Aberdeenshire which form the focus of this study I wish to consider this point on a more general level in terms of the relationship between monuments and other classes of material culture.

6.2.3 Monuments as material culture

Although not every monument is of a massive scale, the large size of many monuments is often considered an important aspect in affirming their social significance. In some cases, however, there is a potential for the form and scale of a monument to result in a blurring between what is a topographic feature and what is a monument (Bradley 1998c). Yet, fundamentally, we must consider that it is the (memory of) artificial materiality which distinguishes monuments from natural features in the landscape. This brings us to another distinction that has often been made between monuments and many other classes of material culture which is that monuments are generally collaborative enterprises. The significance of this distinction is sustained by the importance of the concept of division of labour in the development of the Western industrial complex. Monuments, however, although they are not mechanised, are like machines as they have a variety of components ('tools related to one another') which together combine to form an operative complex. The engagement of large numbers of people in monument construction may suggest the mobilisation of labour by elites but equally it is suggestive of collaborative projects which would reflect entirely different social organisation. Whatever the type of power relations, monument construction is an act which usually implicates large numbers of people.

Another fundamental basis for a distinction between monuments and other classes of material remains has traditionally been made on the grounds of a dualism between domestic (secular) and ritual spheres (e.g. Bradley 1984). In recent years, however, the distinction between secular and domestic spheres has been broken down (Barrett 1988; Bruck 1995). It is clear that these distinctions between monuments and other classes of material culture are not black and white. Other forms of structure share these differences with monuments and other classes of material culture, although some artefacts are probably collaborative enterprises.

Another meaning of monument which has already been noted is the monument as a means of commemoration (Rowlands 1993; Bradley 1993). Noting the commemorative element of monuments is important in several respects. First, it highlights that monuments can be a focus of memory and thus they are historically and emotionally charged.

A second point is that monuments themselves have histories. As has long been noted, most monuments are multi-phased, their ultimate form determined by the vagaries of history. The history of a monument may mutate with time, the original purpose or understanding of a monument is unlikely to remain stable for centuries. The history of a monument, as it was

understood in the past, is not stable. The visible signs of antiquity would have been visible several generations after a monument had been established; the silting of a ditch, slumping of mounds and collapse of kerbs and cairns, the thick growth of lichen and the rotting of wood. Thus although material culture is a bounded entity it is not ontologically secure; there is a constant, if usually imperceptible, process of material ontogenesis.

The final point I wish to make is that its form does not distinguish a commemorative monument. A construction represents a commemorative monument because we know or recognise it as such. Most significant, perhaps, is the point that people come to monuments with certain preconceptions and expectations, whilst at the same time they submit themselves to it's materiality. It is clear, however, that each of the above points can be made in relation to other types of material culture. We are, therefore, ultimately faced with the same issue of how material culture is used to create and tie down meanings.

6.3 To the objects themselves

An understanding of material culture is fundamental to the endeavours of the archaeologist, and clearly no unified theory will be capable of addressing the relationship between objects and people in all times and places. As archaeologists, we often engage the material we study in terms of aperture vision and static form. It is clear from the work on perception that a great deal of information is gained about an object or place when it experienced during motion or use. Although an empirical understanding of archaeological remains is important such studies require to be complemented more frequently by a consideration of the perceptual experience during their use. Just as the spider can not step back from its web to admire its geometry the people who constructed and used a monument understood it from within. Although these understandings may relate to conceptual schemes they are fundamentally grounded in the intimate experience of the human body.

6.3.1 Materiality and the ontogenesis of cultural sensoria

Much of the archaeological theory that has been developed over the last ten years has emerged from the critique, during the 1980's, of processual approaches to archaeology. There has been a number of notable strands to these developments including an increasing concern with landscape and place, temporality, agency and the body, and gender studies. Within most of these approaches, there has been limited concern with, or indeed awareness, of the complexity of human perception. More problematically this has prevented the emergence of a theory of the relationship between human perception and material culture. Perhaps the area of thought that

has moved towards addressing these issues has been archaeological phenomenologies. As has been discussed in chapter five, although they have made some steps towards considering the relationship between the embodied agent and the world they inhabit (landscape) they have, however, a number of other serious problems. My concern has been, therefore, to explore the relationship between human perception, in its variety of forms, the embodied agent and material culture.

Put crudely, sensation can be considered as the collection of data from the environment by the senses and perception is our interpretation of that data. It is, however, clear that sensation and perception are intimately linked to one another as shown by the evidence from Set theory. These ideas are particularly significant to the understanding and interpretation of material culture as it highlights that perception is socially constituted through the experience of material culture and conceptual systems during the ongoing process of ontogenesis. Therefore, perception itself is not stable as it is continually emerging as part of a historical and developmental process.

During the process of human ontogenesis, objects will first be experienced in a variety of different contexts. Although all artefacts are born of intentional human action, some objects will be exclusive to some contexts and others may transcend many. Those artefacts that are found in a variety of contexts are likely to be significant, in the first instance, for their practical use and, therefore, the practice of use is likely to be more significant than the artefact itself; the object is schizoid as it has a large number of meanings and associations, the physicality of the object, so to speak, is diluted by the materiality of action. In the case of objects which are used or encountered less frequently (if at all) they will grab our attention through their unfamiliarity or novelty. Novelty is a highly emotional encounter, not only involving the fascination and excitement of the new but it can also be disconcerting; material familiarity forms a cultural womb.

The two poles of object encounter I have defined are clearly points on a continuum of human experience. This is not to say there is a polar opposition between function and meaning, as the two are intimately entwined; function and meaning are both constituted through action or practice. Let us now consider the implication of the development of attentional ontogenesis. The first tier of sensorimotor experience results in the development of the skills to manipulate and sense different objects. Ultimately the first tier involves awakening and increasing socialisation of the senses. The emergence and development of the representational tier results in the increasing ability to conceive of objects as something more than just their physical dimensions. It could be said that as opposed to being sensed objects are now perceived.

Finally, it is with the emergence of the abstractional tier that objects begin to be conceived as opposed to simply perceived. I would suggest, therefore, that material culture is intimately bound in the development of individuals and consequently society. Although a series of developmental phases can be identified during the process of ontogenesis (attentional and individual) the process of development is more complex and continues throughout adulthood. Indeed, Miller highlights this through his works on the nature of consumption of material culture (Miller 1986; 1994a; 1994b). Miller stresses the complexity of ontogenesis, from the work of Klein, as a form of 'dynamic interaction' (1986, 90-3). Significantly, Miller contrasts our engagement with the world through language (conscious) with our engagement through material culture (unconscious) (ibid. 95). Miller considers that the relationship between material culture and unconscious is supported by Bourdieus theory of Habitus which is 'learnt through interactive practices' through familiarity of living in a series of physical domains (ibid 104). Furthermore, Miller (1994a; 1994b) demonstrates the variety of strategies that people utilise through material culture in creating and transforming their identities. Material culture is not merely consumed but utilised actively and strategically throughout people's lives.

Similarly, Tilley (1999) has recently considered the intimate relationship between the individual, material culture and society. He has explored the significance of linguistic metaphor for creating and transmitting meaning through reference to the human body, material culture (architecture, technology, art, artefacts) and animals. Referring to a variety of archaeological and ethnographic case studies he stresses that a cultural universal may be that 'all human beings think metaphorically with an embodied mind' and that those metaphorical connections are 'constrained by environment and cultural traditions' (Ibid 261). Significantly, however, Tilley considers that the relationship between linguistics and metaphor is not analogous to the relationship between material culture and metaphor.

'Solid metaphors are not substitutes for linguistic metaphors or translations of them into material form. They act most subtly and powerfully when not translated, at a non-discursive level of consciousness and as part of the routinization of action. In this manner they are thus a primary element in the unconscious in culture. ' (ibid 263)

Tilley considers that just as people and society are vital to the production of objects, objects serving as materially metaphors are also vital to the production of people and society. Tilley developes this line of thought to make several significant propositions about how material culture participates in creating social meanings:

- groups of objects work together through parataxis (juxtaposition of things) to create cultural sense (ibid 265).

- Due to the embodied nature of human perception the materiality of objects are essential in creating metaphoric meaning (ibid 271).

- Artefacts have punctums. 'The punctum of the artefact is the level at which it meets the embodied mind of the observer at an entirely pre-linguistic and personal level not subject to verbal discourse or linguistic mediation' (ibid 271).

Thus, Tilley recognises the powerful way in which material culture operates on an unconscious and pre-linguistic level. Tilley stresses the active, indeed essential, role of the material world in creating the cognitive and social worlds that people inhabit. As such material culture will be a fundamental factor to social onto-genesis and the development of habitus.

6.3.2 Monuments make sense

Although a distinction between monuments and other types of material culture is frequently made it is usually on grounds such as monuments are massive or monuments are commemorative. Monuments, however, as a form of material culture, share the traits of material culture in general. If we consider monuments in terms of human perceptual experience we find that there are obvious but significant differences between monuments and material culture in general which we must take into account when we study them.

The fundamental difference between monuments and objects that I wish to distinguish is our experience of them. Although in each case experience involves a variety of different senses being utilised during the perception and experience there are a number of ways in which they differ. The human experience of being incorporated within a material space is fundamentally different from that of the incorporation of objects within the space of the human body. By this I mean that when an object is used it becomes either a focus of attention or is physically subsumed as part of the human body. A monument, however, enwraps or entombs the body of an individual (Fig 40). In the case of objects, the grasping and manipulation of them involves a tactile dominance (Fig 41). Monuments in contrast are often elaborated in such away so to ensure they are experienced in terms of a visual dominance.

The implication of these different scales and levels of perception. The difference in size between monuments and artefacts is blurred when we consider the experience of each is different; we are not comparing like with like. Monuments are only monumental when our attention is drawn to them, similarly when we concentrate our attention on an object it fills our foveal vision. Our entire attention focuses on the perception of that particular object and at this point it becomes truly monumental to us. When our attention is not focused on a particular object the world is experienced less intensely; then material culture mediates our subconscious, we know it is there but we can not quite put our finger on it.

If we consider that perception is always part of human action we must remember another significant point when we come to interpret monuments and objects; their degree of mobility. Therefore, if we accept that a monument is defined by commemoration through materially marking space and time we are immediately faced with the possibility that a material commemoration could take place utilising small mobile objects. Thus, the concepts of attached and unattached objects may form a more useful distinction for the interpretation of different types of material culture as opposed to using terms such as monument (Gibson 1986). An unattached object is one that can be displaced and surrounded by a medium (e.g. air or water). In contrast an attached object is partially surrounded by a medium and in effect shares its surface with another solid.

In some respects, attached objects are architectural in nature. Parker-Pearson and Richards (1994) have stressed the significance of the subjective experience of architecture to how social space is constituted. They stress it is the very physicality of architecture that underpin world views:

'The culturally constructed elements of a landscape are thus transformed into material markers and authentications of history, experience and values. Although the stories change in the retelling, the place provides an anchor of stability and credibility' (ibid 4)

Let us consider further the significance of architecture in creating and sustaining social meanings, as suggested by Parker-Pearson and Richards, through tracing recent work on Stonehenge. In particular a series of works considering the metaphorical and symbolic interplay between the materials used for the construction of monuments and their meanings at Stonehenge and its environs. Whittle (1997) developed the idea suggested by Bender (1992) that their may be connotations in the choice of materials chosen for construction of monuments; chalk, earth, stone or wood. Whittle focuses on the choice of stone utilised in the construction of Stonehenge suggesting that hardness, durability, texture and colour give

distinctive character stones and that particular stones may have metaphorical or metonymic meaning. Whittle notes the juxtaposition between the larger local sarsen stones and the smaller exotic bluestones. Furthermore, Whittle identifies the differential and uneven surface treatment of the pairs of trilathon stones are placed to forms a series of rythmic inter-relationships based on inside/outside, left/right, smooth/rough, shaped/natural, slim/bulky. Ultimately, it is suggested that the surface treatment of the stones relates to the way in which the monument was used through movement rather than static or passively observed.

Parker-Pearson and Ramilisonina (1998, 310) have suggested through cross cultural, formal and relational analogies that as the co-presence of ancestors and stones may represent a structuring principle it allows comparison to be examined between the Later Neolithic and Bronze Age and Madagascar. They consider the relational analogy between stone and ancestors is also supported by the metaphorical associations of materials as supported by their non-arbritary properties e.g. the durability of stone in contrast to the more transient nature of organic materials. The nature of ancestors and stones in Madagascar and Stonehenge and the monuments in its environs are compared. Parker-Pearson and Ramilisonina propose a distinction between the earlier wooden phases of Stonehenge, representing a monument to be used by the living, and the later stone phases, as monuments used by the ancestors. The distance and lack of inter-visibility between Stonehenge and the timber circles at Durrington Walls and Woodhenge, the limited quantities of rubbish from Stonehenge in contrast to the timber circles and the visual relationship between Stonehenge and the Bronze Age burial mounds are referred to support the distinction between living-wood / ancestor-stone. It is ultimately proposed that the landscape was conceived in a domain of ancestors and a domain of the living linked by a liminal zone and that, apart from phases of construction, the domain of the ancestors was left largely alone. Parker-Pearson and Ramilisonina then demonstrate that a similar pattern can be witnessed in the Avebury / West Kennet region during this period. Parker-Pearson and Ramilisonina then highlight the process of lithicization that is evident during the later Neolithic, through the replacement of wooden monuments in stone. Fundamentally, Parker-Pearson and Ramilisonina conclude that as the domain of the ancestors the living rarely entered the stone monuments of the Later Neolithic.

Despite criticism by Barrett and Fewster (1998) that there is problems with the nature of the analogies employed in Parker-Pearson and Ramilisonina study, it still represents an important attempt to understand the role of materiality in the construction and maintenance of and the historical inter-relationship, between landscape, monuments, systems of meaning and people.

In short, the significant points about these three studies are that:

- The choice of stones in monuments relate to wider systems of meaning (metaphoric & metonymic).

- Stones may be modified and placed in monuments intentionally to enhance, modify or mark their experience. Material culture is used actively, contingently and strategically, to structure human experience.

- Understanding of materiality is historically grounded.

Consideration of material culture (objects or architecture) has indicated the fundamental role it plays in creating, sustaining and transforming individuals and society with a rich web of metaphorical and metonymic references. That material culture operates at a pre-linguistic and subconscious level and can be deployed overtly or strategically highlights the potency of materiality in cognitive and symbolic systems.

However, as noted previously, in most approaches to the study of material culture, although the meaning of objects are considered to be dispersed and multiple, the object itself is treated as a unified entity. This is perhaps the most problematic aspect of material culture studies as it sustains a dualism between subject and object. It can be argued, however, that objects only exist through our perception and use of them. If we, however, consider the variability and complexity of human perception it suggests that, in fact, any object is never unified to the extent suggested in other models. Material culture, the object itself, is multiple and schizoid. The challenge for people when utilising material culture is therefore to tie down the identity of particular objects.

The potential diversity and multiplicity of meaning in the material remains of the past pose serious interpretative challenges. Monuments in particular are not stable entities but are chaotic and endless projects; as evident through the example of Stonehenge. Contemporary expression of monumentality, whether it is the work artists such as the monuments to the future of Jospeph Beuys (Tisdall 1979), the invisible monument of Johen Gerz (Gerz 1996), the tradition of landscape sculpture (Davies & Knipe 1984) or the millennium dome project, not only highlights this diversity of meaning but emphasises the importance of the material expression of ideas.

PART III

Chapter 7

The past is an artefact of our perceptions

Introduction

Previously, in chapters five and six, I discussed the importance of recognising that the embodied nature of sensory perception was the fundamental basis of how people understand their world. Furthermore it was suggested that an important structuring principle within society is the sensory order and that it, in part, determines the way people understand their world is ordered. Recognition of these points, in combination with a phenomenologically informed approach, highlights the shared nature of human experience between us and people of the past. Thus, the artefacts that survive for us to study are important because of the potential they offer for meaningful interpretation about the way people in the past may have understood the world. This chapter, therefore, examines a range of artefacts dating from the fourth to second millennia BC with this perspective in mind. The historical changes in production, form, decoration, and deposition of several classes of artefact during this period are considered. I will then discuss how these changes may have effected the sensory perception of these artefacts and consider the implications that these changes have on sensory orders during the fourth to second millennia BC.

7.1 Pottery

During the fourth to second millennia BC in Britain the majority of production of pottery was for containers. Although a variety of other forms of artefact can be produced these are rarely found within the archaeological record of this period. The adoption of pottery is traditionally thought to mark a departure from earlier technologies for the production of containers. Previously, organic materials such as bark, leather, wood, and reeds were used for the construction of containers. Hence it has often been suggested that many of the earliest forms of pottery are skeumorphs; mimicking the traditional forms which were originally produced in other materials (e.g. Manby 1995). During this period pottery clearly had significance beyond the purely functional as it was utilised within a variety of different social contexts ranging from

the domestic to the funerary. Another point which may be important to the cultural and social significance of pottery is it represents one of the earliest 'industrial' processes with a raw material being collected, processed and then transformed through firing.

7.1.1 Fourth to third millennia BC

This period was dominated by the production of bowls of the plain or carinated form. Many of the vessels are well made with thin walls and a fine fabric. Where information is available (e.g. Henshall 1983; Burl 1984), the majority of vessels from this period have quartz temper and exceptionally flint. The dark grey brown colour of many of the vessels of this form suggests they were fired in a reducing atmosphere.

The pottery from the north east of this period is largely undecorated. Two types of decoration do occur, however, on a significant number of vessels. The first, which has been long noted, is that many of the vessels have a heavy mica flecking through them. It is possible that mica was added to the clay or may represent a natural component of the clay source. In either case, there appears to have been a choice to create a visual impact with mica in the fabric of the pottery. The second decorative element found on a significant proportion of vessels in the north-east is a heavy burnishing and fluting of the surface (Henshall 1983; Burl 1984; Shepherd 1997). The act of burnishing the surface of pottery takes place when it is at the leather hard or dry stage before firing. This involves the repetitive rubbing of a hard smooth object across the surface of the pot. This act of burnishing radically changes the texture of pottery effectively creating a smooth gently polished surface. The fluting runs vertically on the vessels and is created by dragging a thumb or finger up the body of a vessel when its is in its plastic state producing a series of sinuous depressions (Fig 42). Such decoration can be found on the exterior and interior of vessels.

7.1.2 Third to second millennia BC

The majority of forms of pottery of this period, such as grooved ware and impressed wares, are rarely found within Aberdeenshire. The dominant form of vessel during this period in Aberdeenshire is the beaker. Although there is considerable variety, these vessels generally tend to have a sinuous S-shaped profile. The majority of examples are well made with thin walls and a fine fabric. In contrast, to the earlier pottery the vessels dating to the late third and second millennia BC do not appear to show a preference for quartz temper. The colour of the

majority of beaker vessel was a red-orange suggesting that they were generally fired in an oxidising atmosphere.

Beaker vessels display considerable variety in there decoration that is finely executed normally (Fig 43). Decoration can be all over, zoned or indeed absent and ranges through impressed cord, comb, incised and finger nail decoration (Clarke 1970). With the possible exception of cordons, there is generally no applied decoration on beaker vessels. A significant number of vessels have witnessed another decorative phase during their production with the application of a material to fill the incised or impressed decoration. This material is usually described as a white paste. Addition of this paste to the surface of a vessel would make the white decoration stand out more against the red-orange of the fabric. Analysis of this paste has revealed a striking contrast between those examples from the south of England and those from Scotland (Clarke 1970). Those from the south have a chalk paste applied where as those from Scotland are embellished with a burnt bone paste. Analysis has not distinguished whether the bone utilised was human or animal.

7.1.3 Second millennium BC

There is an explosion in the range of pottery forms during the first half of this millennium. Not only is there a greater degree of variability in form but also in decoration. A wider variety of decorative techniques are being employed including finger nail, incised, stabbed, maggot, impressed cord and comb, and the first use of applied decoration.

Beaker forms continue to be produced during at least the first half of the second millennium BC. There are also a number of urns from Aberdeenshire that appear to relate to the food vessel tradition (Cowie 1978). In the case of the food vessel urns we see what can be considered as perhaps a less formal execution and arrangement of decorative elements. An example from Cairn Curr has decoration consisting of applied and impressed cord concentric arcs which is an unusual decorative motif (Stuart 1856). This may suggest that at the time there was degree of freedom in the execution and visual impact of decoration.

Another tradition of smaller vessels also emerges. Previously called incense or pygmy cups these are now usually termed accessory vessels as they often, but not always e.g. Bennachie (PSAS 1863) and Hill of Keir (Simpson 1943), accompany larger urns e.g. Seggiecrook (Callander 1905) and Mains of Carnousie (Longworth 1984, 305). Significantly, accessory

vessels usually are highly decorated with complex incised patterns that frequently extend over the whole surface of the vessel.

By the second half of this millennium, the form of vessels becomes more simple with bucket or barrel shaped vessels predominating. Decoration is either largely is absent or increasingly restricted to a limited area on the majority of these vessels (Fig 44).

7.1.4 A sensory history of pottery fourth to second millennia BC.

During the extraction and processing of the clay, its earthy smell would have been particularly noticeable. Throughout the working of the clay (the digging of the clay, levigation, kneading, production of coils and construction, the finishing of the surface) the dominant sensory experience, however, is likely to have been haptic. In the case of many of the vessels produced during this period the initial stages of collection of clay, processing it and hand building a vessel would be similar. The real differences in choice emerge during the stages of decoration and firing of pottery.

There are several significant changes that take place in the form and decoration of pottery, which may relate to the changing sensory order during this period. The earliest vessels have a limited degree of decoration. In the case of the fluting, the visual impact of the decoration, especially at a distance, is relatively slight. It is only when you handle the vessel you become more aware of the fluting.

The presence of mica within the fabric is often considered to have been chosen to enhance the visual impact of the vessel. It must be borne in mind, however, that the visual impact of the mica is dependent on the type of light conditions. Usually a combination of the frequently diffused background light, cloud cover or rain would make the presence of mica almost unnoticeable. It would arguably have its most striking effect when viewed within intense sunlight or close to a fire. The choice of a dark fabric for many of these vessels would have increased the intensity of the sparkle through the contrast.

During the third and second millennia BC we see an increasing reliance on complex incised or impressed decoration. The decoration is rarely applied, is fine and in some cases has been filled. As such the haptic experience of such decoration is going to be exceptionally limited. It is the visual impact of these vessels that is dominant. This trend continues through the first half of the second millennium BC with the emergence of vessel forms, accessory cups, which are

frequently decorated all over. The fineness of the decoration means that without visual examination its design would be difficult to establish.

By the middle of the second millennium we begin to see the production of vessels of simpler forms that have an increasingly limited degree of decoration applied to them. In most cases, both the visual and haptic impact of the vessel is exceptionally limited.

During the period we are concerned with, there was a transition from pottery vessels that haptic qualities appeared to take precedence to those that the visual qualities were more important. It would be under certain circumstances, at night by a fireside, that the visual impact would have been enhanced. In contrast, by the end of the third millennium BC, pottery is produced which has a predominately visual impact. The importance of the visual is evident through the addition of white paste in examples of beakers to increase the emphasis of the decoration. This trend is also evident by an increasing tendency to all over decoration in other forms of vessel. It would appear, therefore, that commencing by the first half of the second millennium BC there was another transformation in the type of sensory experience of pottery that was considered significant. The preference for visually dominant forms continued until the later half of the second millennium BC at which point pottery was increasingly no longer utilised as a medium for expressing a particular sensory dominance.

7.2 Lithics

In this section, I will highlight the potential implications of changes in the forms of types of lithics from the fourth to the second millennia BC on sensory orders. To this end, I wish to concentrate on several of the larger forms of lithics that were potentially circulating during this period; in particular shaft hole implements and CSBs. Notably the polished stone or flint axe is not considered here as it has been the focus of considerable study in recent years (e.g. Chappell 1987; Bradley & Edmonds 1993; Edmonds 1993; Pitts 1996).

7.2.1.1 Shafthole implements

Shafthole implements are distinguished from other heavy tool types, such as the polished stone axe, through the different methods of hafting i.e. shafthole implements have a perforation through them to take a haft. There are, however, other distinctions between the various types of heavy tool which were in circulation from the fourth to second millennia BC. First, shafthole

implements generally show a more complex form than other types of adzes and axes. Second, other than a surface polish, which has benefits on how the implement may perform, stone axes are rarely decorated. In contrast, a significant proportion of shafthole implements was decorated. These differences may suggest shafthole and non-shafthole implements were perceived as separate conceptual groups.

Shafthole implements can be broadly divided into five main types; maceheads, axe-hammers, pebble-hammers, battle-axes and shafthole adzes (Fig 45). Put most simply, the main distinction between these types is that axe-hammers, battle-axes and shafthole adzes have cutting edges but maceheads and pebble-hammers have none. The cutting edge of both axe-hammers and battle-axes runs parallel to the haft but the cutting edge of an adze is at right angles to the haft. Beyond these fundamental differences, there are a number of variations between the different types of implement that will be discussed below.

Pebble-hammers are the simplest form of shafthole implement representing a naturally rounded cobble that has been perforated. Having been found from Mesolithic contexts these are considered to be the earliest form of shafthole implement but probably have a currency throughout the Neolithic and Bronze Ages (Roe 1979, 36). Unsurprisingly, because of the simplicity of form it has been impossible to establish a typology for pebble-hammers.

The macehead is essentially a pebble-hammer which has its surface modified to alter its original shape. They are further distinguished by the form and position of the shaft hole; in the case of pebble-hammers it is v-shaped and centrally placed at the thickest point of the object and in maceheads it is generally straight and asymmetrically positioned towards the narrower end (Roe 1968). There has traditionally been distinguished three main sub-types of macehead; ovoid, pestle and cushion (Roe 1979). Ovoid maceheads are thick, have a short length, and are the closest in form to pebble-hammers. Pestle maceheads are more elongated with a pestle end. They either have straight sides (Thames pestles) or concave sides resulting in a constricted mid point (Orkney pestles). Cushion maceheads are long and thin (Fig 45).

Of the ovoid group the most distinctive form has been termed the Maesmore type (Anderson 1909). These are a small group of ovoid maceheads with exceptionally finely decorated consisting of a pattern of lozenges (Fig 47). The surface of the lozenges has been carefully ground down to create a network of depressions. Maesmore type maceheads are predominately made from pale white material such as quartz, chalcedony and flint.

Roe (1966) suggests that maceheads may find their precursors in antler maceheads and that Maesmore maceheads may be relatively early in the sequence of stone maceheads as evident from several shared features with antler maceheads; internal widening of the shaft hole and lozenge lattice-work decoration (Fig 46). The sequence of development is outlined by Roe, largely on typological terms, as ovoid developing into pestle and cushion forms.

Although of a similar form, axe-hammers have been distinguished from battle-axes by their larger size. Fenton proposes that implements more than 190 mm long and 80 mm broad are axe-hammers and any implement of lesser dimensions is a battle-axe (1988, 110). Roe (1966) considered that axe-hammers can be divided into two different classes; class I is distinguished by parallel or convex upper and lower surfaces and class II axe-hammers have a concave profile.

Battle-axes have also been subdivided into a series of five typological stages by Roe (1966; 1979) based on the degree of expansion of the blade and the form of butt end. This scheme has been modified with particular reference to the Scottish material by Fenton (1988, 110). From reanalyses of metric data produced by Roe it is proposed by Fenton that early, intermediate-developed and northern variant types can be distinguished. Early types have non-expanded profiles, northern variants have the expansions close together, and intermediate-developed were other expanded varieties.

Twenty years ago, it was noted that around 950 axe-hammers, 550 battle axes and 435 maceheads were known from across Britain (Roe 1979); the number now known will certainly have increased. Although the exact number of shaft hole implements from Scotland is unclear the National Monuments Record of Scotland records 481 examples; 263 axe-hammers, 121 battle-axes and 97 maceheads. The number from Aberdeenshire is relatively small with only 40 known examples, 15 axe-hammers, 13 battle-axes and 12 maceheads, representing 8.3 % of the national total. It is important to note that although these figures are likely to be conservative in terms of numbers they probably show the broad proportions of the various classes of artefact both nationally and regionally. Hence although certain forms predominate in other regions, particularly axe-hammers in the south-west (Roe 1966) and maceheads in Orkney (Simpson & Ransom 1992) it would appear that Aberdeenshire has an even spread of forms.

In summary, amongst the variety of shaft hole implements we can propose a broad sequence of development in types and forms (Table 14). It is important to stress that the highly schematic form of the table masks the overlapping currency of many of these classes of artefact.

7.2.1.2 Context of production and use

The techniques of production of battle-axes and axe-hammers have been fully outlined by Fenton (1984) and much of the following discussion is based on his work. As Fenton notes the techniques of pecking and grinding which were used in the production of battle-axes and axe-hammers would have formed the basis for the production of other shaft hole implements. The majority of shafthole implements appear to have been produced from pebble or cobble blanks. Therefore the initiation of the production of one of these types of implements has probably been historically relatively unchanging; the raw material being readily collected from storm beaches or river beds. The properties of the raw material means that the techniques of flaking and chipping, other than producing a blank, would have been used infrequently during the production of shafthole implements.

Pecking of a stone for the production of an implement has a particular sensory quality in contrast to flaking or grinding. Pecking involves delivering a succession of sharp blows with a fist size hammerstone. Pecking was probably used to produce the details of the form of the artefact. From experimental work by Fenton it can be estimated that pecking will produce the shape of a battle-axe in about three hours and a completed battle-axe would take about three to six hours. In the main, grinding would be used to finish the surface of a tool and to create delicate decorative features. It is likely that wet grinding took place utilising a grinding block and a sand abrasive. Also a highly repetitive action is grinding but it would not take as long as pecking.

Another aspect of the production of these tools which is relatively unchanging throughout their currency is the creation of a shafthole. The distinction between the v-shaped perforations of the pebble-hammers and the straight perforations of the majority of other types of shafthole implement is potentially significant. It is probable that this distinction relates to a change in production techniques. The v-shaped perforations of the earliest forms are probably produced by hand boring with flint, quartz or chert tools. In contrast, the straight perforations of later forms are likely to relate to the innovation of the use of a bow drill. Fenton estimates from experimental work that drilling of an axe-hammer or battle-axe would take between 15 to 20 hours.

In terms of contextual information available for the use and deposition of the five broad of types of shafthole implement more limited evidence is available for shafthole adzes, pebble hammers and axe hammers. It is likely that the majority of these tool types were utilised for

some functional purpose e.g. it has been suggested by Roe (1967) that the concentration of axe-hammers in the south-west of Scotland may be because of their use in extraction of metal ores. In contrast, a combination of the general lack of use wear and the quality of craftsmanship and decoration observed on many of the battle-axes and maceheads suggests that they may have had a largely ceremonial use. There are considerably more of these tool types with associated contextual information and it is therefore these which form the main focus of study for the remainder of this section (Tables 15, 16 & 17).

There is clearly a variety of contexts where mace-heads and battle-axes were deposited. Clearly, there were potentially a large number of different contexts where these were utilised before deposition. Examples of these types of artefacts discovered from contexts in Aberdeenshire relate almost exclusively to funerary contexts. Notably despite being discovered during the nineteenth century there are relatively good accounts of the battle-axes from Crichie and Strichen.

Analysis of the information, which is available relating to the context of discovery of mace-heads and battle, axes within Scotland reveals an interesting pattern. Although over half of them relate to funerary or ceremonial contexts, the next largest group is those that were found in contexts connected with water (two peat, three river, two river bank, one sea). Although it is difficult to be certain whether many of these were deliberately deposited or whether they have eroded out of banks or shores, as they represent 27 % of those from context it should be treated as a significant group. It may be that as many of the cobbles from which these artefacts were produced came from storm beaches or river beds that there was a lasting association between them and water.

7.2.1.3 A sensory history of shafthole implements fourth to second millennia BC.

Throughout the period, two processes are common to the production of the majority of shafthole implements. The first is the collection of the raw material usually a cobble, which has already been discussed. Collection may have involved the regular return to the same sources of good cobbles. Therefore, particular types of artefact would potentially become historically linked to particular places. The character of the environment of the source would dominate the sensory perception of collection. Collection also, however, involves attention being deliberately focused on one aspect, cobbles. After visual examination from a distance, a promising cobble would be picked up for scrutiny. As the cobble is being turned around in the hand it is examined for flaws. The selection of a cobble is a predominately visual experience

that involves a particular form of attention. The importance of the act of selection from a particular type of locale is emphasised by a significant number of these implements potentially being returned to similar contexts.

The second process, which is uniform to the production of the shafthole implements, is drilling of the shafthole. The contrasts between V-perforated pebble hammers and the straight shaft holes of other implements have already been noted. This contrast should not be over emphasised in terms of a difference in sensory experience of the act of drilling. In both cases, the task is likely to be exceptionally time consuming and involves the routinised movement of the human body. The rhythmic movement of drilling is interrupted only by the refreshing of a lithic tool or the addition of more sand abrasive to the drill point. Although visual monitoring is required during the initial phases of starting a perforation once the hole begins to get deeper it guides the drill. Drilling increasingly becomes a haptically dominant experience with the rhythm of the action. During the production of a straight shaft hole throughout the time of drilling the whirr of the drill and bow accompanies the act. Like drilling, pecking involves the routinised movement of the human body. In this case, a hammer stone is utilised rhythmically to strike and shape the surface of the emerging artefact. This process would be accompanied by the sound of the crack of stone on stone.

The earliest forms of shafthole implement are effectively natural materials that have been collected and then simply modified through perforation. The visual impact is limited to the raising in status, perhaps quite literally through hafting, of a natural phenomena to a slightly ambiguous object; paradoxically the original form is clearly recognisable but it is no longer its original form; nartefacts. This ambiguity exists to a certain extent with the impact that modification has on the haptic experience; again the original form can be handled but it is no longer its original form. Yet most important is that the hafting of an object fundamentally modifies the haptic experience of it. The human body engages with it in an entirely different fashion, the movements of the body and the actions that can be performed with the object are now different.

The decoration of some of the earliest forms of antler and ovoid mace-heads with lozenge decoration begins to disguise the original source of the material whether pebble or antler. Thus as opposed to decoration the application of these early designs may be considered as disguise. If we bear in mind that the decoration on Maesmore type maceheads involves the grinding down of the surface to create a pattern of lozenges, why should this grinding take place? I would suggest that grinding of the surface took place in order to ensure that the original material is fundamentally and unrecognisably changed. The application of a network of incised

lozenges would have been sufficient to decorate or change the appearance of these artefacts. Instead, a strategy was employed which had a fundamental effect on how these objects feel.

The series of types of maceheads (pestle and cushion) which emerge out of the ovoid forms rarely show any decoration. What we begin to see is an increasing number of different forms of macehead. It is only during the production of axe-hammers and battle-axes that we begin to witness the more frequent application of decoration to shafthole implements. The decoration on earlier forms of axe-hammers and battle-axes consists of forms of decoration that could be produced by pecking and grinding. Indeed, it is only on the later expanded forms of battle-axe that elaborate incised decoration was applied. This would suggest that by this time a visually dominant sensory order had emerged.

This section has considered the implications of the production and form of shafthole implements. The production of shafthole implements involves several different stages. After collection of the cobble the subsequent stages are often highly repetitive in the actions involved. It is clear that during the rhythmic actions of pecking or drilling the experience is in the main visual and haptic. It is important to recognise that the rhythm of the personal experience of production was made public through the crack of stone upon stone or the whirr of drill bow. Sound, therefore, potentially implicates all members of the community in the production of shafthole implements. It has been argued that in the earliest phases of production and use of these artefacts people were confronted by an ambiguity between their natural origin and their cultural state. The embodied nature of human experience meant that, despite a potential conceptual tension involved in the production of these artefacts, their subsequent use resulted in them being primarily understood haptically.

7.2.2 Carved Stone Balls (CSBs)

CSBs have long proven quite a mystery to archaeologists. There has been considerable speculation about their potential function: boalas, weights, juggling balls. None of these functional interpretations, however, have proved entirely satisfactory and, therefore, because of the highly decorative form of many CSBs, they are usually considered as some form of cult or prestige object. The following sections consider several interpretative themes relating to CSBs before presenting a study of their visual and haptic qualities.

Four aspects about these objects are important to our understanding of them. The first is that the majority are spherical and of a largely standard size, the second is it is usual to consider that

only the CSBs with incised designs either on the knobs or in the interspaces between the knobs represent decorated examples (Fig 48). The next point that is of significance is the limited distribution of this class of artefact. CSBs are almost exclusively found in Scotland with the majority concentrating in Aberdeenshire (Marshall 1977; 1983; Speak & Aylett 1996). The final point that should be borne in mind when interpreting CSBs is there are few examples which have been found in contexts considered as their primary depositional context. It is generally considered that the lack of information about their context of deposition makes their interpretation even more difficult (Edmonds 1992).

The evidence relating to the production of CSBs is slight. A probable candidate for the source of the raw material would be a rolled cobble as it would require the least working to produce a circular object. Striations are visible on some CSBs that may relate to tool marking. The polished, either deliberate or from constant handling, or weathered surface of the majority of CSBs has removed, however, many of the indicators of production.

7.2.2.2 The context of meaning

It is widely recognised that the context of deposition of objects is in itself meaningful and in part constitutes how they would be understood before the act of deposition. There is no doubt that the contextual information relating to the discovery of CSBs is exceptionally limited. Recent interpretations have implied that this may be the result of a deliberate depositional strategy in the past. We must bear in mind, however, that the majority of CSBs were discovered during the nineteenth century and in many cases were found during farming. Several examples that were discovered during drainage schemes several feet down would suggest that they were derived from the fill of negative cut archaeological features. Similarly many CSBs discovered from the surface of fields may originally derive from plough truncated features such as pits or occupation horizons. Clearly most of the CSBs that have been recovered are probably not from their original depositional context. The few accounts that do exist providing information on the context of recovery are, therefore, particularly important as they may reflect some of the depositional strategies that were undertaken in the past (Table 18).

One CSB from Ballater was apparently found within the interior of a kerb cairn on the ground surface adjacent to a cist containing a cremation deposit (Smith 1876a, 35-6). The construction and use of this monument, however, could date to any time during the third to second millennia BC. An example from Budfield was recorded as having come from a tumulus but it is not explicit as to whether this was from within the mound, on the surface below the mound or

within a feature such as a cist or pit (ibid. 34). Similarly the CSBs found within cairns at Old Deer (ibid. 39), Cairn Robin (ibid. 40) and East Braikie (ibid. 43) may have derived from a number of different contexts. It is tempting to consider that the above examples indicate that CSBs were utilised in a formal capacity at ceremonial monuments before deposition.

The other examples of CSBs with contextual information show, however, the potential variability in depositional practices. An example from Buckhall was found within a large pit that may have been a grave (ibid. 39-40) and Marshall (1977, 56) highlighted the discovery of two eight-knobbed balls within a cist at Ardkeilling. Most striking, however, is the large number of CSBs that have been recovered from contexts associated with water. These contexts range through places such as rivers, bogs and the seashore. Bearing in mind that this group represents the large proportion of CSBs with contextual information it can be considered these represent the result of a deliberate depositional strategy. Parallels for the deliberate deposition of artefacts in places associated with water is another form of ceremonial activity are readily found from the prehistoric period in north-west Europe (Bradley 1990).

It would, however, be a mistake to emphasise the apparent correlation between CSBs and exclusively ceremonial contexts. Other evidence exists which suggests that CSBs were utilised in contexts that would appear to be some form of habitation. Excavation at Eilean Domhnuill, North Uist, resulted in the discovery of a form of CSB from an earlier Neolithic settlement (Armit 1996, fig. 14.10). Similarly, excavation at Skara Brae has produced several carved stone objects among which are clear examples of CSBs (Petrie 1868; Childe 1931).

Reassessment of the contextual information relating to the deposition of CSBs clearly indicates that CSBs were deposited in a variety of contexts of which those associated with water form the largest group of examples (Table 19). It has also highlighted what may be a significant geographical pattern in the balance of depositional practices. The examples from the Aberdeenshire region derive predominately from contexts relating to ceremonial monuments. Further beyond the area of Aberdeenshire there was a more significant tradition of depositing CSBs in places associated with water (Table 19). It is only in the case of the most distant examples that we see a tendency for CSBs to have been incorporated into deposits in domestic dwellings. Significantly, the potential regional variation in depositional strategies implies that a number of different life cycles were available to CSBs.

7.2.2.3 CSBs as rock art and the chronology of CSBs

Assigning a date for the production and use of CSBs has always been notoriously difficult. The general lack of contextual information has resulted in parallels in decorative style being used to provide a date for them. Therefore the argument that the carved stone balls are late Neolithic in date is solely based on these more elaborately decorated examples (e.g. the Towie ball) finding parallels in decorative motifs in other later Neolithic mediums. The recognition of the parallels in design applied to different mediums has been of some significance, allowing CSBs to be conceived as part of a wider prestige goods economy, representing an important interpretative advance. This perspective has, however, largely prevented discussion on how CSBs relate to a wider class of material that they belong to, that is, rock art.

The rock art of Britain is composed of two main geographically overlapping traditions; cup and ring marking and Boyne (Burgess 1990). The area of Aberdeenshire has a relatively limited quantity of rock art. Of these, the vast majority of examples are simple cup marks or cup and ring markings (Morris 1989). The majority of such art, apart from the few examples found on boulders or outcrops, is found applied to stone circles. If we are to consider that CSBs represent a variation on the rock art tradition, clearly the chronology of rock art is crucial to our interpretation of CSBs.

It is important to bear in mind that the probability exists of simple cup-markings dating to the earlier part of the Neolithic (Burgess 1990). Indeed, in the case of Aberdeenshire and the north-east there are examples of cupmarked rocks being incorporated into Neolithic monuments at Dalladies and Strichen. At Dalladies the cup marked slab was incorporated into the monument after the phase II monument dating to 3626-3338 BC (SRR-289) and 3489-3037 BC (SRR-290) (Piggott 1972). Clearly, the tradition of simple rock art potentially goes back to the fourth millennium BC in the Aberdeenshire area. In light of these observations, I would suggest that as unincised CSBs they effectively represent a form of mobile rock art they may date to the same period as simple cup markings and the more elaborate examples of incised decoration are either later elaboration of chronologically earlier objects or, the more likely, a later development in a long tradition of CSB production.

There is one other piece of evidence which supports the probability of an early Neolithic date for the origin of the CSB tradition. From Skara Brae, Orkney, there was an example of a carved stone object (Petrie 1868, Small find no 5) recovered from a stone box set within the floor of house three. A V-perforated shaft through the object this has led to it typically being

considered as a mace-head. Closer examination would suggest, however, that the object is in fact a multi-knobbed CSB subsequently perforated for hafting. The end of the phase II occupation at Skara Brae has been dated to 2883-2211 BC (Birm 436). Clearly, the production of the original CSB predates it conversion into a macehead and its subsequent deposition that took place before the end of the phase II village. If the CSB originated in Aberdeenshire and reached Orkney by down the line exchange its date of production may originate to the second half of the fourth millennium BC.

7.2.2.4 A visual and haptic study of Carved Stone Balls

The majority of studies of CSBs have considered the interpretative problems of their apparent lack of obvious function and the general absence of contextual information. Despite important contributions to our understanding of the probable social significance of this class of objects these studies have largely been couched in negative terms. In an attempt to reframe the study of this important class of artefacts in terms that are more positive, I wished to explore the inter-relationship between the human experience of CSBs and the variation in their form and decoration. Towards this end, I wished to consider the haptic and visual qualities of CSBs.

My intention has been to begin to explore new interpretative avenues to the study of a particular class of artefact, and material culture in general. What is presented here, therefore, is a general account of the sensory experience of a number of different CSBs. Reference will be made to particular artefacts when significant contrasts require to be discussed.

In order to assess the potential haptic and visual qualities of carved stone balls the collection at the Kelvingrove Museum was examined. Although only representing a small number of CSBs the group was particularly suitable sample for study as they exhibited a wide degree of variation with six of Marshall's eleven types being represented; types 2, 4, 6, 7, 9, & 11. Each of the CSBs was studied in turn in a number of ways;

- They were first examined purely by touch.
- They were then examined visually while being held.
- They were then observed when in motion; a) tossed from hand to hand. b) spinning from hand to hand.
- Then they were observed from a distance to assess how well form and decoration could be distinguished.

Examination by touch

The first thing that you notice when your hands enclose around a CSB is their coolness to the touch. As the lateral motion of the fingers explores the form of the object the texture rapidly becomes apparent. Many of the balls have a smooth surface potentially deliberately polished or a product of frequent handling. In one case, several polished facets were present which were identified during handling. On some of the balls, the surface was rougher either because of different finish, handling or weathering. The sub-spherical shape of these objects is rapidly established during the initial enclosure of the hands and the exact form of these is rapidly determined by following their contours. In the case of the balls with a limited number of knobs, the number is quickly and readily established. Where a larger number of knobs are present it becomes increasingly difficult to establish the exact number by touch alone.

The presence or absence of incised decoration was also established by handling. The presence of decoration could be ascertained when a decorated knob rested in the palm of the hand but nothing of its detail could be established through palm contact. The active examination of the decorated portions of a CSB with the finger tips produced further information about the type of decoration e.g. incised. It was rarely possible, however, to be certain of the exact pattern of the decoration from handling alone.

Holding a 14 knobbed CSB in the palm of one hand my fingers nestled between the knobs. Although it is particularly easy to hold a CSB just with the finger tips it feels somewhat insecure. The CSB is comfortably moved, like a worry ball, in a circular motion in the palm of my hand. You are constantly aware, because of the inter-spaces, of the pressure of the knobs against your hand during motion.

If we consider that CSBs are a form of mobile rock art, we must briefly consider the difference in the sensory experience of other forms of rock art. Increasing distance from a decorated rock surface means, as with CSBs, the form and decoration applied becomes difficult to distinguish. Most rock art requires to be observed particularly closely to appreciate it. In the case of CSBs the hand is engaged with a series of convex facets, in contrast when examining rock art, the fingers of the hand encounter a series of concave depressions. The tactile experience of a unincised CSB can be considered as the opposite of touching a group of cup marks.

Visual Examination

It is interesting that, as the number of knobs has been used as the basis for categorising CSBs into various types, only in the case of the balls that have a smaller number of knobs is the exact number discernible at a glance. In the case of CSBs with over eight knobs, the number of

knobs becomes increasingly difficult to establish as it becomes greater. To establish the number they have to be deliberately and carefully counted.

Visual examination does allow for the details of the decoration to be discerned almost immediately. During visual inspection, the circular shape of the CSB means that there is a tendency to examine it by rolling it through its different faces. In the case of examples that have incised lines defining the extent of the inter-spaces these lines are often continued through to join different inter-spaces. When the ball is rolled in the hand during visual inspection these lines gives an increased sense of a unity of surface: where does one face begin and another end? In the case of examples that have more complex incised decoration on the inter-spaces or knobs this sense of continuity of object is tempered by an increasing sense of fragmentation as it is examined in more detail. For example, one ball from Alford has all the inter-spaces and one knob finely decorated with a variety of six different motifs. The different motifs in the inter-spaces form a large number of different combinations of pattern when viewed a variety of different orientations and perspectives. The application of different motifs in effect produces a number of different objects. Once decoration is applied, the sense of the continuous surface of a sphere is disrupted; the CSB is no longer uniform in our experience of it.

Examination during motion

During handling it became apparent that the size of the CSB meant that it could be moved in the palm using the fingers of the same hand. CSBs, like so many other types of artefact, are rarely considered in terms of motion. Considering motion is highly significant as movement is fundamental to the haptic experience of an object during its use.

When tossed from hand to hand the form of that particular CSB is still clear. When spinning a CSB from hand to hand, however, the real form of the object is more difficult to ascertain. A spinning motion results in the object appearing to have more knobs than it really has. This phenomena was particularly striking with the type 2 balls and would only be witnessed in balls with a low number of knobs. In contrast, balls with a large number of knobs (e.g. type 7) do not behave in this fashion. In contrast when examined during spinning the knobs blur together to create the impression of a complete sphere. Another contrast is evident from the spinning of balls with heavily decorated inter-spaces. In the case of these, the inter-spaces become the more prominent part of the object during spinning.

The experience of the motion, which has been discussed so far, has been considered from the perspective of close proximity to the object. Clearly if it was thrown any distance the form and

decoration would not be apparent during motion. Although it was not possible to confirm this with an original CSB.

Examination from a distance

Individual CSBs were set on a surface and observed in order to establish how well form and decoration could be distinguished from a series of different distances. This established that the details of the decoration on an incised CSBs became difficult to distinguish at about 5 m and impossible to see much beyond this. At a distance of about 5 m, however, the knobs are still clearly distinguishable. I found that at a distance of about 10 m the form of the CSB begins to become indistinct. The knobs are difficult to distinguish and with further distance the object increasingly looks like an unmodified stone.

7.2.25 .A sensory history of Carved Stone Balls fourth to second millennia BC.

Through reconsideration of the contextual information which is available relating to CSBs, and by interpreting CSBs as part of the wider phenomenon of rock art, a typology has been suggested for them that distinguishes between earlier plain knobbed varieties and later incised forms. It is therefore proposed that the introduction of incised decoration on CSBs may relate to a shift in the sensory order.

The study of the visual and haptic qualities of CSBs has highlighted several important points about the experience of CSBs during their potential life histories. Both the form and decoration of the object are discernible through touch but the precise details of decoration are only apparent visually. Notable, however, is the fact you require to be much closer to view incised decoration on a CSB than when you observe the overall form of the object. Marshall's (1977) system of categorisation distinguishes decorated balls as a separate type. This, however, stems implicitly from a perspective that considers that decoration must be predominantly visual in experience. I would suggest that we must consider that all CSBs are effectively decorated objects, as during production a series of choices were made about there form and appearance. It is possible that Marshall's type nine balls represent a chronologically distinct group of artefacts that reflect changes in the way the sensory order was expressed through these artefacts. In one context of use, CSBs are intimate objects that could only be clearly observed or experienced by a small number of people at any one time. For more than one person to experience a CSB, the artefact would have to be passed from person to person. The type and form of this experience may have changed historically as manifested in changes in the sensory balance of the CSBs.

The second aspect that the study of CSBs has shown is that the choice of form and decoration on them means that they are not stable objects. The multiple number of different faces that are potentially presented to the person holding a CSB means that there is no single experience of it. Indeed, if these objects were ever spun in the past this would result in the temporary transformation of the object into either another form with a greater number of knobs or a complete sphere. This magical transformation as it relates to a change in form of the object, could be witnessed by a much larger group of people. In this context of use, the instability of the object may be most important as a socially shared experience.

These points indicate that CSBs could have had several social roles during their use life representing either highly personalised, perhaps private objects of contemplation, or alternatively utilised in a ceremonial context as an affirmation of shared community.

The study of the visual and haptic qualities of CSBs has highlighted two important points about the experience of CSBs. The first is that to appreciate the complexity of the form and decoration of a CSB you have to be exceptionally close. In effect, they are intimate objects that could only be clearly observed or experienced by a small number of people at any one time. For more than one person to experience a CSB they would have to be passed from person to person. The second aspect that the study of CSBs has shown is that the form and decoration on these means that they are not stable objects. The multiple number of different faces that are potentially presented to the person holding a CSB means that there is no single experience of it. I would suggest that these points indicate that CSBs were either highly personalised, perhaps private objects of contemplation, or that they were utilised in a ceremonial context as an affirmation of shared community.

7.3 The sensory order of artefacts during the fourth to second millennia BC.

There is long tradition of archaeologists studying particular types of objects in isolation from others, which were in circulation and use at the same time during the past. Other types of artefacts are only usually discussed in terms of known associations in order to generate a system of relative dating. In the past, however, the meaning of particular types of artefact would be constituted through the inter-relationship between all material culture. The results of the preceding case studies provide not only insights into the meaning of particular types of artefact but provide a basis for the consideration of how the inter-relationship between different mediums and types of artefact may relate to historical changes in social structures.

A concern with all phases of the history of an artefact can potentially highlight meanings that may have been associated with them in the past. The probability that the majority of shafthole implements and the possibility that CSBs were produced from cobbles derived from river beds or storm beaches has been highlighted. Consideration of the context of deposition of CSBs and shafthole implements has indicated that there may have been a tradition of deliberate deposition in contexts associated with water. It would therefore seem, that these artefacts were permeated with the meaning of the source of the material throughout their life history. This association was retained to such an extent that for some it was considered appropriate to return them to their place of origin.

We can compare the proposed sequence of change in the perceptual qualities of the different types of artefacts that have been studied. The transition between the fourth and second millennia BC in forms of pottery exhibiting tactile dominance to those exhibiting visual dominance is particularly striking but can in part be mirrored in the other mediums we have studied. It has been proposed that there may be a chronological distinction in the forms of carved stone ball recovered from Aberdeenshire with an earlier phase of knobbed varieties and a later phase of more elaborately incised decorated examples. If this proposition can be sustained this would mirror the transition from tactile to visual dominance witnessed in pottery. A similar case can be made for the transition in types of shaft hole implements. There are limited examples of the earliest forms with decoration. In contrast increasing complexity of form and decoration becomes apparent in later types. The notable exception to this general trend is the Maesmore type macehead. They are decorated in such a fashion, however, that displays a haptic dominance. The shift in the perceptual qualities in these form of artefacts is potentially an indicator of a change in the balance of the sensory order. In short, there was a transition during the third millennium BC from haptically dominant order to one visually dominant.

The far reaching consequences and complexity of the meanings associated with transformations in sensory orders is evident when we consider an example of the potential strength of colour symbolism in such schemes. As discussed above there was a long term shift from the fourth to second millennium BC for the predominate colour of pottery to change from grey-brown to red-orange. Let us contrast this with the shift in predominate colour of the major forms of arrowhead over this period. As noted in chapter two, the leaf shaped arrowheads are more often of red flint and the barbed and tanged are more frequently of a grey-brown. It is, therefore, clear that where colour of artefacts was expressed as a preference during this period

it did not relate to all artefacts, instead each class was considered in its own terms. This understanding would, however, have been framed in relation to a wider system of classification.

Let us take another example to show the potential for similar types of study. The earliest copper and bronze metal work from the north east Scotland are of a limited number of types of artefact including flat axes, knives, awls and decorative objects such as beads. The examples of these early types of implement are simple in form and in the main show no decorative embellishment. It is only during what is proposed as the earliest phase of metalworking that decoration is generally absent from metal work. Thereafter decoration is found to varying degrees on almost all types and forms of metal object. The potential importance of colour symbolism is also evident in the case of metalwork. It has been suggested that the appearance of some of the earliest forms of flat axe was deliberately enhanced by the addition of an outer coating of tin. If this was the case, and there is some debate, this would have resulted in the bronze object having a silver (tin) as opposed to gold (bronze) colour.

The dynamic degree of meaning between different mediums or types of artefact is highlighted by such observations. Without study of further examples, it is impossible to form any definite conclusions about the implications of the inter-relationships between different mediums or types of artefact. Two examples are particularly pertinent to the above case studies. First, it is worth noting that Roe (1968, 147) considered that two of the mace-heads which were studied were of pottery. The second is that there are no examples of copper or bronze arrowheads from Britain of a barbed and tanged form. This is perhaps surprising when the barb and tanged arrowhead is associated with early metal working. The study of cross fertilisation between different mediums is potentially highly significant to our interpretation of systems of signification, which in turn relate to sensory orders.

It is likely that the transition of the perceptual qualities of artefact forms during the fourth to second millennia BC reflects changes in the sensory order during this period. The change in sensory order has important implications to how monuments and the landscape they were embedded in would have been conceived as being interrelated. It is important to recognise, therefore, that artefacts were also understood in inter-relationship with monuments as material culture and the human experience of landscape.

Chapter 8

To see or not to see;
a study of monument inter-visibility and visual fields

Introduction

The monuments forming the focus of study in this chapter are the Recumbent Stone Circles. This chapter is concerned with the inter-relationship between the form of monuments and their location within the landscape and is divided into two main parts. The first section considers the implications of the form of the architecture of a RSC on the embodied experience of both the monument and its relationship to the landscape it is situated. The second part of the chapter is a study of monument location in terms of the visual field and degree of inter-visibility that the choice of location afforded.

8.1 Time and Motion: a model for the use of Recumbent Stone Circles

How do we begin to consider the way in which wood or stone circles were used in the past? Do we consider the nature of the circle? Do we try to understand what the deposits within the circle may represent? Generally, there have been three main hypotheses as to the function of stone circles; meeting/ceremonial places; sepulchral monuments; and places for astronomical observations. Indeed, it can be argued that stone circles are now generally considered to represent ceremonial places, at which simple astronomical observations and a variety of deposits of skeletal material were made (e.g. Barclay 1997b).

In the case of the RSCs, previous approaches have attempted to understand the RSC through the recumbent stone. This is understandable as it is the defining feature, and it has been argued by some that this was the first phase of monument construction (e.g. Kiellar 1934; Burl 1980). In an attempt to interpret the recumbent stone because of a preferred location for it on the circumference of the circle it has largely been studied, however, in terms of its orientation on a perpendicular line. This has proved an important methodological approach to provide a set of

objective data for analysis in terms of monument orientation. Data which has led to the argument that the recumbent and flanker were erected to observe the movement of the moon across the sky (Burl 1980; Ruggles & Burl 1985).

Yet, these studies have ignored both the choice of form of the architecture of the monument and the human experience of it. Indeed the use of the perpendicular line as a unit of analysis privileges only one position (Fig 49), only one experience of the monument when in fact there are many (see section 4.3.1). For example in the study of topographical orientation by Ruggles and Burl (1985, 45-50) it was considered that the prominent peak of Mithers Tap was not orientated upon. This is true if the monument is considered in terms of alignments perpendicular to the recumbent but, as will be shown within this chapter, when observed from elsewhere within the monument such observations are readily made (Plate 10).

Let us now consider the implications of the views on human perception, as proposed in chapter five, on how landscape is understood. It was noted that perception was an embodied activity, and that any meaning relating to material culture (indeed all phenomenon) stemmed from this: 'to perceive the world is to coperceive oneself' (Gibson 1986, 141). Unfortunately, the potential significance of Gibson's approach to the understanding of material culture has not been widely known by archaeologists. Notably, however, the usefulness of Gibson's ideas has recently been recognised for the analysis and interpretation of landscapes (Ingold 1992; Llobera 1996). My interest in Gibson's work, combined with some of the insights from archaeological phenomenologies, led me to think about what monuments may afford to the human perception of the landscape. The model for understanding one of the ways in which RSCs were utilised stems from my own experiences of approaching, being within, and leaving these monuments. Fundamentally, the basis of my model requires the recognition that that any monument, indeed any phenomenon, is experienced differentially by observers depending on their location in relation to it. There are, therefore, some fundamental structural distinctions in how the observer may experience these monuments. The most obvious distinction may be that of experiencing the monument from the interior or exterior. Let us first consider how the monument may be perceived from the exterior.

8.1.1 Perception from the exterior

One of the distinguishing features of the 'classic' RSC is a large recumbent and flankers set on the circumference of the stone circle. The classic location of these monuments is just below the highest point of the southern facing slope of a prominent peak (Plate 11). This means that

beyond the highest points along the northern aspect the monument can not be seen. The western and eastern aspects often curve away along a contour and if you travel beyond a certain proximity the monument again generally falls out of sight. Similarly, when one moves beyond a certain distance to the south the monument falls out of view. Generally from the south, the monument will not be visible again until the observer starts to go up the opposite north facing slope or where there is an open aspect. In each case, the point where the RSC is revealed again is from such a distance away that it is not clearly visible from the south. Therefore, although the monuments are located on a relatively prominent position they maintain a limited degree of visibility from outwith and when visible from a distance the details of the monument are unclear. Significantly if the observer is situated to the south it becomes harder to see the interior space of the monument and, therefore, to see what activities may have been taking place in the monument. From the south the large recumbent and flankers of the classic RSC act as an effective visual screen to the interior space (Plates 12 & 13).

As discussed above it has been long recognised that the recumbent and flankers are often set in from the main circumference of the circle. Within Burls devolutionary scheme these would represent later degenerate forms of RSC. It has been suggested that this was undertaken in order to increase their visual impact to 'centrally-placed participants' (Barnatt 1989, 80). This is certainly one possibility, although it has not been explicitly theorised by Barnatt as to why participants would be centrally placed; implicit in his general model would be an authority figure. In contrast, it is proposed here that a series of different perspectives of participants require to be considered. Perhaps one of the most important affects that the movement of the recumbent and flanker inwards has is on the view from outside the monument. Again if considered from the points of view to the south the movement inwards of the recumbent and flankers offers a wider front to the observer. This impact is even more pronounced from farther away when a monument can be observed from the valley, where the presentation of a wider face effectively creates the illusion of a more imposing monument. The importance of this feature is also appreciated when the monument is encountered closer up where the interior view is restricted at several points on the exterior, through what can be termed the trident effect.

At several 'classic' sites visited where the recumbent, flankers and the next adjacent stones survive intact a curious phenomena can be observed; e.g. at Midmar and Cothiemuir. Whilst walking around the exterior of the monument a point is reached where the stones adjacent to the flankers completely obscure the recumbent stone (and therefore any body standing at it) whilst still enabling both flankers to be seen. The uprights within the field of vision appear as a group of three stones, effectively forming a stone trident (Plate 14). Thus it may be suggested that another reason for the grading in height of the stones increasing towards the south may also

relate to a desire to close down the ability to observe the interior events from the outside. Thus, viewed from the outside the RSCs represent a paradox of what appears to be an understatement in confinement, an open ring of upright stones with large gaps between them, yet at the same time a combination of topography and architectural features means that the monument can only be seen into from a restricted number of locations. The location that offers the most potential for observing the events within the RSC is the limited slopes to the north. Significantly it is from the north-east that the possible examples of avenues, at Crookmore, Druidsfield, Nether Balfour, may have approached the RSCs.

8.1.2 Perception from the interior

When observed from within the 'classic' RSC, indeed within most SCs, the landscape appears to be divided into a series of segments by the orthostats. As one moves around the interior of the monument, which should be relatively easy to do in the earlier phases before the addition of interior architectural features, the portions of landscape framed by the orthostats changes. This ability to shift the area of landscape framed by the uprights is most clearly demonstrated through the setting of recumbent and flankers. As outlined above previous interpretations have often considered that the basis of analysis for the recumbent and flankers has been the line of sight perpendicular to the mid point of the recumbent stone. The reason for this has largely been accepted as to allow, depending on who you read, either precise observations of or general orientations on the movements of celestial bodies, in particular the moon. It is, however, important to bear in mind the potentially powerful effect that frames have on how we perceive (Duro 1996). We should, therefore, consider how the view changes within the framing device of recumbent and flankers when movement takes place within the circle we can see other aspects of how the architecture may have been used and understood.

Let us first consider movement within the circle along the perpendicular line that has so often formed the basis of analysis. When standing on this line at the northern most point within the stone circle the visual frame contains a greater proportion of the local horizon than sky, in some cases the visual frame is almost exclusively filled by the land of the local horizon. The top of the flankers is therefore often situated broadly at the point the land and sky meet in the frame. As we move closer to the recumbent stone, the proportion of land to sky framed begins to fall, with sky increasingly filling the visual frame. Just short of the recumbent, c 2.5 m to the north, the visual frame will become almost exclusively or entirely filled with sky. For the observer at this point, the recumbent has effectively been transformed into the local horizon. By the time

we reach the recumbent stone the view of the landscape below, however, becomes revealed when standing adjacent to it (Table 1: Scene 3).

Movement along the perpendicular line therefore has two distinct effects on the view of the observer. The first is that the relationship between the proportion of land to sky framed changes as they move through the monument. The sky increases in dominance closer to the recumbent until a point is reached where the landscape, which with movement became increasingly hidden by the recumbent, is dramatically revealed below. Due to the location of the monument in relation to slope, this visual effect would be experienced to a certain extent without the presence of a recumbent but the use of the recumbent enhances and further dramatises this experience. The second is that the width of the visual field increases as one moves closer to recumbent stone. The visual field increases from an arc of c 15 degrees at the rear of the circle to 180 degrees when standing adjacent to the recumbent stone. Therefore, as one moves closer to the recumbent a greater proportion of the landscape becomes framed between the flankers.

By moving position farther to the east or the west within the monument the area of landscape framed can be changed within the 180 degrees in front of the recumbent and flankers. The frame provided by the recumbent and flankers can therefore be used to emphasise and observe most locations within the southern sphere of the horizon (Plates 15 - 17). As discussed previously precise observation are better achieved through tying down with closely set pairs or making alignments with backsights and foresights. The concern with the southern portion of the horizon may relate to a desire to incorporate significant points in the movement of the moon but this concern is general as opposed to specific. The predominate importance of the recumbent and flankers is the flexibility of the visual frame that they provide offering a degree of ambiguity in how the monuments were used and understood.

8.1.3 Later elaboration's

Before moving on I wish to highlight two other aspects of the architecture found at some RSCs. At several sites, there is evidence of a platform located on the inside of the recumbent stone. The chronology of this feature is not certain, although it is clear that the platform was built against the recumbent stone, and therefore late. The time, however, between the erection of the recumbent and the construction of the platform is not known. What is apparent, however, is that the construction of a platform behind the recumbent stone enhances the effect of visual revelation to the observer as they move up to the recumbent. At about the point where the

recumbent may have obscured vision completely one is lifted up to a level where the landscape below is now suddenly revealed.

It would appear that the platform was held in place by the two stones running perpendicular from the flankers. The better preserved examples suggest that these stones were in part linked to the stones of the kerbing for the internal ring cairn. Again the detailed chronology of the different elements is not certain but the evidence suggests that the internal ring cairn is a later elaboration. Where present, the addition of the two perpendicular slabs act as a funnel to the line of sight from elsewhere within the northern portion of the interior of the monument. Yet, when standing within the southern portion of the interior and exterior, these slabs, and associated kerbing, further obscure the recumbent stone.

The apparent pairing of stones across the circle emphasises this tunnel effect. It could be that it evokes something of the architecture of the stone avenue; architectural devices that may have guided the ceremonial movement of people though the landscape. In this case, the movement is through the monument itself evoking the feeling of the final approach down an avenue towards the recumbent. An idea which may be supported through the few accounts of avenues within the area having an approach from the North.

The preceding section has outlined how RSCs can be reinterpreted as actively utilised monuments that were understood through reference to the visual field. As the monument is experienced differently from the interior and exterior it can be seen to operate not only at the time of active use but at also serves as a visible reminder at other times when it can be observed from locations elsewhere in the landscape.

8.2 Visibility studies

My interest in many of the issues relating to the perception of landscape in Aberdeenshire stems from the time I spent there before commencing my research. Whilst excavating at the flint mines dating from the third millennium BC at Skelmuir Hill and Boddom a regular feature of the landscape was the coastal har which completely blankets vast areas of Buchan. At Skelmuir Hill (149 m O.D.), located some 13 km to the North West of the nearest coast, during the early morning the presence of har meant that visibility was usually less than 200 m, increasing gradually as the har cleared as the day progressed, and during the early evening it rapidly returned obscuring everything again. When the har did clear, however, it is significant to note that it was around the most prominent peaks that it cleared first, from the top of which

the valleys beneath appear as ghostly basins. Some days the har never cleared; a perpetual twilight. The extent and quality of visual perception in this landscape was heavily affected by climatic conditions. Certain times of the year would generally provide better opportunities for long distance observations through variations in cloud cover, rain etc. Yet my experience was not purely one of being overwhelmed by environmental factors, I was able to climb to a higher point and ensure I could at least see what only the god(s) should, the view above the clouds. It was clear to me that the combination of different environmental factors of topography and climate afforded certain ways of experiencing the landscape. The cloth of the landscape has many folds and cuts which afford a degree of variability in the perception of landscape. One aspect that dominates our visual perception of our place in the landscape is our relative height within it. The lofty peak affords a spectacular view of not only the land falling away beneath it but of the heavens above. If a position is chosen carefully, a situation can arise where the observer from above, although able to watch their every movement, is unlikely to be seen by those below. Emphasis can be given to particular objects or places through hiding or screening them, resulting in their revelation having increased significance. Thus, one aspect of inter-visibility studies that is fundamentally important is the use of invisibility. In the case of monuments, this may be seen in their deliberate positioning where they cannot be seen because of topographical obstructions.

The stereo-typical location of RSCs has been described as 'on a step or spur with wide views' (Burl 1974, 58; Kenworthy 1975, 77). The danger of such stereotypes is that, representing the average of a wide variability, they mask the potential complexity of the factors influencing the choice of monument locale. I found it impossible to discuss the historical relationship between people's perception of landscape and monuments without reassessing the location of each monument myself. It was necessary to identify the variability masked by the stereotype.

I realised that there were two factors which required to be considered for their degree of influence on the siting of RSCs, as these would ultimately have an effect on the inter-relationship between peoples perception of the meaning of monuments and the landscape. Neither of these factors had previously been systematically studied which made it impossible to assess whether they had any influence on the choice of monument location. One reason for the choice of location of monuments may have been the requirement to see other monuments from that position. Equally, it is possible that monuments were located at such a point to ensure a direct line of site to other monuments was avoided. Another reason which may have influenced the placing of monuments was the portion of landscape which was visible (visual field) from

that point. As the monument's visual fields had never before been examined it was not known if they were mutually exclusive or to what extent they overlapped and were shared.

Methodology

Before establishing my method for the study of patterns of inter-visibility, I wish to explain why I chose not to use alternative methods, in particular why I did not utilise a Geographic Information System (GIS) as a tool for the analysis of visibility relationships. Clearly, GIS represents a powerful analytical tool to the archaeologist for the study of spatial relationships (Lock & Stancic 1995; Aldenderfer 1996; Llobera 1996). The method of view shed analysis may have been a particularly useful tool for the analysis of inter-visibility (Wheately 1995). There is, however, a variety of reasons why I did not to utilise this approach. Amongst these was recognition that the subtlety of changes in the form and contour of landscape is lost in GIS because of the coarseness of the survey data being utilised. GIS inevitably involves a degree of primary and secondary errors that require to be assessed through field observation (Wheately 1995, 182-83). Fundamentally, viewshed analysis can not account for the variability of human perception of landscape as it continues to privilege the ocularcentric approaches that pervade archaeological practice. Finally, I felt that there was no substitute for attempting to interpret the perception of landscape through my experience of the archaeological remains themselves. As Aldenferfer notes the calculation of viewsheds have sometimes been 'used in lieu of thinking about the problem' (1996, 16). Fundamentally, I felt that viewshed analysis would tell me no more than could be established by the human eye, and their use would generate a quantity and quality of information which would be too unwieldy for the present study and miss the essential point of my approach.

My method, therefore, is simple and involves the human perception of landscape and monuments. I have visited the stone circles from which I have utilised 1:50, 000 maps and a compass, to chart the extent of visual field that can be seen from each. This allows me not only to note the extent of area that is visible but also the character of the landscape; as Tilley notes:

> 'The bones of the land - the mountains, hills, rocks and valleys, escarpments and ridges - have remained substantially the same since the Mesolithic' (1991, 73)

My concern is not with the distance visible from each monument as such, but for the implication that distances perceived from each monument has on a stratigraphy of sensory orders. It is these sensory orders which would have formed the basis for the emergence and formalisation of group landscape tenure. Of course, this is a highly subjective method based on the qualities of an individual's eyes (Valois & Valois 1988, 31-9). There is, however, scope for

testing my observations through the revisitation of these sites and the undertaking of the same method of study by anyone else. This would at first appear to be a broad brush approach but it is the subtlety of human perception which allows me to address another concern with inter-visibility between monuments, which is to assess the degree of monument avoidance. By this I mean that in some cases I have been able though moving either around the monument or along a hypothetical line of sight between monuments which are not inter-visible to assess the degree of avoidance.

It was originally recognised by Burl that there are discrete concentrations of RSCs, which may have represented regional groupings around Huntly, in Buchan, the Garioch, and the Donside. Burl has undertaken limited analysis of these groups in relation to his proposed chrono-typology. These concentrations centre around, but not on, prominent hill tops. The analysis of inter-visibility and visual fields is not an end in itself. Instead, it will allow me to begin to consider other issues relating to social change.

I would therefore argue that the choice of the location of RSCs may have related to already established territories which may be those portions of land which are visible from the RSC. In using the term 'territory' I do not suggest that there were discrete defended areas with boundaries or borders, instead that different portions of land and route-ways may be recognised tenure of distinct social groups through the type and structure of their mobility strategies. This study also aims to consider the pattern of visibility between archaeological sites or natural features as a possible reason for their positioning. My concern is, therefore, with being able to consider the changes in human perception that these landscapes brought about with various historical developments in the landscape. It could be argued, therefore, that my concern is with the qualitative experience of landscape.

As part of the locational analysis, the sites of sixty stone circles were visited in order to assess whether the factors of visual fields and inter-visibility had any influence on the choice of location of monuments. A combination of poor visibility, through bad weather (rain and har) or monuments being in plantations, and problems of access made it impossible to make detailed observations at every site visited. Ultimately, I decided that the results of my locational analysis were best presented as several case studies. The case studies I wish to present are of the groups of RSCs in Buchan, Alford, and the Garioch. My sample has, therefore, been limited to the thirty surviving sites within these areas.

8.2.1 The Buchan group

Examining the distribution map of stone circles within Aberdeenshire reveals several concentrations. Burl (1976, 184-5) recognised this uneven distribution pattern and used it as the basis for developing his 'demographic hypothesis' for explaining the increasing number of stone circles within his developmental sequence. One of these is a small cluster of circles in Buchan. He defined this Buchan group of circles as consisting of seven sites (Netherton (B1), Berrybrae (B2), Gavel (B3), Strichen (B4), Louden Wood (B5), Auchmachar (B6), and Aikey Brae (B7) which lay within an area of a triangle of 'seventeen square miles, the farthest only eight miles apart'. I shall now consider the relationship between the location of each of these circles, beginning at Netherton, the circle that is situated farthest to the east and ending with Aikey Brae. I then go on to consider the relationship between the stone circles above and two others which Burl did not include in his Buchan group but for which there is evidence for considering them as belonging to the same group.

Netherton (B1) (Figs 50 & 51)
This recumbent stone circle is positioned on a rise of ground with its steepest slopes falling away to the north and east. A local slope limits the view to less than one kilometre to the north. The presence of trees along that horizon may, however, obscure extensive views to the Moray Firth. The sea is visible about four to six kilometres away to the north east, east and south east.

An adjacent building obscures much of the view of the southern horizon. Despite this, it is still possible to discern that the view to the south would have been limited to a gentle local slope about one kilometre distant.

The land can be seen extending to the west, rising to the eastern slope of Mormond Hill some six kilometres in the distance. The recumbent and flankers of the stone circle have, however, been placed so Mormond Hill cannot be framed between them.

A slender area of land can be seen from Netherton running west to east. The most imposing topographic features are Mormond Hill to the west and an expanse of sea to the east. Situated 1.5 km to the west of Netherton is Berrybrae (B2). Although the stone circle at Berrybrae is currently obscured by trees, the position of the monument is clearly visible within the landscape.

Berrybrae (B2) (Figs 50 & 52)

Berrybrae sits on a gentle slope, situated just above a break in steeper slope rising from a local hollow. The area of land which can be seen from Berrybrae can be described as a more restricted version of that seen from Netherton (B1). Local horizons to the north and south define a strip of land. The view extends from the eastern end of Mormond Hill to the sea beyond the most easterly point of Britain at Rattray Head. Notably the peak of Mormond Hill can be framed when standing at the east flanker.

Although the locale of Netherton can be seen, the monument itself is currently obscured by trees. The visual field at Berrybrae creates a feeling of being within a familiar portion of landscape because of its limited size and extent.

Gaval (B3) (Figs 50 & 53)

Located towards the upper slope of an extensive rolling hillside, a single stone is all that survives of the stone circle at Gaval. The view to the west is largely obscured by a local ridge. To the north, the view becomes more extensive with the eastern end of Mormond Hill clearly visible. To the east, the views are extensive. For 12 km in the distance, the land below is visible with the sea also appearing just beyond Peterhead. The southern horizon is dominated by the hills that extend from Skelmuir Hill to the Moss of Cruden.

The combination of the higher peaks to the west and north and the extensive views to the south and east, when standing at the site of the circle at Gaval produces an awareness of being part of a wider region.

None of the other stone circles that Burl defined as the Buchan group are visible from Gaval. Notably, however, the south western most point visible is the area of Skelmuir where an isolated standing stone can be found.

At Auchrynie, situated about 1 km to the north west of Gaval, there is an ideal location for the construction of a RSC as it provides a local horizon to the south. If, however, this had been used to locate the planned circle it would probably have provided a line of sight to the nearby circle at Strichen. It would appear, therefore, that the ultimate choice of location of Gaval was more concerned with the visual field as opposed to monument inter-visibility.

Strichen (B4) (Figs 50 & 54)

The stone circle at Strichen is situated towards the top of a discrete hillock. From here an extensive corridor of landscape, which broadly follows the line of the North River Ugie, can be viewed running from the east to west. Mormond Hill and the ridge extending from its western end obscure the field of view to the North. The view to the south is obscured by a local ridge one kilometre distant. The limited views to the north, west and south prevent any of the other Buchan circles from being observed.

The maximum view to the west is of the hills at Yonderton and North Side, some 8 km distant. About 4 km farther beyond the hilltops of the Hill of Tillymauld and the Hill of Fisherie are visible. The northern slope of North Side only just obscures the position of the stone circle at Upper Auchnagorth (B9), to its west. It would appear, from map and field observations, that if the stone circles at Strichen and Upper Auchnagorth had been placed slightly farther to the North they would have been inter-visible. The choice of location may have involved a deliberate avoidance of inter-visibility. Higher ground to the east obscures the area of land which Netherton and Berrybrae are situated within.

The impression of enclosure is created at Strichen as the majority of the horizon around is local. This impression is not, however, overwhelming because of the extensive view to the west.

Loudon Wood (B5) (Figs 50 & 55)

To the south east there are extensive views of the landscape from this circle. In this direction, up to 13 km distant, Loudon Wood shares a common area of visual field with Gaval (B3). The southern view extends for four kilometres where it is largely obscured by the Hill of Dens. The locale of Aikey Brae (B6) stone circle can be seen on Parkhouse hill. As the top of the hill is covered by a plantation, it was impossible to see if Aikey Brae is inter-visible with Loudon Wood. The location of Aikey Brae, however, on the southern end of Parkhouse Hill would make inter-visibility improbable.

In the northern half of the horizon the view of the land is restricted to a local slope some one to one and a half kilometres distant. To the north west, the general locale of Auchmachar (B7) circle is visible but the monument itself is obscured by the northern slope of Auchmachar clump. It would have been easy to have built these monuments a slight distance to the north to ensure a direct line of sight.

Although Mormond Hill is not visible from this location, Bennachie can clearly be seen some 40 km to the south west. By standing at the east flanker it is possible to frame the peak of Mithers Tap.

The situation of Loudon Wood circle within a modern plantation makes it difficult to assess the impression of the visibility field. The local horizon to the north and the extensive views to the south and east give a similar feel to that of Gaval.

Aikey Brae (B6) (Figs 50 & 56)

From the location of Aikey Brae, extensive views are available to the east and west. The visibility field to the east is exceptionally similar to that seen from Gaval (B3). The coast and sea can be seen 17 km in the distance extending from Peterhead to St Fergus. The location of the monument means it shares the same south eastern horizon as Gaval and Loudon Wood (B5) of the area of Cruden Moss. The view to the south is obscured by the local horizon provided by the northern slopes of Hill of Den, and the view to the west follows the course of the Water of Fedderate extending 13 km to the north west to the hill at North Side, which obscures Upper Auchnagorth (B9) some 2 km distant. Although Mormond Hill is not visible from this location, Bennachie can clearly be seen some 40 km to the south west.

It appears that a local slope to the north would obscure views to Auchmachar (B7) and Louden Wood (B5). The views from the location of Aikey Brae give a clear reminder that it is situated within a wider region.

Auchmachar (B7) (Figs 50 & 57)

The stone circle at Auchmachar was located at a point where extensive views are visible to the east and west. Views along the southern horizon are limited in part by Auchmachar Clump 500 m to the south east. Following the course of the South River Ugie the land can be seen to extend nine kilometres to the south west to Whitehillock and Backhill of Knaven. To the north and north east the view is confined by local slopes which are shared with Loudon Wood (B5) circle, and the view to the south east is extensive comprising of the same portion of coastal plane and the slopes of Cruden Moss which is also visible from Gaval (B3), Loudon Wood (B5) and Aikey Brae (B6). Although Mormond Hill is hidden by the local northern slopes, to the south west Bennachie is clearly visible from the location of Auchmachar Circle and can be framed when standing at the east flanker.

It is worth highlighting that the long mound at Auchmachar is farther up slope, only 400m to the north west, and is not visible from the location of the stone circle. When the long mound is

visited, it can be seen that the circle has been placed on the orientation of the axis of the long mound.

Auchmallidie (B8). (Figs 50 & 58)
Placed towards the southern end of a prominent plateau within an area of rolling landscape., the only surviving elements of this circle are a recumbent stone and flanker. Strikingly both are composed of white quartz.

An area to the south east is obscured by a local slope for about 45° of the horizon. The upper slopes of the hills beyond are, however, clearly visible. As there is no local slope to restrict the remainder of the view to the south the predominate feeling is of extensive unrestricted views from this location.

To the south west, the Skirts of Foudland can be seen. Running from here is a range of hills incorporating Deer Hill, Newton of Millfield, Northside which reach the Hill of Turlundie 12 km to the north of Auchmallidie. From here hills extend to the north east up to Mormond Hill which can be seen fifteen kilometres away. The eastern view is of the group of hills around New Deer; from the hills around Loudon Wood to the north running south though the hills of Parkhouse Hill, Wind Hill and Hill of Dens six kilometres away. At this point, the view to the east becomes more extensive with Smallburn Hill visible fourteen kilometres away.

The distinctive profile of Bennachie dominates the south western horizon. If the surviving stones are broadly in their original position, it would be possible to stand at the east flanker and frame Bennachie.

Auchmachar Clump is clearly visible but obscures the nearby circle of Auchmachar (B7). Similarly, although the general locale is visible the circles at Loudon Wood and Aikey Brae are obscured by their local slopes. Despite the encircling hills, the extensive visual field produces a feeling of great spaciousness at Auchmallidie. This feeling of spaciousness is probably because of the area of land running 45 km in length from Mormond Hill to the north east towards Bennachie at the south west.

Upper Auchnagorth (B9) (Figs 50 & 59)
The stone circle at Upper Auchnagorth is situated at the northern end of an elongated hillock running north to south. To the north, the horizon is defined by upper slopes of Bracklamore Hill and the Hill of Fisherie, about two and a half kilometres in the distance. This relatively local horizon continues to the east forming a series of other hills; Hill of Tillymauld, Hill of

Litterty, Hill of Cotburn and Hill of Barnyards. About eighteen kilometres to the south east the range of hills terminates at the point of the Wood of Dalgety and Hill.

To the south and west of Upper Auchnagorth, the horizon is created by another range of hills running north to south from Northside to Newton of Millfield. To the north west, however, the land can be seen falling away for nine kilometres to Upper Boyndlie. The sea of the Moray Firth can be seen beyond the visible land.

The visual field of Upper Auchnagorth creates an impression of being situated in a length of tunnel. When visible, the sea to the north west gives the impression of the light at the end.

Notably neither Mormond Hill nor Bennachie is visible from this location. There are also no direct lines of visibility to any other stone circles. If, however, the circle had been constructed on the eastern slope of Northside hill lines of visibility would have been gained to several of the other Buchan circles.

8.2.3 The Alford group

Within the vale of Alford there are five surviving stone circles: Druidstone (A1), Cothiemuir (A2), Old Keig (A3), Druidsfield (A4), North Strone (A5).

Druidstone. (A1) (Figs 60 & 61)
Druidstone commands a prominent position in the north eastern part of Alford. From here local hills largely obscure any views to the west, north and east. To the south, however, a distance of 13 km can be seen to the series of peaks which separates the Vale of Alford from the Howe of Cromar. Indeed a range of more distant peaks can be seen beyond these hills.

The choice of location of Druidstone is particularly striking as it represents the stone circle that is closest to actually being located on the top of Bennachie. In fact, it is situated at a point where the westernmost slopes of Bennachie merge with the easternmost slopes of the Correen Hills, which in turn lead to the Grampian Mountains. The choice of location of Druidstone is even more remarkable when it is noted that if it had been constructed 750 m to the north it would have afforded broadly the same views of the vale of the Alford to the south but also would have allowed the Garioch to the north to have been seen into.

The locale of the circles at Cothiemuir and North Strone can be seen from Druidstone. Those at Druidsfield and Old Keig are, however, obscured from view by the Hill of Airlie. At a height of about 230 m, being at Druidstone creates a feeling of being almost on top of the (visible) world. The peak of Black Hill, however, 200 m higher, is only two kilometres to the east, which as the lowest peak of Bennachie serves as a reminder that you are nowhere near to being on top of the world.

Old Keig. (A2) (Figs 60 & 62)
Like Druidstone, Old Keig is situated towards the upper fringes of the vale of Alford. From this position the majority of vale of Alford can be seen below. The view to the north is restricted by the local horizon provided by the Hill of Airlie. The Correen Hills define the limit of view to the north west.

Although the western rump of Bennachie presents itself to view, Mithers Tap is not visible from Old Keig. The locale of Druidstone is visible from Old Keig but the trees to its north obscure the circle itself.

The impression of the landscape from Old Keig is a complex and some what paradoxical experience. There is a real sense of enclosure from the hills that surround the Howe of Alford. There is also a sense of being above the whole world as it unfolds beneath yet the gaps in the hills which form the horizon reveal more distant peaks which indicates the world extends farther beyond.

Cothiemuir. (A3) (Figs 60 & 63)
Cothiemuir currently lies within a clearing in a coniferous plantation that prevents any view of the surrounding landscape. The visual field relating to Cothiemuir has, therefore, been estimated by consulting maps.

Cothiemuir broadly shares the same northern horizon as that seen from Druidstone. The western slope of Bennachie obscures any view into the Don Valley running to the east. The southern view is broadly that gained from Old Keig of the range of hills running from Green Hill along the northern extent of the Correnie Moor to Langaddlie Hill to the south west, 12 kilometres in the distance.

About 1 km distant from Cothiemuir the slopes of the Hill of Airlie obscure all but the highest peaks above. From this point, the visual field extends to the south west with views across the

valley floor. The view potentially extended to a point where the river Don turns from the north to the east into the Vale of Alford at Cattens.

It is probable that, with the absence of trees the site of Old Keig would be inter-visible. Equally with no surrounding woodland, the locales of Druidstone, Druidsfield, and North Strone would probably be visible.

Druidsfield. (A4) (Figs 60 & 64)

The circle at Druidsfield has been built on a terrace that overlooks the course of the river Don, only 200 m to the south. The area of land visible from this site is similar to the southern portion of the visual field relating to Old Keig. The local peaks that ring the Vale of Alford form the horizon in most directions.

A local slope to the north of Druidsfield, however, is likely to have prevented the views of the hills to the north. Unlike at Old Keig, the peak of Mithers Tap, overlooking the Don Valley to the east, can be seen from Druidsfield.

Although the views to the north are obscured by local trees, it is probable that Old Keig would have been visible from Druidsfield. It is also likely that the local slope to the north east did not obscure the view to the locale of Cothiemuir.

Situated so close to the bottom of the river valley, Druidsfield is in a reasonably unusual position. If it were not for the visible peaks of Bennachie to the east there would be a great feeling of being confined to a valley.

North Strone. (A5) (Figs 60 & 65)

This circle is located on the eastern slope of a prominent hill within the Vale of Alford. The local slope it is built on obscures the view to the west. It, however, affords good views to the north, east and south.

The view to the south west is restricted to only 5-6 kilometres by the peaks of Green Hill and White Hill. To the north, the whole of the eastern half of the Vale of Alford can be seen up to 9 km kilometres in the distance to the Broomy Lea and the higher peaks that extend to its west. The most striking view, to the north east, is of the length of Bennachie running to Mithers Tap.

The nearest other circle at Druidsfield is obscured by the local slope to the north west. It is important to note that if the circle at North Strone had been positioned some 20 m farther to the

north the circle at Druidsfield would have become visible. The location, however, of the circles at Cothiemuir, Old Keig, and Druidstone can all be seen.

8.2.4 The Garioch group

Often considered to be the greatest concentration of stone circles in Aberdeenshire (Shepherd 1986b, 7), the Garioch group of circles comprises of the largest number of circles in this study. For the purposes of this study the Garioch is defined as the area of land enclosed by Tap O'Noth to the West, the Correen Hills and Bennachie to the South, by the Skirts of Foudland, Hill of Tilly Morgan, Hill of Rothmaise to the North and to the east by Core Hill and Hill of Barra. The eastern end is a rolling landscape and the western end of the Garioch is more sharply divided by prominent hills and gullies.

Within the Garioch the remains of some seventeen stone circles currently survive; Upper Ord (G1), Corrstone Wood (G2), Ardlair (G3), Candle Hill (G4), Stonehead (G5), Dunnideer (G6), Inschfield (G7), Wantonwells (G8), Braehead (G9), Loanend (G10), Hatton of Ardoyne (G11), Old Rayne (G12), Loanhead of Daviot (G13), New Craig (G14), Balquahain (G15), Easter Auqorthies (G16), and Kirkton of Bourtie (G17).

Upper Ord. (G1) (Figs 66 & 67)
This circle is situated on the northern slopes of a small valley running off the western end of the Garioch, beyond Rhynie. The local slope to the north obscures any extensive views to the north. The slope does not, however, prevent the distinctive peak of Tap O'Noth from towering above. The south western slope of Ord Hill obscures any views to the north east but unimpeded the view of the western end of the Garioch extends about 8 kilometres to the east to Toft Hills. To the south east the hills that fringe the Garioch, ranging from Knock Saul to Cairn More, represent the maximum view. To the south and west, the visible field is much more limited, with Quarry Hill and Wheedlemont Hill only 1.15 km distant and Turf Hill three kilometres away.

The visual field of Upper Ord is somewhat limited and creates a feeling of local familiarity. The presence of Tap O'Noth looming to the north prevents this feeling from being overwhelming.

No other stone circles are visible from the location of Upper Ord. As one moves down the slope to the south, the flank of Ord Hill, however, falls away. By a distance of about 25 m this

allows Corrstone Wood to be seen. In the absence of trees, at a distance of only 2.5 km it is likely that the stone circle itself would have been distinguishable.

Corrstone Wood. (G2) (Figs 66 & 68)
Located just to the east of Rhynie, this stone circle is currently within a small plantation that makes the surrounding landscape difficult to see. It has, therefore, been necessary to refer to maps to estimate the extent of the visual field from here.

The eastern flank of Tap O'Noth commands the view to the north west and to the north east the Hills of Corskie and Knockandie dominate the horizon. This range of hills is broken by the river valley of the Water of Bogie extending to the north. The view to the east is limited to about 8 kilometres. The ridge of hills running from Hill of Leslie, through Gallows Hill, Hill of Christs Kirk, Hill of Flinder up to the lower slopes of Knockandie, prevents the eastern end of the Garioch from being seen.

To the south the range of peaks running from Knock Saul to Cairn More determine the extent of vision. To the west, Ord Hill, Quarry Hill and Wheedlemont Hill are only two to three kilometres distant.

From Corrstone, only one other stone circle is potentially inter-visible. If it were not for the trees, the locale of Ardlair circle would be visible about 4 kilometres to the north east. The other stone circles to the east are obscured by the local range of hills where they are situated.

The location of Corrstone circle upon a prominent hillock would probably allow a direct view of Bennachie and Mithers Tap to the east.

Ardlair. (G3) (Figs 66 & 69)
The visual field of Ardlair can be described as a combination of those of Upper Ord and Corrstone Wood. To the north west and south, the horizon is largely formed by the main distant hills that ring the Garioch and to the south east and east it is the lower local peaks and ridges running north from Hill of Leslie which frame the visual field.

Although the circle of Upper Ord is obscured by the hill of Ord to the West, monument inter-visibility from Ardlair is remarkably high. Corrstone Wood is clearly visible, and in the absence of trees, it may have been possible to distinguish the stones of the circle. The location of the circles at Stonehead, Dunnideer, and Candle Hill are all also visible. In the same way,

however, as at Corrstone Wood, a series of local horizons to the south east and east obscure the group of circles along the southern fringe of the Garioch (G 9, G10, G11, 12).

The peak of Mithers Tap is visible to the south east but cannot be framed between the flankers.

Candle Hill. (G4) (Figs 66 & 70)

At a height of 266 m, Candle Hill represents one of the most prominent hills within the western end of the Garioch. The stone circle is located on its south eastern upper slope that provides extensive views across the Garioch.

About 15 kilometres away, Turf Hill defines the maximum extent of the visual field to the west. The view within the northern half of the horizon is of the range of hills that define the extent of the Garioch. A gap in these hills, however, allows the upper slopes of the eastern end of Mormond Hill to be seen. Looking to the east the full extent of the northern part of the Garioch is visible, up to 20 km distant.

To the south east, the area around where the sites at Inverurie are concentrated is visible. Their actual locale is obscured, however, by the distant local hills around the river valley at Inverurie. The range of hills around Old Rayne, however, prevents the circles within that area, or much of the Garioch beyond, being seen. Similarly, the peaks of Dunnideer, Flinders Hill and the Hill of Christs Kirk obscures view into the southern edge of the Garioch.

From Candle Hill, there are a number of lines of inter-visibility with other circles. The circle at Stonehead is visible but the circles at Dunnideer and Inschfield are obscured by trees. If, however, there was no tree cover adjacent to these circles they would be clearly visible. To the east the locale of the circles at New Craig and Kirkton of Bourtrie are clearly distinguishable and to the west the locales of Ardlair and Corrstone Wood are visible.

The slopes of Bennachie and the peak of Mithers Tap are clearly seen from Candle Hill

Stonehead. (G5) (Figs 66 & 71)

This circle is located just above the break in slope of a south facing hillside. The southern horizon is dominated by the slopes of Hill of Flinders and Hill of Christs Kirk a distance of 1 kilometre away. A similar distance away, Dunnideer hill prevents views any farther to the south east. The view to the west and south west broadly includes the extent of the visual field seen from the other circles at the western end of the Garioch. To the west and south west, the distant peaks of the Grampian Mountains can be distinguished beyond.

Running from Knockandy, six kilometres to the north west, the visual field extends to the east along the hills that form the northern fringe of the Garioch. The Hill of Barra is visible 20 kilometres away to the east

At Stonehead, there is a particularly striking example of monument inter-visibility. The site of Dunnideer circle is located about 750 m to the east and is visible from the position of Stonehead. If, however, you walk to the south or north from the location of either monument the other site falls out of view, becoming obscured by the local slope.

In addition, from Stonehead circle, the Candle Hill is visible but the circle itself can not be distinguished, especially in its collapsed state, from its surrounding vegetation. None of the other local sites, however, can be distinguished, being obscured by local slopes.

Dunnideer. (G6) (Figs 66 & 72)

The position of Dunnideer circle is somewhat unusual, being situated on the north facing slope of a hillside below the peak of Dunnideer.

The visual field of Dunnideer is almost identical to that of Stonehead (G5). Clearly, because of the difference in location the shared visual field is viewed from a different perspective. A notable difference, however, in visibility is that Mormond Hill is visible through a gap in the hills to the north east.

From Dunnideer the circles at Stonehead (G5) and Inschfield are directly inter-visible. Also visible from Dunnideer is the peak of Candle Hill. Of particular note is that if the circle at Dunnideer had been placed at the southern side of the hill slope, the circle at Wantonwells would have become inter-visible, and inter-visibility with Stonehead, Inchfield and Candle Hill would have been lost.

Inschfield. (G7) (Figs 66 & 73)

Inshfield circle is placed on the southern end of an elongated hill top. From here, the southern horizon is dominated by Dunnideer and the lower slopes running to its west. Although the Hill of Christs Kirk and Hill of Flinders obscure any direct view into the western end of the Garioch, the hills that encircle it are readily distinguished. The views to the north and east include broadly the same area of land as visible from Stonehead and Dunnideer.

The site of Dunnideer is directly inter-visible. The locale of Candle Hill and Stonehead are also visible. The absence of trees would probably have made these stone circles directly inter-visible.

Wantonwells. (G8) (Figs 66 & 74)

Wantonwells is located on the south side of foot-slopes of the Hill of Christs Kirk. The southern horizon is dominated by the range of hills running from Knock Saul, through Satter Hill, Brocklach Hill, and Hermit Seat to Craigshannoch. The view is more restricted to the east by nearby Carrier Hill and Burryhillock. Similarly, the views to the west are equally restricted by local hills, running from Gallow Hill via the hills of Christ Kirk and Flinders up to the northern slopes of the Garioch. Although Dunnideer forms part of the horizon to the north, the majority of the northern half of the horizon comprises the slopes of Knockandy, the Skirts of Foudland, along to the Hill of Rothmaise in the north east.

No other stone circles are directly visible but the locales of Stonehead, Inchfield and Loanend are clearly distinguishable.

Braehead. (G9) (Figs 66 & 75)

Of the circles that form the basis of this study, Braehead has one of the most restricted visual fields. All around hills limit much of the view to between 0.5 kilometres and three kilometres distance.

Despite the predominately local horizons, extensive views are gained from the gaps between several hills. To the north west, seven kilometres distant, the land stretching to the peak of Knockandy is largely visible. To the south east, the northern slopes of Bennachie are visible beyond the local hills. A portion of land can be seen extending to the north east up to 12 kilometres in the distance. Mithers Tap can be seen peeking just above the main body of Bennachie.

The location of Braehead presents no direct lines of visibility to the location of other stone circles. If it had been placed about 30 m to the north west, lines of visibility would have been had on the locale of Ardlair. The peak of Binn Hill situated only 500 m to the south obscures the view to Loanend (G10). Notably sherds of earlier Neolithic pottery were discovered from the south side of Binn Hill.

Loanend. (G10) (Figs 66 & 76)

The circle at Loanend is placed towards the south western side of a gently rounded hill top. The peaks of Knock Saul, Satter Hill and Broomy Lea, which separate the Garioch from the Vale of Alford, dominate the southern horizon. From here, the land can be seen extending along the southern fringe of the Garioch for ten kilometres to Clova Hill in the west. The peak of the Buck and the Grampian massif can be clearly seen some distance beyond.

Although the tops of the hills forming the northern extent of the Garioch are visible from Loanend they are substantially obscured by the nearby local peaks; Hill of New Leslie, Gallow Hill, Hill of Flinders, Hill of Christs Kirk and Carrier Hill.

Although portions of the landscape are obscured by nearby hills, the distant hills forming the eastern extent of the Garioch are visible beyond. The western slopes of Bennachie are visible to the east.

To the north, there is a direct line of visibility to the circle at Wantonwells and the locale of Dunnideer and Inschfield circles are distinguishable.

Hatton of Ardoyne. (G11) (Figs 66 & 77)

This circle is in an unusual position situated between two local peaks. One is 50 m away to the west, the other is 150 m to the east. The views in the northern half of the horizon are limited by local peaks around Hatton of Ardoyne. There is, however, a limited extensive view to Hill of Rothmaise, some seven kilometres to the north. To the south east and south the horizon is dominated by the northern side of Bennachie. It is to the south west that the most extensive views are gained. The land below can be seen to extend for six kilometres to the area of Loanend circle and then along the southern hill fringe of the Garioch for another nine kilometres. The western view is largely restricted by Waulkmill Hill, and farther north by Dunnideer, Hill of Flinders and Hill of Christs Kirk.

Standing at the east flanker the peaks at Dunnideer, Christkirk and Tap O' Noth can be framed. To the east, the peaks of Oxen Craig and the top of Mithers Tap can be seen over the main body of Bennachie, which provides a local horizon to the south and south east. Although the peak of Oxen Craig can be framed within the flankers, the peak of Mithers Tap cannot as it is blocked by the east flanker.

Although the immediate locale around Old Rayne is clearly visible, the location of the monument itself is blocked by a local slope to the north of Hatton of Ardoyne. Moving the location of the circle up the slope of either adjacent peak would have allowed inter-visibility. Equally constructing the circle on the lower rise to the north would have insured inter-visibility and provided an immediate local horizon.

The local peaks to the east and west of the circle, and then relatively limited views in the northern half of the horizon, result in a feeling of the monument nestling within the landscape.

Old Rayne. (G12) (Figs 66 & 78)

This is situated towards the southern end of an elongated rise. The visual field relating to Old Rayne is somewhat limited by local peaks within 2.5 km to the east and west. The maximum visible extent runs broadly north to south. To the north the hills of Skares, Tillymorgan and Rothmaise dominate the horizon, while to the south, the northern side of Bennachie fills the horizon. To the west, Tap O' Noth is clearly visible, as is the peak of the Buck farther in the distance, over the local slopes.

The peak of Mithers Tap is currently viewed over the recumbent, with the other peaks of Bennachie appearing strung along the spine of the mountain. From Old Rayne, there are no lines of inter-visibility to any other stone circles.

Loanhead of Daviot. (G13) (Figs 66 & 79)

The views to the south and west at Loanhead are largely obscured by nearby woodland. A local peak situated 50 m to the west would, however, have obscured any views of the distant western end of the Garioch. The visual impact of the southern horizon would clearly have been dominated by the distinctive form of Bennachie. A combination of field and map observations indicates that the peak of Mithers Tap could be framed by standing at the eastern flanker.

The north half of the horizon comprises of the slopes which form the north eastern limit of the Garioch; from Hill of Easterton and Core Hill through to Hawkhillock. These slopes continue south through Hill of Barra to Selbie Hill and define the western and south western extent of view. From Loanhead the area from the north end of Inverurie, extending towards the paper mill to its south is visible. To the north east, the locale of Kirkton of Bourtrie is clearly visible. At Loanhead, there is another example of direct inter-visibility with the circle at New Craig clearly visible 800 m to the north west.

New Craig. (G14) (Figs 66 & 80)

This circle is located towards the south eastern edge of a distinct hillock. The peak of the hill New Craig is built upon presents a local slope that obscures any views to the north west. To the north and east, the visual field is broadly the same as that from Loanhead of Daviot to the point of the Hill of Barra. The hill that Loanhead of Daviot is built upon obscures views to the south, hiding the area of Inverurie beyond. To the south west, the view extends to the northern slopes of Bennachie, up to some 10 kilometres distant. The peak of Mithers Tap can be framed between the flankers when standing within the circle at New Craig.

West Balquahain. (G15) (Figs 66 & 81)

Balquahain is situated on a terrace on a south facing slope. This obscures the view within the majority of the local horizon. To the south, the view is limited to the local slopes of Dilly Hill and Westside some 2.5 kilometres distant. Although local slopes limit the view to about one kilometre to the west, the peaks of Bennachie can be seen beyond. The most extensive views from West Balquahain are to the east. The hill tops that fringe the eastern end of the Garioch are visible from Parkside in the north to Cairn Hill in the south. The north end of Inverurie and the locale of Brandsbutt can be seen. The area of Broomend of Crichie cannot, however, be seen from here. Notably the outlier is situated about 122 ° from north when standing at the mid point of the recumbent stone. From this point, when you look along the south face of the outlier it orientates your line of sight on the area of Broomend of Crichie.

Monument inter-visibility is limited to the locale of Kirkton of Boutrie. The peak of Mithers Tap is framed when standing at the eastern flanker.

Easter Auqorthies. (G16) (Figs 66 & 82)

The circle at Auqorthies is situated towards the north eastern slope of a distinct hillock. The views to the south west and west are, therefore, limited by the brow of the hillock it sits on. This brow, however, lacks sufficient height to obscure a view to the eastern end of Bennachie. To the north, the horizon is form by the slopes of the hill at Westside, only one kilometres distant. A gap in the local horizon, between Westside and Dilly Hill, allows a view of a ten kilometre strip of land to Parkside in the north east. The view to the east and south east is limited to about two kilometres by Back Hill of Davah and Aquhythie.

From Auqorthies, although the individual stones are not discernible, the location of the stone circle at Kirkton of Bourtrie is readily identified. It is not possible, however, to see other closer circles, such as Loanhead of Daviot or West Balquahain, which are obscured by the local horizons.

Kirkton Bourtrie. (G17) (Figs 66 & 83)

This site represents the eastern most amongst the group of circles in the Garioch. Located on the upper point of the valley side there are extensive views to the west across the whole of the Garioch. Although the full extent of the Garioch and beyond is visible, with the peaks of Tap O'Noth and the Buck, the land at the western end of the Garioch is obscured by the higher ground in the area of Old Rayne. To the south, the view is limited to a local slope. The area of land visible between the western end of the local slope and the Bennachie, however, extends for a considerable distance. The land beneath is only visible to the peaks in the area of Backhill of Davah. These obscure the lower land beyond but cannot hide the peak of Cairn William and the Hill of Fare, some 15 to 20 km distant.

The Hill of Barra dominates the view to the north only one kilometre away. Similarly, the views to the east are limited to a maximum of a kilometre by the upper extent of the eastern slopes of the Garioch. The peak of Mithers Tap is readily framed by the recumbent and flankers when standing at the east flanker. The locales of Candle Hill, Loanhead of Daviot and West Balquahain are clearly visible.

8.3 Distribution, patterns and monument groups

Having now noted the examples of inter-visibility and outlined the visual field relating to each of the study monuments, I now wish to discuss the implications of these observations. Let us begin by considering the visual fields and the degree of monument inter-visibility within each of three case study areas and then contrast some of the differences between them.

8.3.1 The Buchan group

Inter-visibility in the Buchan group.

Within the Buchan group, none of the monuments are directly inter-visible. Indeed the choice of location of many of the monuments has only just avoided direct inter-visibility with a nearby circle. The only example where the locales of adjacent monuments would potentially have been inter-visible is between Netherton and Berrybrae. In the absence of lines of inter-visibility it must be reconsidered why we might treat the Buchan monuments as anything other than an analytical device (Fig 84).

Visual fields of the Buchan group

The members of the Buchan group do not generally have mutually exclusive visual fields. The visual fields greatly overlap and in several cases to such an extent they share substantially the same area e.g. B1 and B2; B3, B5, B6 and B7.

Another notable aspect about the sharing of visual fields is a pattern within the Buchan group relating to what distinctive peaks are visible. Of the nine monuments, five have views including Mormond Hill (B1, B2, B3, B4, and B8). Several of the circles also have views to the distinctive peak of Bennachie (B5, B6, B7, and B8). Clearly all the monuments within the Buchan group, with the exception of Upper Auchnagorth, have views to either Mormond Hill or Bennachie. In only one case, Auchmallidie, are views of both Bennachie and Mormond Hill possible from that point. Significantly, Auchmallidie is also situated at a point that allows views of the largest area of landscape visible from any of the Buchan Circles. This may indicate that the circle at Auchmallidie was considered to be of some importance, an idea which may be supported by the use of quartz for the recumbent and flanker.

The one monument that was studied as part of the Buchan group that showed no overlap in visual fields or a view of either Mormond Hill or Bennachie was Upper Auchnagorth. Can these monuments, therefore, be considered as part of this group? I will offer two farther observations about this monument that may be useful to consider when answering this question. The first was that the monument could readily have been placed at an adjacent peak to produce a degree of shared territoriality. The second is that the line of sight to the north east from this monument extends to the area north of Mormond Hill that is not seen from any of the other Buchan circles. It would appear, therefore, that Upper Auchnagorth was placed with an awareness of, and in relation to, the locations and visual fields of other members of the Buchan group.

8.3.2 The Alford group

Inter-visibility in the Alford group.

All five circles within the Alford group show inter-visibility with at least two other circles (Fig 85). The circle of Cothiemuir probably had inter-visibility with all the other Alford circles. The circles of Old Keig, and North Strone are inter-visible with three other circles, and Druidstone and Druidsfield are inter-visible with two other circles. Notably the distance between each circle is great enough to ensure that the monuments themselves cannot be distinguished. The quality of inter-visibility relates purely to the ability to see the locale of particular monuments.

Visual fields of the Alford group

The monuments within the Vale of Alford show a large degree of overlap in visual fields. As might be expected, with the pattern of monument inter-visibility, the area of shared visual field concentrates along the eastern fringes of the Vale. The view afforded of this shared visual field effectively represents a different perspective from a variety of locations on the same portion of land.

The difference in view of the surrounding higher hills, however, stresses that although these monuments are located within the same river valley there is a variety of approaches to and from it through the landscape. Druidstone is situated in a natural pass between the Garioch and Alford. The view focuses Old Keig on the point where the river Don enters the Vale of Alford. Druidsfield allows the best view along the valley to the point the Don leaves. North Strone is located to overlook the approach to the White and Green Hills at the south east portion of the valley.

Another significant point can be made about the relationship between the monuments in the Vale of Alford and beyond. There is no line of inter-visibility to any of the monuments that are found beyond the Vale of Alford. This at first may seem quite self evident. When we examine the distribution of the monuments to the south, however, there is another striking potential example of inter-visibility avoidance. The recumbent stone circle of Whitehill has been built about six kilometres to the east of North Strone. It would have been possible to construct the stone circle on Whitehill about 300 m to the west and ensure inter-visibility between the two. Views would have been afforded into Alford and into the area of land to the east where another concentration of stone circles exists around Castle Fraser. The choice, however, was made to place the circle at Whitehill at such a point where the valley below to the east could be fully seen.

8.3.3 The Garioch group

Inter-visibility in the Garioch group.

Of the seventeen circle that form this group only four show no inter-visibility (Fig 85). Of those circles that are inter-visible there are only four examples where the monuments can currently be seen; G13-G14, G8-G10, G6-G7, and G5-G6. The other examples of inter-visibility relate to the ability to pinpoint the locale of a monument. Of these, Candle Hill (G4) and Inschfield (G7) both with five examples have the highest level of monument inter-visibility.

The concentration of circles around the area of Insch shows the greatest degree of monument inter-visibility. Indeed, in general the monuments at the western end of the Garioch have been positioned to show a greater degree of inter-visibility than those located at the eastern end. The only example which shows a high degree of locale inter-visibility is Kirkton of Bourtrie (G17). This, however, probably relates to its position on the upper slopes of the eastern extreme of the Garioch.

Visual fields of the Garioch group

A number of observations can be made about the visual fields of the Garioch groups. The first is that it is clear from the study that the visual fields are not mutually exclusive. The combined visual fields extend for a distance of 35 kilometres east to west, and show several areas where shared visual field is most prominent. These areas relate to several groups of circles that share extensive portions of visual field. Three main groups can be distinguished situated at the western, central and eastern parts of the Garioch. The division between these three groups of monuments mirrors the topography of the Garioch, with a central area that is hillier than the generally lower, more rolling areas to the west and east. It can be suggested, however, that the reason for these shared visual fields is not purely a result of environmental determinism as the distribution of the monuments within the Garioch is uneven. There are only three monuments to the western end (G1-G3), five to the eastern end (G13-G17) and a total of nine within the central area. It is the central area, therefore, which has the greatest concentration of monuments. As the monuments are not evenly distributed, there was a degree of selectivity in choice of location.

Let us briefly consider some of the other distinctions relating to the three Garioch sub-groups starting with lines of sight to major peaks. Amongst the western group views are gained to the peaks of Bennachie and Mithers Tap. The peaks that can be viewed from each circle, however, vary between the three circles. In striking contrast, all the circles amongst the eastern group allow views of Bennachie and Mithers Tap. Indeed, at four of the five circles when standing at the eastern flanker the peak of Mithers Tap can be framed. The central group shows a notable degree of variability in the peaks that can be viewed from the circle (Table 20, G4-12). The circle on Candle Hill one of only two of those studied which allows views to both Bennachie, Mithers Tap and Mormond Hill. After Kirkton of Bourtrie, Candle Hill also affords the most extensive views across the Garioch.

8.4 Monument inter-visibility and visual fields

Spatial distributions of monuments show a variety of patterning ranging from the dispersed to the nucleated. Implicit in Burl's (1976) analysis of the distribution of RSCs is that any meaningful spatial relationship in the past would only be apparent in the present through patterns of site nucleation. Concentrations of sites on the map are, therefore, considered to have represented a group of sites that were understood as being related in some way beyond just spatial patterning. The assumption has usually been to consider that this relates to some underlying principle that structures the organisation of social groups in the past. Clusters of sites on a map represent a set of shared beliefs or a perceived affinity between social groups in the past. Although it is likely that the majority of concentrations of monuments would have been particularly meaningful, the real difficulty is in assessing whether dispersed distributions could have been perceived as meaningful groups of monuments in the past.

The limited number of cases of direct inter-visibility between monuments may seem surprising when they generally occupy such prominent positions within the landscape. This number may be artificially low because of the presence of nearby woodland at some sites currently obscuring a direct line of site. In the case of the Buchan group a number of examples exist where monuments could have been placed a short distance from their ultimate building place, to ensure inter-visibility. This may suggest there was deliberate tradition to avoid when possible both locale and direct inter-visibility. Clearly, the examples of direct inter-visibility that do exist indicate that the choice of monument location was not determined by the law-like observance of a single reason such as inter-visibility avoidance. Indeed the examples of clusters of monument locale inter-visibility observed in the Vale of Alford and around the area of Insch support the idea that a complex series of variables was involved in the ultimate choice of monument location.

The degree of monument inter-visibility displays a striking geographical variation (Table 20). The circles within the Buchan group show next to no inter-visibility and the Garioch and Alford groups show a significant degree of inter-visibility. There may be a trend across the region for the degree of inter-visibility between monuments to be greater the farther south and west the monument is located. If the factors that influenced monument location changed through time, this trend in degree of inter-visibility may relate to the chronology of the construction of monuments.

Consideration of the degree of monument inter-visibility indicates that in the majority of cases direct monument inter-visibility was not present. This pattern could be interpreted as the result

of a lack of concern with monument inter-visibility during the planning and construction of these sites. Observations on the choice of topographic position of the monument location, however, indicate that another nearby monument was only just hidden by a local slope. Therefore, in many cases, monument inter-visibility was only just avoided and if the choice of location of monument had been modified slightly, it would have been achieved. Clearly, the choice of location of RSCs involved a degree of subtlety in the understanding and use of the local topography. It would, however, appear that there were a variety of competing factors determining the ultimate choice for the construction of a RSC.

When considered purely as dots on a map the distribution of monuments is generally considered to indicate that they were constructed by small local communities (Burl 1974; Shepherd 1987; Barnatt 1989). The mechanisms of how a regional tradition of monument building emerged are never discussed. The locational analysis, however, has considered the relationship between sites within a wider region of landscape. The study indicates the high variability of the visual fields. The directions and extent of the visual field varies both from site to site and between the three groups of monuments. It does, however, suggest that the choice of position of monuments was concerned with extensive views of limited portions of the horizon. These most extensive views were shared between many of the circles within groups. The apparent isolation of the Buchan concentration of monuments is puzzling when considered from a map. When the visual fields of the monuments are scrutinised it shows that together they in fact embrace the whole of the area. Furthermore, the ability to frame the peak of Mithers Tap at a significant number of circles (Table 21), and Mormond Hill in the case of Berrybrae, suggests that the general uniformity in form of the monuments relates to a wider, perhaps regionally held, conception of what was potentially required during the establishment of such monuments. How they were understood and utilised after establishment may have become more variable but their continued use may have been understood as an affirmation of the traditional belief system established prior to and during their construction

I would suggest that the different concentrations of monuments in the main relate to the inter-relationship between the realities of topography and the anticipated requirements of monument use. It would, therefore, appear that although the sub-regional groups of monuments may relate to social groups organised on a level beyond the individual community there was also the perception of a wider group identity which manifested itself through the construction of monuments in positions which afforded shared visual fields. Monument construction was not a parochial activity; instead, it was a fundamental means of affirming a shared view of how the inter-relationship between people and their landscape should be perceived at this time.

Chapter 9

Monuments to a changing age?

'The recumbent stone circles...have a horizontal stone with two upright flankers while the stones in the circle tend to diminish in height towards the side opposite the recumbent. This directs attention in height towards particular parts of the landscape viewed from inside the circle, quite often a distant range of hills fronted by prime agricultural land. All this seems to be a re-enforcement of the claim on the gods of nature by placing monuments...in areas with views of important places and by aligning stones on major astronomical events. It is an attempt to establish the monument as part of the status quo, as part of the natural timeless universe' (Clarke et al 1985, 45)

'Rather than offering a lesson in morals or history this kind of sculpture offers an education in perception...' (Biggs 1984, 13)

Introduction

This chapter comprises of three sections, each of which considers a different aspect about the inter-relationship between landscape, monuments and human perception. The first section considers the influence of topographic features on the location and form of monuments within Aberdeenshire. The second section explores how different sensory orders may have been integral to the construction and use of the RSCs. The final section highlights the variable experience of RSCs and the implications this has to the interpretation of their use.

9.1 Where does the monument end and the landscape begin?

9.1.1 Movement, monuments and mountains

Located at the eastern edge of the Garioch is a concentration of monuments, dating to between the fourth to second millennia BC, which is unparalleled anywhere else in Aberdeenshire. This concentration of monuments comprises of two main components; a linear group running

parallel to the river Don and another cluster further south. Notably these two groups have different compositions in monument types.

The monuments located along the river terrace are situated in the area of the confluence of the rivers Don and Urie. From this point the river Urie heads north west into the Garioch and the river Don runs to the east below the southern slopes of Bennachie. This concentration of monuments extends, over a distance of about 5 km (Fig 86), from just north of Inverurie to about 500 m south of Kintore. The great majority of these monuments are confined to the western terrace of both rivers. The most northerly of the linear group may be marked by a possible RSC at Brandsbutt (Shepherd 1984). Further south was a large concentric stone circle, to the south of which, at Broomend of Crichie was a henge monument (Dalrymple 1884). Further stone circles, which may have been related to other henge monuments, were present further south at Cairnhall and Fullerton (Keiller 1934; Kilbride-Jones 1935b). An avenue of standing stones ran from the concentric stone circle, to Broomend of Crichie, and further to the south towards the circle at Fullerton. At the southern end of the avenue a beaker cemetery was eventually established (Chalmers 1870; Davidson 1870). There is evidence of another possible stone circle further to the south at Castle Hill (NMRS NJ71NE32.00) and another henge monument on Tuach Hill at Kintore. Significantly, the southern extent of the linear group of monuments appears to have been marked by a long cairn at Midhill. Other RSCs and possible henge monuments are present in significant quantities to the north and west of the main linear group.

The only notable exception to the concentration of monuments on the western terrace of the River Don is the presence of one of the few cursus monuments from Aberdeenshire that is located to the east at Hatton of Fintray. The cursus is orientated on a north west to south east axis and as such it mimics the direction of flow of the River Don between Inverurie and Kintore. The location of this cursus is on the northern terrace, where the river valley becomes less steep to the west, above the River Don representing a point where the landscape beyond becomes more readily visible. From here, with Tuach Hill visible, the southern extent of the main concentration of monuments along the River Don could be observed.

Landscape and monuments: one in the same?

It was noted within chapter eight that several concentrations of RSC existed, and three of these subsequently formed the basis for analysis of inter-visibility and visual fields. We have not yet, however, asked the question why is the greatest concentration of RSCs in the area of the Garioch? Equally, we need to consider why a series of monuments, located at the eastern extent of the Garioch, concentrate in the area between Inverurie and Kintore. Furthermore, we

need to ask why the greatest concentration of SSSs in Aberdeenshire is located to the south of this concentration of monuments at Inverurie? Can we identify any reason for these particular patterns in monument distribution?

Although it is impossible to be certain of the intentions and motivations of people in the past, a number of reasons for these observed concentrations in monuments can be suggested. It is probable that the different areas of concentration of monument relate to conceptual distinctions in how different areas of the landscaped were perceived. To begin to understand why particular places take on a special significance, however, it is important that we approach such a study with an interpretative framework that takes into account the time depth associated with the emergence of persistent places. We must, therefore, bear in mind that the inter-relationship between people and landscape has a historical trajectory. Changes that take place in society and changes in the perception and classification of landscape are dialectically related. Thus, let us reconsider the changes that may have taken place in Aberdeenshire between the fifth and second millennia BC.

The landscape would have first been experienced by the gatherer-hunter-fisher groups that were probably present within Aberdeenshire by the eighth millennium BC. As discussed within chapter two, the majority of sites, which are interpreted as 'mesolithic', are coastal or riverine in distribution. The environment that these groups encountered and inhabited was substantially covered by trees. What features of the landscape would be important to these mobile groups? I would suggest it would be the bones of the landscape, those features that rarely appear to change within the course of a human lifetime, the mountains, rivers, and skies. These features not only share a level of lifetime permanency which would distinguish them from other occupants of the landscape (the mortality of plants and animals) but are distinguished by the level and way in which they afford movement through the landscape. These features are, paradoxically, both vehicles and barriers to movement. Rivers and river valleys provide natural routeways through the landscape but at points their width or steepness of bank make movement across them difficult, if not impossible. Similarly, mountains inhibit movement by the degree of difficulty to ascend them but also provide important conduits through passes. Most significantly, rivers, mountains and the sky provide important means to orientate oneself within the world and navigate without paths between different places. Cosmogonies would have emerged through the establishment of patterns of mobility that related these groups to particular places within their landscape.

We must bear in mind that it has been proposed within chapters three and four that the introduction of domesticants did not substantially alter the level of group mobility during the

fourth millennium BC. Instead, these new technologies would have been incorporated and understood within the already existing world orders. With new possibilities the adoption of such novelties, however, inevitably alters the historical trajectory of social change. Ultimately by the second millennium BC, a more sedentary agro-pastoral economy was established.

The palynological evidence from Aberdeenshire suggests it was not until the last half of the second millennium BC that large scale clearance associated with significant levels of cereal cultivation was taking place. Although there is evidence for cereal production before this point, it is somewhat limited, and it has been suggested that the majority of clearance visible within the pollen record may have related to pastoral farming (Edwards 1979; Edward & Rowntree 1980). I would suggest that the earliest monument building, if not undertaken by gatherer-hunter-fisher groups, was embarked upon by the descendants of such groups who, as they still had a largely mobile economy, would understand the world in many of the same ways as established by their ancestors.

How do these historical changes in the economy and landscape help us interpret the reason for the monument concentrations within the Garioch and around Inverurie? It highlights the potential inter-relationship between cosmologies that had emerged by the fifth millennium BC and world views that may have been held during the fourth millennium BC. We must now consider the first experience of the bones of this landscape; the experience of pioneers in an uncharted territory. The first gatherer-hunter-fisher groups making their way up the treelined valley of the River Don would come across their first major choice in where to go next when they met the confluence between the Rivers Don and Urie; there is evidence of 'mesolithic' activity at Bass of Inverurie, Ardtannes, and Kintore (Simpson 1943; NMRS NJ71NE 87). Perhaps the group split and took separate routes or perhaps each routeway was explored in turn. Eventually, what ever the sequence of events, a fertile valley basin was found at either end of each route: in the case of the Don, the Vale of Alford and in the case of the Urie, the Garioch. At some point, perhaps before reaching the confluence of the Don and the Urie, the commanding peak of Mithers Tap would have been visible through the trees; this may be at the point the cursus monument at Hatton of Fintray was subsequently constructed. At some point Bennachie would undoubtedly have been climbed. Although trees probably extended over much of Bennachie the rocky tor of Mithers Tap would have been treeless. From here, breaking through the tree cover, the sea could be seen to the north and the east, while mountain ranges could be seen extending to the south and west. From here, the whole world would be visible, in revelation, for the first time ever. Could this mythical history of the first discovery and experience of Mithers Tap explain why we have such a concentration of monuments

around Bennachie. To continue with this line of enquiry I now want to discuss the experience of being on the top of Mithers Tap.

Several observations can be made which suggest that this mountain operated as an *Axis Mundi* not only due to its high visibility and the extensive view it affords but also to its distinctive form. The first is that the top of Bennachie has several prominent peaks: Mithers Tap, Oxen Craig, Watch Craig, Brunt Wood Tap, and Hermit Seat. When observed from a distance these peaks usually seem to be strung along the spine of Bennachie. If you climb up on to Bennachie, it becomes apparent, however, that they are in fact widely spaced across the top of the mountain. The relative positions of the peaks means that when you walk across the top of Bennachie there is only a limited number of positions where they can all be seen. At one point, on the plateau of Bennachie there is a basin where you become surrounded by four peaks; to the east Mithers Tap, to the south Brunt Wood Tap, to the west Watch Craig and to the north Oxen Craig (Fig 87). Apart from a limited view into the Garioch to the north, this basin prevents views of the landscape below. The experience is of being enclosed by both land and sky. The shelter provided by the surrounding slopes means that the noise of the wind is less dominant than elsewhere on the mountain. This is clearly a distinctive place upon the mountain (Table 1: Scene 10).

When you continue to walk within this natural amphitheatre towards, the most prominent peak of Bennachie, Mithers Tap, the distinctive form of the tor becomes apparent. The western side of Mithers Tap has a substantial cleft in the rock which when viewed from below has a geometric form to it (Plate 18). Together, Mithers Tap and the three other peaks viewed from within the basin form a topographic monument. I would suggest that the first experience of the phenomena of the extensive views afforded from Bennachie and the presence of a topographic monument resulted in the peak having a central importance in cosmologies by the fifth millennium BC. I would argue that the importance of this peak within cosmologies by the fifth millennium BC meant that as these cosmologies formed the basis for those during the fourth millennium BC the sacred peak of Mithers Tap continued to perform as a potent symbol which was incorporated within the architecture of some of the earliest monuments.

To identify the source of inspiration for the distinctive form of the recumbent stone and flankers of RSCs is of some importance as it confirms that this was a tradition which emerged within the region as opposed to looking for origins elsewhere as has traditionally been done. It does not, however, allow us to explain why the concentration of different monuments occurs focused around Bennachie. It could be argued that the majority of substantial ceremonial monuments were built close to it as proximity to the sacred peak was considered important. Yet, monuments of the same form are built up to 50 km distant. Further more, although the

concentration of monuments within the area of Inverurie is in close proximity to Bennachie, the peak of Mithers Tap can not be seen from most of them. Perhaps, however, to think in these terms misunderstands how a sacred peak operates. If sacred peaks form a central element of cosmologies we have to consider in further detail how the world is experienced from the peak, and not vice-versa, as the world is structured in relation to these sacred places.

We have already noted the phenomenon of the existence of a 'natural' monument on Bennachie but we have not considered the experience of viewing the world from the most prominent point of the mountain, Mithers Tap. Upon climbing to the top, the wind is usually noisy and violently strong; it can be exceptionally difficult to stand upright. When you position yourself on top of Mithers Tap you have a magnificent view of almost the whole of Aberdeenshire and beyond. Clearly the extent of this view depends on the quality of the light and weather at any particular time. During a clear and cloudless day distances of over 100 kilometres can be readily seen (Table 1, Scene 2).

One time when the view from Mithers Tap is practically non-existent is on a cloudy moonless night. In these circumstances, the biting cold and noise of the wind dominates the experience. Before the darkness of night covers the landscape there is, however, the liminal time of sunset. This is a time when the blue or grey skies of the day gradually change through a range of colours, tinges of pink and hues of orange, to the point when the fiery sun sinks behind the distant western horizon. If you witness this standing on the peak of Mithers Tap you will also observe another remarkable phenomenon (Plate 19): the shadow of the peak of Mithers Tap is cast to the east like a giant sundial (Table 1, scene 11). By mid winter when the shadow of the peak is cast across the landscape it would lie to the north of Inverurie, by mid summer with the maximum northern position of the sunset the shadow will fall in the area of Leylodge. Therefore, the concentration of monuments at Inverurie may relate to the mountain itself indicating that it was a suitable location.

This is a significant observation as it indicates that although it would appear that no permanent substantial monuments were constructed on Bennachie, between the fifth and second millennia BC, it was not completely avoided by people. The monumentality of the mountain itself required no elaboration to perform as a sacred place. During the fourth to second millennia BC, the peak of Bennachie probably represented a conceptual point from which the whole world beneath could be observed and as such this was considered the centre of that world. Observation of the world from this point had been undertaken at a time when the sun was falling out of the sky and the moon was rising to dominate. This would represent a liminal point when two different perceptual worlds meet.

9.1.2 Inter-visibility & visual fields

Can the suggestion that a sacred peak was central to the cosmology of the inhabitants of Aberdeenshire, between the fifth to second millennia BC, help advance the interpretation of the results of the analysis of inter-visibility & visual fields?

One aim of the inter-visibility study was to establish whether Bennachie or the peaks of Mithers Tap or Mormond Hill were visible from the location of a RSC (Table 21). It was discovered that the majority of RSCs were placed in positions which afforded lines of sight to Bennachie and a significant proportion were placed so Mithers Tap would be visible. Clearly, a line of sight to either of these points was not a pre-requisite in the choice of location of these monuments but where possible this was taken into account.

Analysis of monument visual fields indicated that the monuments are placed in combination in such a way that the vast majority of landscape within the region can be seen from at least one monument. It is possible there was a correlation between the extent of visual fields and the tenure of the communities who utilised individual RSCs. The overlapping relationship of the visual fields may support the suggestion that there was a more mobile tradition of economy with an associated more fluid system of tenure. The form and distribution of monuments was a historically grounded response to the changing environment and society during the fourth millennium BC. This response was conceived within the framework of the existing cosmology. Therefore, the potential for monument building perceived on a regional basis may have its origins in social mechanisms which emerged during the fifth to fourth millennia BC when highly mobile groups across the region shared a belief system which incorporated the topographic features in the landscape. These distinct topographic features, such as Bennachie and Mormond Hill, presented a common experience allowing people to orientate themselves from almost any point within the region. Places were formally established at points where distinct portions of the region could be viewed. At the appropriate time several communities may have come to each monument undertaking ceremonies to ensure the long tradition of regional community was preserved. Hence, we may begin to understand why there is a distinct concentration of RSCs in Buchan. Only half of these monuments give a line of sight to Mithers Tap while the majority allow Mormond Hill to be viewed. Being able to see Mithers Tap from many points in Buchan, the groups of communities living here would have historically shared many of the original elements of cosmology with those living around Bennachie, thus together

they formed part of a regional community. In the area of Buchan, however, these cosmological principles were challenged every day by living at the foot of another substantial hill, the only significant hill in the Buchan area. Like the Garioch group, the coastal approach to the area of the Buchan group is marked by the presence of a possible cursus monument at Mains of Springhill (Aberdeenshire Archaeological Surveys 1977), which significantly is less than a kilometre away from the flint mines at Boddam.

Analysis has shown that the RSCs are usually located at a point where there is a limited southern and northern horizon. In recent years, it has been considered that the restricted southern horizon was because of the requirements of the monument functioning as an observatory. I would, however, suggest that the restriction of the views to the south and north may also have been undertaken to emphasise the expanse of landscape running in a east to west direction. Why might this be ? It may be that this relates to how the landscape was perceived. As discussed previously, our perceptual experience of a landscape in part determines how it would be conceived. The significance of a western to eastern view of the landscape may reflect the way in which movement through it was historically undertaken (e.g. Earle 1997).

This may relate to the majority of major rivers in Aberdeenshire running in an east to west basis. Stemming from the penetration of Aberdeenshire by gatherer-hunter-fisher groups during the eighth to fifth millennia BC moving along, and the potential concentration of settlement during the fourth millennium BC in, river valleys there would have been a long tradition of considering movement on an east to west basis. Furthermore if, as suggested a portion of the economy was highly mobile between the fourth to second millennia BC, it is possible that the pattern involved the occupation of the coastal plain with a movement to the east for the summer occupation of the uplands.

As outlined previously, radical transformations in environment and subsistence practices represent another element to the historical changes that were taking place during this period, these transformations would have involved modifications of social relationships and belief systems. The limited evidence for settlement from the study area suggest that it was properly located on the lower reaches of river valleys during the fourth to second millennia BC. In the earliest phase of settlement at least these areas were likely to have been heavily forested. Although on an entirely different scale, Gow (1995) has noted that the Amazonian forest prevents any views over a long distance and that in most places the horizon is not visible. In such circumstances, we may find that the sensory order relied more heavily on sounds and smells to navigate instead of predominately vision.

The early inhabitants of these river valleys would have been subject to the demands of daily routine which for many would have been located almost exclusively in these forested valley systems. If visible the higher ground would have been recognisable as a distinctly different locale. Much of the recent discussion on landscape and place has stressed how they are constituted on a personal and experiential level. As discussed in chapter five, however, the experience of landscape and place is fundamentally social, as we have learnt how to experience and understand our place in the world during our most formative years. Within the forested environment a sense of enclosure would have predominated this sensory experience, and peoples perception would have been of being in the world. Climbing to the higher peaks where swathes of forested landscape revealed would have entailed a sensory experience of one landscape which may have challenged world views, held in a forested environment, about ones place (see Ingold 1992; Bloch 1995).

With changing settlement patterns, relating to increased clearance and adoption of sedentary agro-pastoral farming, between the third to second millennia BC, the landscape began to be perceived in a different way. There was no longer the regular movement of groups over the region. From the second half of the third to second millennia BC, with interaction being more frequently confined to smaller social groups, individuals began to enhance and stress their authority more frequently. Earlier monuments, such as RSCs were modified, and new forms of monument were constructed which were located and utilised in relation to the changing perceptual experience of the world.

9.2 Making monuments out of mountains

In the previous section, it has been suggested that the peak of Mithers Tap played a central role within the cosmologies of the fourth to second millennia BC. If the mountain was perceived as being in some sense sacred this may have resulted in the material of the mountain, rock, having a degree of sacredness through association. Therefore, let us consider if the way that rocks were used in the construction of RSCs indicates that the perception of materiality of the building material itself was meaningfully deployed.

9.2.1 The importance of colour in prehistoric architecture

Colour is an important referent in conceptual schemes. Amongst the millions of subtle shades and hues of colour, the colours of black, white and red are particularly important in

categorising the world (Turner 1970). These categories of colour may have a universal significance through their close proximity to bodily products such as blood, milk, or semen.

The different qualities of stone, such as colour, are frequently incorporated in symbolic systems (e.g. Tacon 1991). It is only in recent years that the potential significance of the deliberate use of colour in prehistoric monument construction has begun to be discussed. In particular the incorporation of different coloured stone to form patterns in the architecture of monuments has been noted (e.g. Bradley 1996; 1998d; MacGregor & Loney 1997; Lynch 1998).

Most recently Lynch has highlighted the potential significance of the colour of stones utilised at RSCs (ibid. 65-66). Lynch notes several examples of the potentially deliberate incorporation of patterns of colour, citing 10 out of 23 examples of RSC where the colour of the recumbent stone varies from those comprising the circle. The examples of the RSCs at Castle Fraser and Easter Auquorthies are highlighted for the use of alternating colours of stone. It is considered that the recumbent and flankers at Castle Fraser are of the same quartz grained grey stone. Lynch recognised that, although the eastern stones of the circle showed an alternating grey-red-grey pattern, the position of the other stones meant that a regular pattern could not have been maintained. In the case of Easter Aquorthies, Lynch notes that the recumbent stone is a darker colour of grey than the colour of the adjacent recumbent stones, while the stones on the west of the circle are alternating grey and black; on the east they are alternating shades of pink. Importantly, Lynch notes that the contrast in stone colours at Easter Aquorthies was particularly striking when all the grime and lichen covering them had been stripped whilst taking casts during the early eighties. Finally, it is observed that at the site of Yonder Bognie all of the stones are of the same material and, without any justification, that this must be true for the majority of sites. Ultimately, however, Lynch concludes that:

> 'significant colour variation is not as consistently found as the gradation in stone height, the horizontality of the recumbent or its orientation, so , if it is a matter of symbolism, as distinct from architectural *jeu d'espirit*, it is not one that is essential to the religious function of the monument' (Lynch 1998, 66)

Although it is important that Lynch has stressed the potential significance of colour in prehistoric architecture, there are several problems with her approach to the study of the use of colour in the architecture of RSCs. The conclusion quoted above indicates that Lynch is seeking coherent pattern in the present as an indication of symbolic or significant meaning in the past. As noted in chapter three the quest for shared traits relates to the legacy of culture history. Therefore, although similar patterns of architectural expression between monuments

are undoubtedly significant, it is not necessarily the only means of symbolic expression. The construction of small scale monuments such as RSCs would have undoubtedly entailed a degree of individual choice in the construction and expression of meaning in architecture by the local communities that built them. Although tradition may have set certain broad parameters of monument construction they were not prescribed to build in a certain way but chose to within the terms of their own understanding as to what the act of monument building meant to them. It is therefore important to consider that subtle variation may have been as symbolically significant as the regular pattern of coloured stone that Lynch so clearly seeks in her case studies. Fundamentally, however, although colour may be potentially significant we should not be obsessed with the visual experience of monuments. The choice of a particular stone may in part, or indeed solely, relate to its haptic qualities e.g. texture, temperature. Thus it is important that the inter-relationship between visual and haptic properties of monuments is explored.

9.2.2 Feeling the colour of a monument

The sites of Castle Fraser, Easter Aquorthies, Midmar Kirk, Sunhoney, Cothiemuir, Loanhead of Daviot and Old Keig were studied in order to consider the potential significance of the interplay between colour and texture of the stones of a RSC. In the main, these sites were chosen as they were relatively well preserved with the majority of the stones being present at the site.

Castle Fraser (Fig 88; Table 22; Plates 20 - 22)
Only one of the stones comprising Castle Fraser RSC is missing. The texture of the stones forming the circle varies considerably, ranging from the coarse granite of two and three to the fine granite of stone seven. The stones of the circle are generally grey or pink-red granites. To describe a stone as a particular colour, however, often masks the variability of colour found through a stone. For example let us consider stones one, two and eight which were described by Lynch as grey, paler red and grey in colour.

From a distance stone one looks grey but as you get closer the complexity of the colours of the stone becomes apparent. A series of veins, c 0.06 m thick, of pink granite runs through the rock. The inward face of the stone is a light pink colour due the rock cleaving along one of these veins. Although stone one is predominately grey in colour it is also pink. The ambiguity of this rock's colour is utilised during construction to present a pink stone to those inside the monument and to those out with a grey one.

From a distance, stone two stands out from the other stones of the circle because of its intense pink-red colour. The coarse granite which it is made of is not, however, uniform in appearance. The inner face of the stone is markedly different through a highly polished surface that has a smooth glossy feel. In this case texture and brightness of the rock surface have been used to distinguish between the exterior and interior of the monument.

Stone number eight was described as grey in colour by Lynch. Indeed from a distance, grey is probably the best way to describe the colour of this stone. Once, however, you come closer to it, perhaps when entering the monument, the complexity of the composition of the stone is apparent. The surface is composed of regions of mottled white and black that merge into areas of grey and pink granite veins run irregularly across the stone. It is impossible to assess whether the inside and outside of the monument was distinguished through different coloured faces as this stone has, unfortunately, fallen in the past.

We have concentrated on the three stones of the circle which display the most variation in texture and colour. Many of the other stones, however, also display quartz veins and other inclusions that may have influenced how the stones were arranged in a architecturally effective or symbolically meaningful fashion. A striking example of this is found on the flankers. The western flanker is a tall (c 2.5 m high) stone of medium grained grey granite, with some quartz veining. On the upper part of the stone is an flat oval surface, measuring 0.20 m x 0.30 m, of smooth white quartz. The stone has been positioned so this feature points upwards and outwards. The taller (c 2.9 m high) eastern flanker is of a similar quartz veined grey granite. It is distinguished by a partial surface of flat white quartz. This surface is somewhat weathered and was probably originally more extensive. The stone was positioned so the quartz surface faces towards the western flanker.

Several features of the stones at Castle Fraser were utilised to distinguish the inside from the outside of the monument. Perhaps most striking was the choice of the western flanker, as it was positioned to orientate a white quartz disc up towards the sky. It pointed towards and provided a mirror to the celestial bodies.

Easter Aquorthies (Fig 89; Table 23; Plates 23 - 25)

Several points were highlighted by Lynch (1998) about the stones of Easter Aquorthies circle. These included a degree of alternation on the west side between black and grey stones (Nos. six to nine), the alternation of shades of pink stone to the east, and the shared grey colour of the flankers and recumbent. These observations are, in broad terms, correct but the picture painted by Lynch is somewhat more complicated in reality. For example, upon examination stones six

and eight (considered grey by Lynch) appear to be pink granite and stones seven and nine (considered black by Lynch) are grey. Why should there be this difference in opinion about the colour of these stones? I shall return to answer this question later (see below).

Although I have described stone six as pink, it is of further note because of colour variation. In contrast to the main body of the stone the upper 10 cm is of a grey granite. Stone two is, therefore, both pink and grey.

Let us now consider stone two. This stone is unusual for its striking appearance and waxy feel because of its composition of jasper. Although Lynch is broadly right to describe this stone as paler red, the variation in appearance and texture across the stone suggests that it may have been positioned to utilise this in a meaningful fashion. The lower part of the northern face of the stone is an intense red colour. In contrast the face pointing towards the recumbent is a predominately milky white colour. Thus the stone was orientated to present the 'whitest' face towards the stones of the recumbent and flanker and the face with the most intensely red colour is pointing away.

It was noted at Castle Fraser that the flankers had been positioned in such a fashion to employ quartz faces in an architecturally effective fashion. A variation on this theme can be witnessed at Easter Auquorthies. The east face of the west flanker has a highly polished surface to it. The recumbent stone is particularly striking as it has a series of short wiggly quartz veins running up and down it. This particular pattern of veins is not evident on any of the other stones comprising the circle.

Examining the texture of the stone indicates that the majority in southern sphere are medium textured and the majority in the northern part of the circle are fine in texture. It is difficult to be certain if this play on texture is deliberate. One pattern of texture that we may be confident is a deliberate architectural device is the choice of material for stones one to three. It particularly significant that the stones on either side of stone two comprise of the coarsest granite within the circle. The unusual waxy quality of stone two is juxtaposed with the coarseness of the adjacent stones, all of which are in contrast to the fine or medium textured stones which form the rest of the circle. Therefore, the choice of material utilised emphasises, in terms of their texture, the contrast between stone two and the others that form the circle. It is possible to suggest that the haptic quality of the stones was a reason that determined their location in relation to one another in the circle.

Midmar Kirk (Fig 90; Table 24; Plate 26)

Midmar Kirk provides a striking contrast to the potential subtlety of architectural expression achieved at both Castle Fraser and Easter Aquorthies utilising an interplay of colour and texture witnessed. Although three of the stones from the circle are missing, as the eight remaining stones are a pink granite it would suggest all the stones were originally produced from the same material. There is only one apparent exception to the dominance of pink colour in the circle. That is seen on stone six, where the upper 0.40 m is a grey colour. This, however, represents the point above which the stone has split at some point and subsequently been repaired. This probably occurred because of the variation in the rock at this point.

Although there would appear to be next to no variable use of colour in the architecture of Midmar, there are some notable differences in the texture of the stones employed. The stone used for the flankers and recumbent is coarser than that of the other stones of the circle. In striking contrast to the coarse texture of the recumbent flankers is the texture of the stone (No 5) furthest from them. This stone has a much smoother surface than the surfaces of any of the other stones within the circle.

Sunhoney (Fig 91; Table 25; Plate 27 & 28)

This circle shows many similarities with Midmar, which is less than 2 km distant. In particular, like Midmar, the architecture of Sunhoney shows a limited use of variable colour in its architecture. All the stones, bar one, are composed of a medium pink granite. The only exception is the recumbent stone, which is a fine grey granite.

The architecture of Sunhoney has been used in a different fashion to distinguish different stones. Of all the stones in the circle only stones two and eight have pointed tops to them. These are both the second stones away from the flankers and as such provide a degree of symmetry in the architecture of the monument.

Cothiemuir (Fig 92; Table 26; Plate 29)

Although four of the stones of the circle are missing, there is sufficient remaining to demonstrate that there is considerably more variation in colour and texture than witnessed at Midmar and Sunhoney. The majority of the stones are a coarse pink granite. The surviving exceptions are stone number one, which is a fine grey sedimentary rock, and the recumbent stone, which is a white-grey medium textured conglomerate. The surface of stone one is pock marked like a lunar landscape, which is probably through heavy weathering. The only other

notable distinction in texture and colour present at the circle is found on the flankers. The lower part of the eastern face of the eastern flanker is a smooth red surface. A small patch of a similar surface is present on the eastern face of the western flanker that may originally have been more extensive.

Like Sunhoney there is a notable use of the shape of the stone in the architecture of the circle. In the case of Cothiemuir this is found on the flankers. The eastern flanker is wider at the top than the narrow base and the western flanker rises from a wide base to a narrow top. At the foot of each stone on the inner face there is evidence of the absence part of the inner face of the stone which appears to extend below ground level.

Loanhead of Daviot (Fig 93; Table 27; Plate 33)
The circle at Loanhead of Daviot is remarkably well preserved. There is clear variation in both the colour and texture of the stones but unlike the other circles this variation is largely confined to the stones of the circle and entirely absent from the recumbent and flankers. The colour of the circle stones varies in colour between grey and pink in a seemingly random fashion. The variability in the texture of stone is confined to a broad opposition involving fine stone to the south-west and relatively coarser stones to the north-east. Ironically the roughest surface present on many of the stones is where cracks have been concreted during repairs in the past.

Old Keig (Fig 94; Table 28; Plate 30)
Although few of the stones survive *in-situ* at Old Keig, this circle was studied in order to provide a contrast with the nearby circle at Cothiemuir. The recumbent and flankers show variation in both colour and texture. The recumbent is coarse pink sillimanite gneiss with large quartz inclusions. In contrast the flankers are grey fine to medium granites.

Perhaps the most notable feature of the stones at Old Keig is that they are heavily weathered. This may be because of the exposed location of the circle at Old Keig. In contrast to the other circles, every time I have visited this place the wind is blowing a gale. It is possible that the location at a particularly windy point was meaningful to the builders of Old Keig.

9.2.3 A myriad of textures and colours

The above six case studies of the texture and colour of the stones at RSCs have been particularly productive. They have indicated that although the individual monuments share a basic architectural form, the way that form is interpreted is different at every circle through

alternative choices of colour and texture of stones. Fundamentally, every circle is different and other than a basic form there is no coherent pattern in its expression between monuments.

The variability within the constraints of architectural form is particularly evident when we compare the circles in close proximity; Sunhoney and Midmar (less than 2 km apart); Cothiemuir and Old Keig (just over 2 km apart). The circles at Midmar and Sunhoney both predominantly utilise medium pink granite. The presence of a dominant type of stone in the architecture may relate to a shared source of construction materials or may be because of particular locally based preferences or meanings. Yet this choice of building material has not prevented major distinctions in the details of the expression of the basic architectural form. The recumbent at Sunhoney is a grey granite that is heavily embellished with cup markings, in contrast that at Midmar is composed of the same material as the rest of the circle. At Midmar effort has been made to shape the flanking stones so the exterior face arches inwards emphasising the focus of the area within the flanker and recumbent. Similarly, at Cothiemuir and Old Keig, there is a hint of sub-regional or local traditions within the constraints of the expression of architectural forms. Both show a use of both grey and pink granite within the stones of the circle. There is a striking contrast between the choice of a stone for the flankers and recumbent at these sites. At Cothiemuir the recumbent is white-grey and the flankers pink and in contrast at Old Keig the recumbent is pink and the flankers grey.

The complexity of the potential shared systems of meaning between the different sites is highlighted by the use of stones showing the same variation in colour in the same position in the circle. At both Easter Aquorthies and Mid Mar stone number six is a pink granite with a striking upper band of grey granite. Perhaps this is coincidental but the choice of the same position, colour and composition of stone at the same point suggests this was a deliberate mimicry.

Another result of the study is that it indicates there is an apparent strong inter-relationship between texture and colour of the stones chosen for the recumbent and flankers. In all but one of the cases, (see Table 29) the pattern of variation of colour between the recumbent and flankers shows a corresponding pattern in terms of difference in texture of rock. This, therefore, raises the question whether the choice of rock types was because of availability, colour, texture or an unknown reason relating to where it came from. Availability is difficult to gauge as the landscape was probably originally strewn with erratics and it is difficult to determine whether stones were quarried or collected amongst the surface erratics. It is difficult to establish whether the choice of rock employed was because of colour or texture. Indeed, we are probably best considering that people would have been aware of both the colour and texture

of the rock as they handled them during construction. Ultimately the choice of position of particular stones would have been informed by knowledge of colour but more significantly an intimate experience of texture.

The choice of position of different textured stones within the circle has already been noted, in particular, the example of the juxtaposition of two coarsest stones at Easter Aquorthies. Although the case studies indicate there is not a shared pattern of texture distribution between all the circles, there is a degree of sub-regional variability. The three circles located to the east of Bennachie (Easter Aquorthies, Loanhead of Daviott and Castle Fraser) all have the coarsest stones comprising the circle located to the east.

I now wish to return to the earlier question; why should there be this difference in opinion about the colour of these stones? One reason may be the subjectiveness colour experience. In the case of Easter Auqorthies we can anticipate, however, that this difference in opinion is in part though Lynch having made observation when the stones were exposed after the taking of casts. A situation that Lynch feels would parallel the situation when they were first quarried. Yet it is not clear whether the majority of stones were quarried, presenting fresh faces, or were erratics which would be weathered and covered in moss and lichen. Nor is it known whether the surface of the stones was regularly rejuvenated by scrapping moss and lichen, or indeed whether the surface was painted.

Although explanations such as the degree of freshness of exposed surface or subjectivity may seem a satisfactory explanation for the differences in opinion between myself and Lynch, I would suggest that there is another more important aspect about the colour of stones which makes colour an intrinsically unstable system of categorisation. This is that the hue and brightness colour constantly changes with observer, position and light conditions. In contrast, although occasional pieces of stone would shatter off through weathering and frost action, the texture of a stone is more stable than colour. The texture of stone is, in human terms, timeless.

Importantly the study of the interplay between the colour and texture of stone has indicated that rock was more than simply a building material. The variations in the materiality of rock itself were a meaningful component of the architecture of the monuments. The subtlety of these meanings would only become manifest through the full range of experience of the sensory order.

9.3 Alternative sensoria

In the previous two sections we have considered different levels of meaning associated with the material components of monuments. I now wish to consider further how the perception of the materiality of monuments is a highly variable and sectional social experience.

Let us first consider what is the implication of the different uses proposed for RSCs in relation to how they would have been understood in terms of sensory orders. The general acceptance that the RSCs incorporated the movement of the moon within their architecture highlights that they were used during the night time. An interpretation of RSCs as active visual referents indicates that they were probably also used during the day time when more extensive views of the surrounding landscape would be afforded. In all probability the RSC had several different types and times of use; one involving the moon and the other requiring the presence of the sun. It must be stressed that it would be a mistake to consider that the importance of the moon at the RSCs necessarily underpinned any a simplistic day/night binary opposition within cosmologies; the moon can often be seen in the sky in the day time, and is not, therefore, mutually exclusive from the sun.

9.3.1 A diurnal sensorium

Clearly, the experience of being at a RSC in the daytime is entirely different from that at night. During the day, with no heavy fog, cloud or rain, the land below the stone circle can be readily seen. What areas of land can be seen depends on the choice of location of the RSC in relation to the local topography of any potential site for construction. In some directions, the view can be exceptionally limited as it is obscured by the presence of a local horizon. In other directions larger distances of 30 km to 40 km, and further a field to identifiable peaks in the Grampian Massif, may be observable. For example, from Kirkton of Bourtrie, the Garioch can be seen stretching out some 32 km to the west. Now clearly there is a series of different levels of detail of perception involved. Within the nearest portions of land individual buildings, people and animals can be discerned, beyond which the eye can distinguish the patchwork of river, field, forest and settlement. Further afield prominent peaks, clefts, and ridges can be identified from one another. I would suggest it is this depth of visual experience which enables an observer to orientate and locate themselves in a landscape that is the other aspect of the importance of these monuments, in particular as the experience of the landscape from a RSC is fundamentally different from that of the valley bottom.

As I have already discussed the visual sense is only one element of a sensory order. I would suggest that the idea of a variety of levels or scales of visual experience also applies to the other senses to a greater or lesser degree. For example the experience of sound is experienced on a series of different levels of intensity. Different sounds will carry across the landscape to a greater or lesser degree depending on their source, acoustics and volume. There will be a general background of noises which are largely unnoticed, other more prominent or uncommon noises will attract further attention perhaps causing one to briefly turn their head from the task at hand, other sounds may bring about an abrupt halt and change of task.

9.3.2 A nocturnal sensorium

The most obvious consequence with a concern for the moon is that to view it regularly is only possible at night time. Indeed one of the problems with the work of Thom was that his calculations on observations on the moon which would be required to have been made to erect an accurate sightline involved a best case scenario which ignored the limitations of haze or cloud (Heggie 1973). This problem is compounded if calculations are being made on the moon rise as about one third of these take place in daylight (Ellegard 1981, 105), and of these it is estimated that only one in six may have been visible because of cloud cover (ibid. 108). The analysis of the orientation of the RSCs on the moon suggested that the concern was with its movement across the sky and with the setting moon that would usually be observed during the hours shortly before dawn (Burl 1980). Several aspects relating to the form of such ceremonies at night time may be inferred. The observation of the movement of celestial bodies was probably important in broadly marking the movement through the annual cycle as opposed to forming the basis of a precise calendar. Ethnographic evidence would suggest that such times during the year are highly charged points where ritual activity reaches a peak (Thorpe 1981). Before such an event participants may abstain from food, drink, and sleep. This depravation results in a heightened sensory awareness where certain stimuli become far more intense. The choice of the incorporation of the movements of the moon in the architecture of the RSCs suggests that sleep depravation before early morning observations may have played a role in the ritual activity.

There is evidence to suggest that some care was taken to ensure the recumbent stone was flat in the horizontal plane. A beak shaped keel at one end allowed the stone to pivot along this axis when the appropriate level was reached choking stones were inserted to hold the recumbent up in a horizontal position. Why should such care be taken ? Many of the RSC do not have local horizons to the south preferring more distant horizons. It has been previously suggested that

the recumbent was intended to provide a false horizon to observe the movement of the moon across the sky against (indeed see Burl 1980, 196). Clearly, however, one does not require a recumbent stone to observe the motion of the moon. I would, therefore, argue that the essential aspect of the erection, of what may have functioned as a false horizon, is the relationship between horizon and the human perception of the moon. The full moon appears larger when it is viewed on the horizon than when it is high in the sky (Tolansky 1964). As the optical illusion of moon on the horizon makes it seem larger than it actually is the erection of a false horizon would increase the apparent significance of the moon in the night sky. Furthermore, as discussed in chapter seven, the choice of topographical position of the monument allows one to move the relationship between a local horizon, where present and the sky. Hence motion within the RSC could be used to shift the location of the moon in the sky relative to the recumbent stone.

Let us not forget the other aspects of a nocturnal sensorium. The night is a time of relative silence in contrast to the day, although paradoxically it is also the time when many animals are at there most active. The quite at night would have had the affect of emphasising the impact of human sounds at the RSC. Equally when no sounds were being made at the RSC the stillness would increase human awareness of sights and smells.

Yet it is perhaps the visual sense which is most infringed upon by darkness, and it is this aspect which illuminates the importance of the moon at these monuments. Another important aspect of viewing a scene under full moonlight is that this level of illumination allows colours to be discerned. Any less illumination results in only the rods of the eye functioning and the subsequent monochromatic vision. From a RSC the nights without the moon are ones where the landscape below is effectively featureless, with a cloud covered sky obscuring the stars, the land below becomes inseparable from the sky above. When the full moon emerges on a cloudless night the scene below is radically altered rivers, forest, and hills all become distinguishable. In these circumstances the landscape where the daily tasks and routines are undertaken becomes revealed during the night.

The aspect of the sensory experience of a RSC which is least affected by the nocturnal environment is the haptic. Movement around a monument is effectively the same in a nocturnal setting and the texture of the stone is unaffected by the quality of the light. The impact of choices in certain characteristics of stones composing a RSC would become most apparent during the nightime. Quartz inclusions and polished surfaces would be brought to life under the light of a moon or fire at night time. For example, at Easter Auquorthies, light would be

cast off the inner face of the flanker and on the recumbent producing a faint glow and the quartz disc on the exterior of the west flanker would reflect the moon.

9.3.3 A seasonal sensorium

The location of RSCs on prominent peaks or slopes means that if clearance was taking place most intensively towards the river terraces in the valley bottom they may remain hidden by trees from the valley bottom. Yet the extent of clearance and the associated settlement would be visible above or through the trees. It is also, therefore, important to bear in mind that deciduous trees, which would have been the predominate type, are only seasonal in there ability to block lines of sight. From late Autumn through to mid Spring the absence of a complete canopy makes it possible to see the landscape around quite clearly. It is only during the summer period when the visibility of the landscape and sky would be seriously obscured by a blanket of leaves. Observation of the movement of the moon across the sky would be best undertaken during the Autumn or Winter when it could be viewed between the leafless trees.

The seasonal changes in the landscape means that at certain times of the year particular sensory experiences would be associated with particular places. The sensory order of the landscape changes gradually but noticeably throughout the year. The end of the warm season is marked by the change in colour of the vegetation across the landscape. The fall and rustle of wind blown leaves is a constant reminder of the oncoming of the first snows. Snow fall leaches the colour and muffles the noises within the landscape. The flow of rivers mark the seasons by the change in their volume and speed; the summer drought when they are reduced to trickles in contrast to the torrential flow of the spring spate.

The sensory order of the landscape is also seasonally structured in relation to taste and smell. Different plants and animals are seasonally available within different locales or niches. The associated smells and tastes of these would give another layer of meaning to the changes witnessed throughout the course of a year.

The seasonal changes that are witnessed throughout the landscape are also evident in aspects of the architecture of monuments. When the stones are allowed to weather naturally a variety of plants begin to grow in the cracks on the surface of the rocks. In particular, moss and lichen grow extensively over the stones of monuments. The preference of mosses and lichens for a dull wet location means that the north sides of stones have a greater degree of growth. The south faces of stones, which receive the majority of direct sunlight, are often free of any mosses

and lichens. At certain times of the year the north side of stone often feel like they are covered in a wet fabric because of the presence of a layer of moss which does not dry out. In contrast, when it is not actually raining, the south side of a stone will usually be dry. The presence of these plants, therefore, begins to blur the boundaries between a cultural product such as a monument and topographic features. More significantly, the way in which these plants grow on a monument may be perceived as an affirmation of the place of such monuments in wider cosmologies.

9.3.4 Plural sensoria

As discussed within chapter three, one of the strands of discussion in the study of stone circles has been a consideration of whether their use may relate to elite groups who maintain their status through ritual authority. A general model, which has been applied to the interpretation of the function and use of megalithic chambered tombs in recent years, has involved the concept of a restricted access. This was recently proposed by Barrett with reference to the chambered tomb at West Kennet (1994b, 57-61). Fundamental to Barrett's argument is an assumption that in the past there was a distinction between those who could enter the monument and those who were only allowed to observe the activities that were taking place. Clearly, on one level at least, this must have been the case as the chambers of the monument only allow a limited number of people accesses at any one time. It is clearly of importance, however, to understand who is gaining access to this arena of the ancestors. There is no reason to assume that one distinct 'elite' monopolised entry to the monument, the complexity of many of the deposits and the great diversity of different forms of monument suggests that there was a variety of different uses. Thus, instead of considering access was restricted to most members of society we should consider that access was differential. Access to monuments may have been socially sanctioned to different groups at alternative times during the year (MacGregor 1994).

It would be easy to suggest that a similar model of restrictive access could be applied to the RSCs but it would involve the same problems. Especially when as outlined in chapter six, the architecture of RSCs effectively operates, unlike a chambered tomb, through an interplay between concealment and unenclosure. In the case of the RSC the architecture is significant in negotiating social relationships through the presence of privileged observers. Only those standing closest to the RSC would see the view of the landscape below.

Importantly, central to Barrett's model is a belief that the architecture of the chambered tomb provides a series of ways in which the body becomes a medium for expression and

understanding. Undoubtedly, the activities that were undertaken at the tomb were understood through the recursive relationship between the mediation of the physical human body and the concepts of different forms of 'the body'. The model as extended so far recognises the presence of a human being or agent utilising the architecture knowledgeably. This agent has, however, been faceless. It is a issue that I wish to consider in more detail in relation to the concept of the privileged observer.

When I first experienced some RSCs standing adjacent to the recumbent stone, I considered it paradoxical in terms of the model of revelation I propose, that it is so large its height totally blocks the view to the south. Now, in many cases, this may be through a lowering of the interior surface through the later robbing or erosion of the interior. Therefore, of these examples, if the interior level is lower most recumbent stones would have been just visible over to the observer or rather these would have been visible over to an observer of my height, c 5' 11". This is the crucial point in how we attempt to interpret how these monuments were experienced and used differentially. Within the model I propose the experience of these monuments is going to be different to people of varying heights. It is likely that any variation in height most closely relates to differences in age of the individuals. Let us now then consider how groups within societies may be distinguished, through reference to age, as different genders.

Aspects of the archaeological study of gender have seen somewhat of an explosion in recent years (e.g. Conkey & Gero 1991; 1997; Bacus et al 1992; Moore 1996; Nelson 1997). The emergence of this strand of debate has been extremely important, but until recently there has been limited consideration of the experience of childhood in the past through the archaeological record (Lillehammer 1989; Derevenski 1994, 1996). Several points have emerged in some works that have a direct bearing on this study. Lillehammer (1989, 93-4) refers to a cross cultural analysis (Whiting & Whiting 1975) which suggest that children from simpler societies were 'highly nurturant-responsible', or in other words, they take part in the routine of daily activities: collecting water and fire wood, collecting and processing food, and tending younger children. Putting aside the issue of how we identify a 'simple' society, Lillehammer makes the point that these societies are where there is little social differentiation and few public buildings. Another significant point has been raised by Derevenski (1994, 13-4) who considers that children learn about symbolic and social values through their experience of material culture. I will come back to these issues in a moment.

As Lillehammer (1989, 90) has noted the challenge which faces archaeology is to consider the child in relation to culture change and tradition. I would suggest that the interpretative model

for the use of RSC proposed in chapter seven allows us to consider this aspect, especially when we accept the social importance of sensory orders. I have already outlined that the experience of visual field offered by the recumbent stone depends on position, both in terms of location within circle and in terms of an individuals height. Clearly the experience of a RSC is radically different for a child, as if as I have outlined if the view from the monument is important it can only be experienced through being lifted up or only when the individual has grown large enough in height. The landscape below, which they inhabit on a daily basis, remained obscured until which point they would be able to approach the recumbent stone to see. Let us not forget that there is two aspects to the model of landscape monitoring, a diurnal and nocturnal experience. The revelation of the landscape from the monument is an essentially diurnal experience. The nocturnal experience of the moon moving between the flankers probably represented a highly charged time. Moreover the first time this phenomena was seen it would be remembered for a life time.

Can the proposed chronological shift in emphasis of sensory orders tell us something of the experience of childhood. It was suggested that the earlier phase of RSC was understood primarily in visual terms and portable artefacts such as carved stone balls may have been understood primarily in terms of their tactile properties. A later phase is suggested where the visual component of the experience of an RSC forms a less important aspect of how they were utilised. This may have occurred at the same time that portable artefacts began to be conceived more prominently in terms of their visual effect. As noted above, Derevenski (1994) considers that one way in which children learn social and symbolic values is through their interaction with material culture. In the earliest months of childhood, touch and taste are the predominate senses that are used to orientate oneself in the world. This is even more so in traditional societies where child rearing does not usually separate a child from an adult in a cot, crib or pram, where they are in close contact with people most the time. At a later point, however, socialisation of children teaches them to employ more predominately sense of sight and hearing. This process of sensory learning continues as the child becomes older, gaining more self reliance most learning will come about through participating in aspects of the daily routine, through a combination of play, trial and error, emulation, and direct instruction. Perhaps, however, direct instruction is the most powerful method of maintaining and transforming social traditions as this is where 'truths' are entrusted to new generations.

Let us consider the implications of the importance of objects in children's learning. It is the first two years of life, through an interaction with objects, which forms the basis for learning language (Trevarthen 1995, 167-70). It has also been suggested that this interaction with objects is also the basis for an understanding of the connectedness of places (Campbell 1993).

I would suggest that material culture can be utilised during the process of socialisation as a didactic device to illustrate and enforce dominant sensory orders. As outlined in the previous section the nocturnal and diurnal experiences of the RSCs involve different sensory orders. The monuments could be utilised to develop a fully socialised sensory order through experience of a range of nocturnal and diurnal stimuli. The architecture of revelation may have been used to mark a point where the individual had achieved adulthood, a point in time where physical changes allowed them to engage with the subtlety of the architecture. This process of learning and socialisation probably occurred largely on a non-verbal level but through the human body and its experience of the world mediated through the architecture of the monument (Fletcher 1989; Farnell 1994). A socialisation of the senses necessarily involves the social definition of the body. Yet some level of instruction would have been required until the point of revelation. Instructions from the adult privileged observers who themselves had been instructed in the same manner before.

Yet why would a monument, which may have in part been used as a instructional device, mask the sense that was fundamental to its use and understanding to those who may have been receiving instruction. This I would argue comes back to the point that children would have learnt the practical knowledge they required through helping with or undertaking various daily tasks, and through the medium of play. Therefore landscape and place would on one level be understood through daily practice. The instruction received at these monuments referred to a privileged form of vision, a perspective not seen on a daily basis in these early communities, the view from above of the landscape unfolding before them which presented a heightened (literally, physiologically, and symbolically) sensory experience of the landscape below.

If we accept that the height of the recumbent stone prevents people below that height from viewing the landscape below, let us examine whether there is any variability in this height between the different groups of RSCs studied. First let us note the average height (1.39 m) and length (3.25 m) of all calculable recumbent stones (Table 30). In contrast to these figures there is clearly a significant variation in the average heights of the recumbent stones between the different groups. The Alford group is the lowest and the Garioch group largest with a difference in the average of 0.45 m. In contrast the variation in length of the recumbent stones between the Alford and Garioch groups is not as marked with 0.29 m difference. The low average height of the recumbents within the Alford group can be explained by the low example at North Strone. This does not detract, however, from the point that the Garioch recumbents are generally substantially larger then those found within the Alford or Buchan groups. Thus although the Buchan group, on average does not have the smallest height of recumbent stone, it

is still significantly lower (0.30 m) than those of the Garioch group. The Buchan group also has on average the shortest recumbent stones and the smallest circumference of circle.

This patterning would suggest that, within the Garioch group, you would have to be a relatively tall adult to view the landscape below. In contrast, within the Alford group most adolescents and the majority of adults would be able to view the landscape by looking over the recumbent stone. This contrast suggests that age sets, which may have formed one social structure, were distinctly different between the three groups. It may have been, therefore, that the conceptual transition to 'adulthood' was much earlier within the Alford group. The particularly large height of the Garioch recumbent stones would limit an unaided view of the landscape to the taller adults amongst the group.

The location of RSCs on local peaks at points where access was relatively easy but they were difficult to experience visually outwith (see chapter 8), suggests the incorporation of these places in belief systems in a manner which could prevent those belief systems from being questioned. From an RSC the changes that were taking place in the seasonal sensorium, which may be observed on a day to day basis, could be confirmed by the changes that were taking place across the wider landscape. The importance of the difference in visual experience of the landscape from an RSC during the night and day is clearly fundamental to the role they performed. I am not, however, suggesting that there was any simple binary opposition of moon/sun. What is of more significance is the continuum of light and texture of the landscape as experienced from both specific ceremonial locales and the places of daily routine. This continuum could be segmented and re-ordered through the potentially creative and ambiguous form of the architecture of RSCs. The experience of the world from the interior of the RSC involved a nocturnal element which incorporated natural elements of the world into social constructs, and a diurnal element which only partially revealed the world of the young observer from above, who from such a height could not see for themselves but had to take accounts of the world below in trust (Fig 95). I would, therefore, suggest that the RSC acted not only as powerful tools in the process of sensory socialisation but that this process helped ensure the traditional views of the world continued. Views which would be challenged by the reality of the experience of it from above.

This chapter has studied how social meanings that are constituted through monuments ranges in level from the conception of landscape to that of the embodied experience of individuals. It has been suggested that RSCs have a particular architectural form because of the central importance of sacred peaks within cosmologies. Thus rock, the substance of mountains, employed in architecture is not a neutral building material but is already loaded with meaning relating to

these wider cosmologies. These meanings manifest themselves during the construction of monuments through the positioning of rocks in reference to particular characteristics such as colour and texture. The way in which these characteristics are deployed is variable from circle to circle, representing the expression of beliefs of local groups within the constraints of a more widely shared architectural tradition. Therefore, from the conception of these monuments a series of levels of meaning exist relating to different types of experience. The multiplicity of perceptual experience of these monuments is highlighted by the form of the architecture that prevents certain social groups experiencing the monument in the same way. Ultimately it is proposed that RSCs represent didactic tools in the process of sensory socialisation. A process which is embedded in beliefs about the historical inter-relationship between landscape and people.

Chapter 10

Materiality and historical phenomenology

'And if a child's vision of nature can already be loaded with complicating memories, myths and meanings, how much more elaborately wrought is the frame through which our adult eyes survey the landscape. For although we are accustomed to separate nature and human perception into two realms, they are, in fact indivisible. Before it can ever be a repose for the senses, landscape is the work of the mind. Its scenery is built up as much from strata of memory as from layers of rock' (Schama 1996, 6-7)

'We may then encounter a conundrum: people cope and experiment by flexibly transcending set ideas; simultaneously they commonly resort to seemingly timeless cosmological dichotomies when explaining to themselves and each other how they live, work, thrive and survive' (Croll & Parkin 1992, 16)

Introduction

In the previous chapter, I demonstrated, through the study of RSCs, the multiplicity of scales of social meaning relating to the construction and use of monuments in the past. Many of these potential meanings stem from an awareness about the inter-relationship between a particular monument and its location within a wider landscape. As illustrated in the previous chapter, the understanding of monuments and landscapes would have formed complementary elements within larger cosmological systems during the past. I now wish to consider further the archaeological study of the inter-relationship between monuments, landscape and systems of meaning in the past. There are two main points which I wish to develop further; the first is that a basic conceptual component underlying the understanding of both monuments and landscape is their materiality, the second is that the systems of meaning within which monuments and landscape are understood are historical.

10.1 The world(s) a source of inspiration

People orientate themselves and their histories in relation to the world they live in. The physical world of any society is permeated with meaning, it is marked by the histories of spirits and ancestors. In traditional societies seasons, directions, colours, levels of dwelling and different substances are perceived as the direct traces of peoples and times which came before them:

> 'The Inuit generally conceive of the sky as solid substance. On top of the sky is a paradisal land. Water overflowing from the land's lakes and rivers falls through the holes in the sky, down to earth, where it is experienced as rain in summer and snow in winter. Light shinning through the holes makes them visible as stars. It is always light and warm in the supercelestial land. Game animals, particularly land species, are always plentiful. The ghosts of the dead are not only comfortable and well provisioned with meats and skins, but they have abundant leisure time, which they spend in feasting, songs and dances, and games. When they wander out of their villages, playing an Inuit varient of soccer, they become visible in the sky as the aurora borealis. In the middle of the village of the dead, there is a double house where the Moon Man and his sister, the Sun Woman, dwell. She is responsible for the light and warmth in the supercelestial land, he for the game' (Merkur 1985, 207)

> 'At the beginning' said the Omaha, 'all things were in the mind of Wakonda. All creatures, including man, were spirits. They moved about in space between the earth and the stars (the heavens). They were seeking a place where they could come into bodily existence. They ascended to the sun but the sun was not fitted for their abode. They moved onto the moon and found that it was also not good for their home. Then they descended to the earth. They saw it was covered with water. They floated through the air to the north, the east, the south and the west, and found no dry land. They were sorely grieved. Suddenly from the midst of the water uprose a great rock. It burst into flames and the waters floated into the air into clouds. Dry land appeared; the grasses grew. The hosts of the spirits descended and became flesh and blood. They fed on the seeds of grasses and the fruits of the trees, and the land vibrated with their expressions of joy and gratitude to Wakonda, the maker of all things' (Fletcher & La Flesche 1911 quoted in Eliade 1966, 84-85).

In the beginning God created the heaven and earth.

And the earth was without form and void, and darkness was upon the face of the deep.

And the spirit of God moved upon the face of the waters.

And God said, Let there be light: and there was light.

And God saw the light and saw it was good: and good divided the light from darkness.

And God called the light Day and the darkness he called Night. And the evening and the morning were the first day.

And God said, Let there be a firmament, and divided the waters which were under the firmament from the waters which were above the firmament: and it was so.

And God called the firmament Heaven. And in the evening and morning were the second day.

And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so.

And God called the dry land Earth and the gathering of the waters he called the Seas: and God saw it was good.

And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so.

And the earth brought forth grass, and herb yielding seed after his kind, and yielding fruit, whose seed was in itself, after his kind: and good saw that it was good.

And the evening and the morning were the third day.

And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be signs, and for seasons, and for days, and years.

And let them be for lights in the firmaments of heaven to give lights upon the earth: and it was so.

And God made two great lights; the greater light to rule the day, and the lesser light to rule the night...(Carroll & Pickett 1997, 1)

Standing on the grass surface of the earth, a viewer is located in *votostoom*, the middle zone that bridges *haemahestanov*, the world above, and *atonoom*, the world

below. *Votostoom* ends a few yards under the viewer's feet where the roots of the trees and grasses end. Below lies *nsthoaman*, the deep earth, which provides the substance of physical life on earth...

During Tsistsistas ceremonies when sod is excavated to provide sacred space to enact ritual, performers operate directly on the deep earth....The deep earth is directly accessible where it is not blanketed with vegetation, for example, in pebbles and rocks, mountain peaks, sandbars, desert stretches, the interior of caves, and so forth. These are considered powerful manifestations....

The four regions of *votostoom* are connected with the next region of the world above, *setovoom*, the near sky space, through *taxtavoom*, the sphere of breath, wind and air. It is *taxtavoom* that makes physical life possible through its power of *omotomhestoz*, the gift or quality of breath. *Taxtavoom* ends above the clouds and the peaks of high mountains.

Setovoom, the near sky space is the region of mountains and clouds and bends upwards to *otatavoom*, the blue sky. Mountains are sacred because their bare beaks, parts of the deep earth, reach directly into the sky space. Thunderstorms, tornadoes and the high-flying formations of migratory birds, all move in the region of *setovoom*. (Schlesier 1987, 4-6)

10.1.1 The building blocks of conceptual life

It has been highlighted within the thesis that the choice of location for the construction of monuments is socially determined by a number of factors. Of the factors which may be accessible to archaeological study are those concerning how a point in the landscape relates to other topographic features. In the past these features would not simply be understood in terms of a series of geomorphological or cartographic conventions, instead they would be grounded in the ancestry, legends and myths of the human occupation of landscape (Tilley 1994). Thus, any distinctions made between different places would be embedded in these histories of occupation (Fig 96). As we have discussed previously, in part II, many meanings relating to objects stem from the affordances that they present to the human body. In the same way that objects of different forms afford alternative meanings, different materials themselves afford alternative meanings. Therefore, many of these understandings relating to topography would be grounded in contrasts in the materiality of different features.

There has been a long tradition of referring to different materials as conceptual building blocks for the world. Surviving fragments of writing by the Presocratic philosophers of Greece represent the first evidence of a system of categorisation of the world through reference to the elements of air, earth, fire and water (Wright 1995). It is probable that this tradition of referring to the different properties, or affordances, of these substances has it origins in conceptual schemes before these formal philosophical statements. Thus contrasts between different substances, elements or materials have probably always provided a system of referents which may be used analogously or metaphorically to categorise other spheres of human understanding (Richards 1996; Parker Pearson & Ramilisonina 1998, 310; Tilley 1999) (see section 6.3).

It can be suggested that these material referents have a certain power because of their apparent pre-ordained state. As the creation of material culture (objects or monuments) involves the appropriation or transformation of certain pre-existing substances, the items produced would be imbued with some of the meaning associated with the primordial material it was born from. Significantly, this emphasises that the production of material culture is in itself a meaningful act, the intention of producing a particular object from a certain substance results in the meaning of that object having a cosmological and historical dimension prior to its use. Thus, the biography of objects includes a genealogy.

The different properties associated with materials (e.g. stone, wood, fire and water) could be drawn out in conceptual schemes as they were employed in terms of complementality or juxtaposition. Potentially, the power of such conceptual schemes is that they are paradoxically, flexible and creative systems for assigning meaning yet based on highly conservative structures. Meaning is not based on simple binary oppositions but through subtle inter-plays between different properties or associations with material substances.

10.1.2 The Biography of Monuments

Criticisms of some of the problems with the legacy of culture history have already been raised in this thesis (see 4.3.3). The quest for origins, forms and patterns has resulted in a tendency for the particularity of individual monuments being subsumed within overarching schemes.

As a heuristic device, I have developed a model of how RSC may have been used (see 8.1).

The importance of bearing in mind the implications of the differences in sensory perception, between night and day and different seasons, at these monuments has also been stressed in chapter ten. Within the same chapter, the study of the colour and texture of the stones comprising the RSCs has highlighted the complex interplay between regional traditions and locale expressions, and interpretations, of the meaning of those traditions. The understanding of these monuments was clearly historically embedded and therefore changing. Thus, bearing these points in mind, we must consider the potential significance and meaning of the history of individual monuments in terms of what they may have meant to the groups of people who used them. Those groups of people who, that as we have already discussed, were implicated in the changing historical trajectory in the material expression of what was considered sacred or privileged.

Increasingly, objects are being interpreted through considering a biography to their use (see Kopytoff 1986). It was discussed in chapter six that although objects and monuments had several distinguishing features that they should be considered as varieties of material culture in the first instance and that material culture is productively interpreted through an awareness of it's perceptual experience. Let us then re-assess the history of individual monuments in terms of a biography of material culture. This position recognises that the human lifecycle provides a metaphor for the understanding and interpretation of material culture. We will continue to refer to the RSCs to explore the implications of such a perspective on how we interpret the human engagement with the material world. I therefore wish to consider the available evidence for Old Keig, Loanhead of Daviot and Berrybrae in terms of several biographical phases:

Birth of a monument

Our first instinct might be to consider that, whatever the motivation was for monument building, the necessary raw materials must be procured before their construction can commence. In one respect, this is true but such a belief misconstrues the social and temporally extended nature of monument building. In many traditional cultures the acquisition of the raw material is as important a part of monument building as the composition of the building blocks and considerable lengths of time may be spent at both (e.g. Layard 1942, 362-454). As we have already discussed (see 10.1.1), the material from which a monument is constructed of will already be understood in cosmological terms. Hence, the collection or quarrying of suitable stone for building represents the physical engagement with the ancestral past. Alternative sources or locations of stone may have different implications on their meaning when incorporated within a monument.

We have already studied the significance of the colour and texture of the rocks from which RSCs were constructed. Thus, it may have taken a considerable length of time till the selection or discovery of the appropriate rocks. The difficulties in moving a huge rock have long been recognised but, with sufficient labour, organisation and time, is not insurmountable. The significance of the involvement of substantial amounts of labour during such tasks is not that it indicates a vertical social hierarchy or structure, instead it indicates that in small scale societies groups of people collaborate at different times on projects. During these projects, different members of the community may co-ordinate different stages; hence, a number of different horizontally structured social roles may be expressed during monument building. Fundamentally, the act of monument building is a collaborative social enterprise that may represent the physical manifestation of ideologies. Thus, it is of significance that the patterns of visual fields and inter-visibility at RSCs show a degree of awareness of those afforded at other examples.

In such circumstances, the potentially extended temporal nature of monument building would be important as it allows for the reiteration of shared beliefs at different times in different places in the landscape. The quest for the stones with the correct ancestral qualities (as evident by colour and texture) will ultimately result in the discovery of the appropriate ones. This event may be marked by some sort of ceremony before their movement to the location of the monument. Preparations would be required before movement of the chosen rock could take place. The air would resound with the felling of timbers for rollers and levers. Ropes would have to be prepared and food amassed to feed all those participating. Kin may have come from wide distances across the region; the event would provide opportunities for story telling, reminiscences and the reiteration of social bonds. The heaving of a huge stone would leave those participating, drenched in sweat, and physically exhausted. The movement of a large stone, however, not only represents a time of social cohesion but also of danger. The possibility of the stone falling and crushing an individual adds to the heightened tension that would already be present in such circumstances. The movement of the rock would be accompanied by the shouts, and perhaps, music, singing and dance of people. The time of hauling the rocks may have been a sombre occasion or it may have been marked by carnival and excitement, more likely the two were heavily inter-mixed. Whatever the air of the occasion, the hauling of rocks would be a multi-sensorial experience.

Ultimately the arrival of a stone at the location of the proposed monument would be

tumultuous occasion, which may have been marked by a ceremony of consecration of the stone. We must bear in mind, however, that the movement of the chosen rocks, during the construction of a RSC, would have to take place on at least eleven occasions. It is possible, therefore, that the individual stones of monuments were constructed with a significant time span between them, perhaps on an annual cycle (Colin Richards pers comm.). The birth of a RSC may have been a long and painful birth. Yet, the birth of a monument was effectively a time of rebirth of the community.

Age rites

The initial construction of a monument does not represent its final state. Throughout its life use, a monument can be modified either in terms of how the architecture is referred to during the subsequent use of it or through direct addition to or modification of it's fabric. It is clear from the available evidence that many RSCs were modified during the course of their lives. Thus, in some respects, they never reached completion as they were continually becoming something else.

The monuments as they currently survive are, however, potentially no more than the bare bones. A variety of temporary additions could have been made to them in the past. They could have been painted, or transformed by hanging or draping coloured textiles from stones or posts. The lighting of fires in the interior would bring heat and dancing shadows to what are now lifeless monuments. Different materials flung on the fires would fill the air with rich smells. Ultimately, the activities of people, their special clothing, songs, dances and ceremonies were the lifeblood of these monuments in the past. The form and structure of these elements could readily have been transformed through out the lives of these monuments.

Death and ancestry.

In our society, we tend to equate death to the cessation of physical signs of life that is shortly followed by the ceremonial disposal of the human body. There are few cases of the deliberate and complete destruction of a monument. The majority of monuments that have been destroyed over the millennia have been so as an unintentional consequence of other types of human practice or land use e.g. ploughing and quarrying. The usual form of death for a monument relates to the cessation of physical signs of life through its abandonment. The death of a monument occurs when it is no longer utilised by people; death in this case is a social death as opposed to a physical one. None-the-less although monuments may die socially, they may be reborn through historically changing concerns with them. Today

many prehistoric monuments are very much alive through the variety of interests which visiting people bring to them. The plurality and fluidity of meanings relating to monuments is all too apparent today.

Let us now consider the examples of RSCs in relation to the above points.

Old Keig (Plates 30 - 32)

The recumbent stone, which formed the circle at Old Keig, is truly massive. It is composed of sillimantite gneiss, the nearest source of which is over 6 km distant (Childe 1934). Even if a massive erratic boulder was found closer than this source and selected for the recumbent stone, it was still probably necessary to haul the rock from the valley floor to a height of almost 210 m.

The variation in the colour and texture of the other stones comprising the monument suggests that a variety of sources may have been utilised to gain the stones. Stones may, therefore, have been hauled from a variety of different locations within the landscape and have different associations relating to their original locale. There is clear evidence on several of the stones that time was spent preparing them before erection. Indeed, it is possible that some of the stones were quarried and carefully split into shape before dressing (Kilbride-Jones 1934).

It would appear that a hollow was cut to retain the recumbent stone, beneath which several chocking stones were placed. At the eastern end, the stones supporting the recumbent lie directly on the bed rock beneath. Indeed at several points within the circle bed rock outcropped just below the surface. There was no indication of an old ground surface during the excavation that would suggest the turf and topsoil was stripped before construction of the monument. The location of RSCs on prominent points may in part also relate to the need to be near to outcropping rock. The use of stone in construction and its associated meanings may need to have been directly tied to the rock.

Once the recumbent was in place, the flankers were manoeuvred in position. In the case of the eastern flanker it was held in place by chocking stones and retained by packing stones

Within the interior of the circle sealed beneath the compact layer was an area of scorched sub-soil that represents the location of a substantial fire. That the interior was utilised in a number of other ways is clear as two other firespots were identified by the excavator. There was clearly a degree of variability or flexibility in where fires were lit to illuminate the activities taking place at these monuments.

That the monument was later modified by the addition of an internal ring cairn is clear. To the north the bank and revetting stones lay on the surface of the compact occupation layer, and to the south the kerb stones sat within cuts in the subsoil which may have cut through the compact layer (Childe 1934, 382). The compact layer contained numerous sherds of pottery that probably dates to the third and second millennia BC. Clearly pottery vessels, or at least portions of them, were being taken to the site and abandoned. Significantly, these concentrated in two main areas: in front of the recumbent stone and beneath a central cairn.

Another later addition was made to the interior of the monument as a cairn was constructed on the compact layer. Sealed beneath the interior of this cairn was an elongated pit, which had been dug through the earlier burnt layer, and was filled with fragments of charcoal and burnt bone.

After this phase of activity, the monument at Old Keig no longer appears to have been the focus of archaeologically visible activities. A long period of dormancy took place. It may have been that during this period many of the stones of the circle fell or were deliberately pulled down. It is clear that there were some archaeologically visible phase of activity during the Medieval and post-Medieval periods as testified by pottery of these periods within the monument. A portion of the kerb cairn was later incorporated into the enclosure dyke of the plantation it is now situated.

Loanhead of Daviot (Plates 33 - 35)

Located about 100m to the west of the circle at Daviot is a large outcrop of rock that has been suggested as the source of the rock for the circle itself (Kilbride-Jones 1935a, 169). The absence of variation in colour and texture of the stones comprising the recumbent and flankers support the idea that they may come from the one source. The variation in the colour and texture of the other stones of the circle suggest, however, they have derived from a number of different sources.

Like that at Old Keig, the recumbent stone at Loanhead sat within a cut. The end of the monumental task of moving the recumbent stone in position was marked by a final phase of carefull adjustment, as it was carefully levelled and held in position by chocking stones. This act may have formally marked the transformation of an anscestral stone into an active member of the living community. The flankers were then moved into position and again then retained by stone.

The recumbent stone clearly predates many of the other elements of the monument. An area of paving was then laid down in front of the recumbent stone. Subsequently a kerb cairn was constructed within the interior of the circle. There is clear evidence that this post dates earlier phases of activity in the interior of the circle. The kerb cairn partially sealed the paving before the recumbent stone and a trampled occupation layer and has been constructed to step inwards from the position of the recumbent.

Traces of an earlier crescent shaped setting of stones survived within the body of the ring cairn. Remodelling of the features within the interior of the circle had clearly taken place on a number of occasions. Significantly, the crescent setting of stones sealed an area of burning. Before the interior of the circle being constructed in, it had therefore clearly been the focus of a substantial fire and any associated activities.

By the middle of the second millennium BC, the RSC no longer remained the focus of ceremonial activity. The establishment of an enclosed cemetery to the east led to burial deposits being made out with the RSC (Kilbride-Jones 1936), including the close construction of a cist within which was placed incense cup(Kilbride-Jones 1935b).

Later phases of activity are evident in the Medieval period with the construction of an earthen dyke over the northern part of the monument.

Berrybrae (Plates 36 & 37)

The details of the relationship between various components of the monument at Berrybrae are not as clear as at the previous two examples. The dramatic difference in its history does, however, merit consideration.

The ground for the location of the monument had been prepared before its construction. The southern portion had been built up with a platform of clay that in effect levelled the interior of the site.

There is some variation in the type of the stones utilised at Berrybrae (Barnatt 1989, 272) which would suggest that they were derived from different parts of the landscape. The first phase of the monument comprised of the orthostats and recumbent which had been set on the outside of a bank that lay over the clay platform.

Later a small internal ring-cairn was constructed and linked to the recumbent by a stone platform upon which was strewn quartz pieces. The second main phase involved the demolition of the stone circle, except the recumbent and west flanker, and the levelling of the internal ring cairn. This was followed by the construction of a stone wall along the original bank (Burl 1978, 8). The monument was later enclosed within a formal plantation during the late eighteenth or nineteenth centuries.

A variety of lives

The above three examples of RSCs show evidence for the potentially extended nature of the initial phase of construction and later phases of modification or reuse. Significantly, they also show the tension between the contemporary archaeological study of regional architectural traditions and the local expressions of meaning in the past within those regional traditions. That these monuments form part of the same tradition of building is apparent because they share historical changing elements of form, yet there is not a slavish adherence to a grand plan or design. Instead, individual monuments represent the results of a unique history that must ultimately be grounded in the context of its local understanding.

10.1.3 Stone becoming water

It has been suggested during the study of RSCs, in chapters eight and nine, that both the choice of monument location and the way material was employed in their construction was a meaningful expression of wider cosmologies. We have already discussed that one reason for the choice of location for RSCs may have been the ability to view prominent peaks. In the case of these monuments they were in part constructed in orientation to topography. Can the choice of location of monuments have other material considerations that relate to cosmological principles. Let us examine the height and proximity to water of different classes of monument to establish if there is any relationship between the type of monument and its topographic orientation (Tables 31 & 32).

If we examine the direction of orientation and average distance to water in relation to the broad chronological sequence of the main types of monument within Aberdeenshire several potentially significant patterns are observed. The first is that the predominant orientation to water appears to change in relation to the form of monument. The closest source of water to the majority of the earliest forms of monument is to the south and the later forms are most frequently located with water to the north to north east. The only notable exception to this broad contrast between earlier/south and later/north pattern is the location of beaker ceremonial sites. For the purpose of analysis, as opposed to individual beakers, groups of beakers within flat cemeteries or inserted in the construction of monuments were treated as a unit of analysis. This showed that majority of beaker sites are positioned with water towards the west (Table 32).

Another notable pattern identified through the analysis is a historical trend in change of preference in the proximity of monuments to water. The earliest sites were furthest away from a source of water and the later ones became increasingly closer. A similar, undoubtedly inter-related, trend is for later sites to be much lower. It is difficult to be certain if the reason for this patterning; is it because of a preference for a particular height, degree of proximity to water or a combination of the two. What is, however, clear is that there was an historical change in preference of these factors in the choice of monument location which was related to the direction of orientation to water.

This historical trajectory showing a growing concern with water manifests itself not only through the establishment of significant places, through the construction of monuments, in closer proximity to rivers but also through the formalised deposition of artefacts. We discussed in chapter seven the potential roots of a tradition of depositing ceremonial objects such as shaft-hole implements and CSBs in water which ultimately may have culminated with the tradition of depositing metalwork in wet places during the late second and first millennia BC. The evidence suggests that the medium of water was considered increasingly significant during the fourth to second millennia BC.

The historical shift in concern from high places to low places finds a striking contrast in the distribution of some lithic types. As discussed in chapter two, study has shown that a larger percentage of barbed and tanged arrowheads than leafshaped are found in an upland context and the discovery of leaf shaped arrowheads is confined mainly to lowland positions (Hamilton 1981). It can be considered that the majority of these artefacts were probably lost

during their use. Thus, this pattern of distribution would suggest two main points. First, there was a change in hunting range during this period with an increasing area of land being exploited for this purpose by the second millennia BC. Second, if the hunting range was centred upon the point of occupation at any particular time this distribution would suggest that during the fourth to third millennia BC the focus of occupation was the lowland areas, such as river valleys, basins, and the coastal strip, with an expansion in the area of land inhabited by the third to second millennia BC. Without further information about hunting strategies, it is difficult to be certain how sustainable the second hypothesis is but it may indicate there was general trend in occupation in the landscape from lowland to highland during this period.

At this stage we must also bear in mind some of the conclusions of chapter three, where it was suggested that the archaeological remains of settlement in Aberdeenshire indicate a higher degree of group mobility during the fourth millennium BC than is usually considered in traditional models of mobility for the period. It was discussed that there was a historical dynamic, relating to the emergence of village based agro-pastoral farming, in a decreasing degree of mobility from the fourth millennium BC to the second millennium BC.

We have now identified a series of historical trends relating to how the landscape was occupied, perceived and conceived between the fourth and second millennia BC. The changing nature of occupation, and understanding of people's place in the landscape, is summarised in table 33.

10.1.4 The sensory history of monumentality

The earliest monuments constructed in Aberdeenshire were the cursus and long mound. Cursus monuments were pit, post or ditch defined linear structures and it is likely that these were used in some manner as processional avenues (Loveday 1985). Of the two cursus monuments in Aberdeenshire, the best example is that at Hatton of Fintray. It was probably constructed of massive timber posts that formed three contiguous rectilinear compartments. It is situated on a river terrace overlooking the River Don. It is possible that the choice of location and form of the monument may have evoked, through mimicry, the experience of movement along the river valley below. Thus different forms of construction of cursus may mimic the different forms of movement; posts may define the edge of paths through the woods in valley bottoms, a boundary ditch may reflect the confinement of movement on the

river and banks would represent the steep sides of the valley which limit views beyond. Movement along or activity within the cursus at Hatton of Fintray would have provided a metaphorical experience of travelling elsewhere in the landscape. The linearity of the monument focuses attention along its axis, either through motion along it or through the perspective it provides the eye. Experience within the monument is therefore formalised as distinct from the routines of daily life where such controlled vistas would not be experienced.

The long mounds in Aberdeenshire are typically located at higher positions within the landscapes. There is evidence to suggest that these monuments were unchambered but may contain earlier wooden mortuary structures. From excavated examples, elsewhere these structures may have been similar in form to the timber structure at Balbride. The use of wood in these structures may in part mimic the sense of enclosure in a small clearing in a woodland. In the same fashion that cursus monuments controlled the scope of the sensory experience of the surrounding landscape, the structures beneath long mounds would have provided a restricted sensory arena. Exterior sounds become more muted by the architecture of the structure and sounds within the interior would be distorted and perhaps resonate in the wood. As with the cursus monument the experience of the restricted space focuses attention on the activities, people and objects referred to within it.

At some point the structures were sealed beneath long mounds. The potential for the sensory experience of enclosure and the abstraction provided by a space removed from the world beyond was no longer possible. Instead, use of and reference to these monuments would now focus attention on their place within the landscape. The position of the majority of these long mounds would afford views of Bennachie. The distinctive form of some of these monuments has been noted as indicating the potential of multi-phased construction. Could it be, however, that the importance of the distinctive form of these monuments was in mimicry of Bennachie. Local groups effectively established monumental models of a special peak; emulation as the sincerest form of flattery of the gods. Thus at some point during the fourth millennium BC, with the sealing of timbers by earth and stone, the relationship between woodland and mountain as expressed in monumental construction is transformed resulting in dominance of topography over vegetation.

It is probable that circular settings of uprights began to be constructed during the fourth millennium BC. It is striking that in the tradition we also see a transformation from the use of wood to the use of earth and stone. This is a sequence which is suggested at many of the

excavated wooden/stone circles; Machrie Moor (Haggarty 1991), Templewood (Scott 1989) and timber circles in North Mains (Barclay 1983) and Balfarg (Mercer 1983), Croft Moraig (Piggott & Simpson 1971), Cairnpapple (Piggott 1948), and Strichen (Abramson & Monk-Smith 1981) and perhaps at Moncrieffe, where the ring of pits may be truncated post-holes (Stewart 1985).

It would appear that the change in the deliberate choice of the medium of constructions is significant. Let us consider some of the reasons why this change in construction materials may have taken place. It could be argued that the decision to use one medium for construction as opposed to another might be because of the relative ease of availability. For example this was the argument generally employed in the past to explain the contrast in geographical distribution between the 'southern' (lowland) earthen long barrows and the 'northern' (upland) stone chambered tombs. This model has proven to be too simplistic with the distribution of different types not being as mutually exclusive as previously thought. Yet it could still be argued that the earlier circles were constructed of wood as it was a medium which was readily available but highly meaningful during the fourth millennium BC as it represented an obstacle to be overcome during clearance. After the initial phase of clearance had been undertaken trees or wood having been transformed to field, their meanings will change. At once, paradoxically, becoming less significant as no longer representing a hindrance yet becoming relatively less available therefore more significant as an increasingly scarce resource. Such a model is certainly too simplistic but it illustrates that any changes which take place in the environment are often recognisable in a life time and would be explained through and incorporated into other systems of meaning.

Perhaps then, the use of wood in the earliest circular arrangements of uprights suggests a deliberate evocation of the habitat it originated. It is likely that the fourth to third millennia settlement in the research area was largely confined to the river valleys (Ralston 1982; Fairweather & Ralston 1993; Hamilton 1981; Kenney 1993). If we consider the arrangement of circular settings, the larger more concentric series of rings represent a larger, denser forest, within which it is more difficult to see as opposed to a single circular setting of uprights which may represent the more managed elements of woodland with well established clearings. Thus, the transition in building materials may relate to peoples perception of their relationship with and place in their landscape.

We have already discussed in chapter eight, that the architecture of RSCs in particular, and circular arrangements of uprights in general, are paradoxical in their ability to obscure

activities within the monument yet afford good views of the landscape they are located within. Perhaps this relates to an awareness of the changing, and at times contradictory, nature of the landscape as the result of increasing clearance. People made sense of the changing world in terms of reference they would recognise and understand from the experience of that world.

During the third millennium BC the henge began to be constructed as a form of monument. The combination of ditch and external bank in construction meant that the spatial experience of a henge monument was far more confined than the experience of a stone circle. Yet the construction of henge monuments did not prevent other more open monuments from being constructed. The henge monument at Broomend of Crichie was linked to another, probably earlier, stone circle to the north by an avenue of stones. The metaphor of movement along a river (which was associated with cursus monuments) was still significant as it was expressed through the by avenue at Broomend of Crichie running broadly parallel to the river Don. This perhaps could be considered as a period of flux in terms of how monuments were conceived, constructed and utilised. It is during this phase that the remodelling of many RSCs, through the addition of interior features, probably took place. As noted previously this remodelling would have prevented RSCs from being utilised in the same way. The new architectural form shut down the ability to use the RSC in the same flexible manner as a visual referent.

It is during this period that we see the changing expression of the relationship between the mediums of stone and water. It was argued in chapter nine that the choice in form of the architecture of RSCs in part stems from the perceived specialness of the peak of Bennachie. Thus the medium of stone would be considered as having particular significance. It has been suggested that the construction of henges relates to the importance of water as a privileged medium (Richards 1996). It is probably during the period that henges are being constructed that the RSCs are being modified by the addition of internal architectural features. Together this may suggest a shift in cosmological principles from the primacy of stone to water. A process that may be related, in part, to the increasing demands for water to ensure the viability of agriculture.

Following this proposed transition in the primacy of significant or priveleged mediums from stone to water during the third millennium BC the physical experience of monuments begins to change. The process of limiting the physical and visual experience of monuments as witnessed at RSCs and henges appears to have continued. Monuments were increasingly

constructed as sealed units, either barrows or cairns, or sealed cists, by the second millennium BC. Clearly none of these could be experienced in the same way as those of the fourth and third millennia BC. By this time, the embodied experience of the monument was less significant, it was the body in the monument that began to take priority instead.

Broadly, speaking the monuments of the fourth to second half of the third millennia BC allowed a greater degree of access to human beings than those of the second half of the third to the end of the second millennia BC. The architecture of monuments that allow access resulted in an abstracted sensory experience of the world and focused attention on particular events, artefacts or people.

10.2 Historical phenomenology

10.2.1 Between the mountain and the deep blue sea

In this section, I wish to highlight the main interpretations and conclusions that have been reached through research. There are seven main points which merit further consideration. It should be stressed, however, that several of these points are inter-related and represent, contingent on further research, some of the ways in which the materiality of the archaeological remains may have been significant to people in the past.

1) Analysis of the visual fields of RSCs has demonstrated that they were placed in the landscape to be largely inter-visible. The striking exception to this pattern was the Buchan group of RSCs, of which none are directly inter-visible and, in contrast to those of the Alfors and Garioch groups, the view-sheds have a greater degree of mutual exclusion. This observation indicates there were some criteria for the selection of monument location in the past. That the choice of monument location involved awareness of other monuments, and the same forms were expressed architecturally, suggests communities across the region were in communication and held, at least in part, shared beliefs or structuring principles.

2) Similarly, exploration of the inter-visibility between RSCs, Bennachie and Mormond Hill suggests that most RSCs were constructed at positions that allow views of Bennachie. The general tendency for inter-visibility to Bennachie from most RSCs therefore indicates, as opposed to a strategy of avoidance of inter-visibility, either a neutral

stance (i.e. sight of Bennachie was not a factor in choice of monument location) or a positive position (i.e. a definite factor in choice of monument). Furthermore, I would suggest that the discovery of an analogous form between the arrangement of recumbent and flankers at RSCs and the cleft peak of Mithers Tap confirms that the mountain and monuments were perceived as connected in some sense. The emulation of form of Mithers Tap suggests the peak may have held an important place within cosmological systems and consequently conceived as a privileged peak. The possibility of such an interpretation of a vertically structured cosmological system is supported by analogous structures found widely in ethnographic and historical belief systems. For example, the Yoruba of Yorubaland, Nigeria, associated the highlands and hills as the place of the gods abode or in the case of some hills as gods (Ojo 1966, 159). It is the spirit of the hill or the god inhabiting it that is worshipped rather than the hill itself. Ojo notes the heighest hill is normally the focus for worship.

3) I argue that construction of RSCs not only referred to wider belief systems through the choice of their location and form but also through the choice and nature of deployment of materials during their construction and use. Study of the colour and texture of the stones employed in the construction of a sample of RSCs indicates that different strategies were deployed during the construction of individual monuments. Thus, while broadly the same form was used between monuments, ensuring the same colour and texture of stones were deployed in construction between monuments was not such a pressing concern. I argue, however, that the distribution of colour and texture of stone compared between monuments would not suggest an entirely random deployment. Rather, similarities in pattern of colour and texture of stones in geographically close monuments suggest building was undertaken knowledgeably. By knowledgeably, I mean that adjacent local communities either collaborated in the construction of adjacent monuments or that adjacent communities were aware of how adjacent monuments had been constructed and emulated aspects of them. The importance of the choice of stones deployed in the construction of monuments by people during the fourth to third millennia BC may be supported by what appears to be a general preference for certain types of stone in other forms of material activity. For example, the available evidence suggests that quartz was regularly employed as a temper in the pottery tradition during the fourth and third millennia BC in the north-east of Scotland (see section 7.1) and in contrast the readily available source of flint in the north-east was not frequently deployed as temper. Similarly, quartz was regularly deployed at ceremonial locations, either incorporated in the architecture or strewn across the interior. By the later third and second millennia BC, in contrast, quartz was rarely deposited in the new ceremonial context of

individual burial where struck flint or flint tools were deposited regularly. Consequently, it is clear that during much of the fourth and third millennia BC people privileged quartz in several arenas of social expression and it would appear, therefore, that the materiality of quartz was significant. Clearly, the distinctive materiality of quartz was significant to its privileged status but I would argue such an interpretation would be a mistranslation or simplification. Although quartz may have had a privileged status, the status of quartz would have been conceived relationally. Consequently, other distinctive stone types (e.g. granite, sandstone etc) would have been understood on their own terms and in comparison or contrast to quartz. It is thus striking that the majority of stones deployed at RSCs are forms of granite. Notably, the mountain of Bennachie comprises predominantly of granite but crossed by quartz veins or dykes; again are we seeing monuments as microcosms of the mountain (see section 9.1.1)? Fundamentally, I would argue that due to its very materiality the use of stone would have been meaningfully understood. The choice and deployment of stone in monuments may not represent direct and explicit statements of believe but rather resonate something of the concerns and principals that structured the peoples' lives who built them. We may not be able to translate the messages but we can recognise that the medium would have been deployed meaningfully.

4) I have also suggested that the meaningful deployment of materiality is also manifest through a transition in cosmologies concerned with wood to stone to water during the period of study. This transition was suggested initially by a general trend in the transition of monuments from wooden to stone construction. Such a change in expression may in part relate to the process of lithization (Parker-Pearson and Ramilisonina 1998) during the fourth to second millennia BC, as manifested at a regional level. The increasing concern with water is suggested by a historical trend for increasing proximity of monuments to water. With monuments increasingly being built lower on the valley floor and closer to water. In the north east of Scotland, this shift originates with the upland position of long mounds during the fourth millennium BC and ends with the tradition of burial in the valley bottom in the second millennium BC. Yet a concern with water is also evident through the pratice of depositing stone artefacts in water during the late third and second millennia BC and then with the deposition of metalwork during the second millennium BC. Other depositional practices may indicate that there was a long-term shift in the significance of different mediums. Incorporation of water rolled cobbles as the floor of a frequent number of Beaker cists during the second millennium BC may have been as consequence with an increasing perception of the significance of water. Indeed, it is striking that two such examples of

burials are at the end of the stone avenue leading towards the River Don at Broomend of Crichie.

The initial significance of wood may relate to how this medium was conceived as an integral part of the environment. During the fifth and fourth millennia BC woodland dominated the landscape; it provided a source of building material, a source of fuel, it dominated the perceptual experience of the world and as such formed an integral part of belief systems. The world of wood was the world of people. Monuments were made of wood because the world was made of wood. Increasing clearance of woodland led to wood no longer being held in the same significance; building was in stone, fuel could also come from peat or animal dung and tree-cover was less extensive or dense in many areas. Peoples experience of trees and wood, and consequently how it continued to be perceived in cosmologies, ultimately changed as its significance waned. With these processes of change, stone, which would always have formed a part of conceptual schemes, became conceptually more prominent as it was increasingly visible or experienced by people. The balance in concern for the material significance of different mediums again gradually changed to focus on water. Increasing demands for water to sustain new subsistence strategies that developed during the third and second millennia BC led to a heightened awareness of its significance: the crops and herds would wither and die without water.

It is difficult to be certain whether the changing concern from wood to stone to water represents historical shifts in structuring principles or whether it is limited to particular spheres of social expression. I would propose that, in terms of the currently available information, this transition relates to primarily ceremonial expression. It is more difficult to be certain of its sustainability in relation to settlement or subsistence activity. As, while there is clearly a long-term shift in settlement pattern, the nature of social practice and how it was expressed through materiality is more difficult to be certain. Yet, there are indications that a shift from wood to stone may have also taken place as form of material expression in this social sphere. The limited evidence of settlement in the fourth to third millennia BC is of wooden construction, while in contrast during the second millennium BC settlement is frequently constructed from stone. The shift of settlement to upland areas means that sources of water less readily available and indeed at times may seasonally dry up. Clearly, the shift towards water as significant metaphor in material expression, may in part also be an unintended consequence of the changing perception of the world relating to a shift in settlement pattern (see point seven below).

5) Another conclusion reached during the course of research is that carved stone balls were understood through the interplay or tension between different ways that they may be perceived. I have argued that the traditional approach to the study of carved stone balls has been to treat them as visually striking but enigmatic objects. Such a perspective ignores that CSBs would have been utilised by embodied people in the past and as such falls into the trap of occularcentric ways of western thinking. Through studying the range and nature of embodied experience, it is apparent that the form and decoration of these objects may represent a sophisticated and deliberate choice.

I argue that the tension between the fine incised decoration which can only be properly appreciated visually when handled and the dramatic transformation in form of object when spun in the air, which would be appreciable to a greater number of people, was a deliberate device to focus attention when these objects were utilised. It may have been of significance that the transformation in material form of these objects, from multi-faceted object to sphere, most readily takes place through vertical motion and as such referred to a wider vertically structured cosmological system. The potency of materiality and material culture does not stem from visual appearance but how they were actively engaged through embodiment.

6) Another conclusion that I reach relates to long term changes in expression through materiality. I have suggested that there was an increased emphasis from haptic to visual dominance as expressed through artefacts during the period of study. It has also been observed that at broadly the same time there was a transition in colour of pottery from predominantly grey to predominantly red and in arrowheads from predominantly red to predominantly grey.

In this case, it is difficult to be certain of the nature and meaning of the metaphors evoked through the choice of colours in material culture. It is, however, possible to suggest that they would have been understood, at least on one level, in terms of how broad categories of taste or value are expressed through material culture. As highlighted in section 6.3, although we may not be able to study the aesthetic systems of past societies, we can recognise that material culture was deployed, both unconsciously and strategically, as an expression of broad cultural categories. Such material categories would represent a reflection of culturally grounded perceptions or structuring principles about the nature of the world. We can suggest that the same basic concerns which affect all human groups would be expressed through material categories such as the inter-relationship between dawn, day

and night, dusk; birth, life and death, afterlife etc. We can also recognise that in broad terms, the colours white and grey are frequently considered part of the same category in contrast to black and red (see section 9.2).

We can now begin to explore some possible meanings that may have related to the historical inverse shift in colour selection between pottery and arrowheads (Grey pottery:Red arrowheads::Grey Arrowheads:Red pottery). Recognising the problems with chronological resolution it is still possible to suggest that at time we have quartz temper privileged in pottery, we have predominantly grey pottery and predominantly red flint arrowheads. In contrast, when we have predominantly red pottery and quartz was no longer privileged as a temper we have predominantly grey flint arrowheads. Furthermore, we see arrowheads and pottery regularly combined in the same ceremonial contexts during this later phase of material expression.

Quartz may have been metaphorically related to moon/sky due to its luminosity. A combination of grey pottery with white quartz or grey quartzite, perhaps, metaphorically evoked the aesthetic of night. The greyness of dusk (pottery) ultimately encloses the white luminosity of the moon (quartz temper) and stars (mica) sealed within the black interior (core of pottery fabric) of night: the dynamic of night. The night, the time when the living normally sleep, may have been associated as the time of the ancestors or spirits (the dead). In contrast, red may have related to the vitality of life, through association with blood, and metaphorically evoked in material culture. The predominant choice for arrowheads may have been red flint, not because arrowheads were conceived as harbingers of animal death but rather because they were conceived as bestowers of human life through providing sustenance. Strikingly it is stones with shades of the colours red (life) and grey death) that are predominantly found in the architecture of RSCs; perhaps suggesting that they were metaphorically conceived as places where the ancestors and the living met materially.

We can, however identify another marked distinction between the inter-relationship between landscape and materiality. Quartz was readily obtainable from dykes or outcrops across the landscape. The source of flint was in contrast, however, discrete in its distribution and indeed requires mining in order to obtain in significant quantities. It is striking, perhaps, that flint mining would appear to have begun in the third millennium BC and broadly, perhaps, at the time we the other change in expression of preference for materials and their colours took place. This shift in colour symbolism of materials may have represented a transformation of structuring principles in society. With the increasing adoption of less

mobile subsistence systems, during the third and second millennia BC, hunting may have been conceived as a less significant activity. Not only was hunting less significant in provision of foodstuffs but more importantly hunting was less significant to sustaining a sense of place and the rhythms of inhabitance of the community in the landscape. Therefore, by the late third millennium arrowheads were less frequently used for hunting animals. Rather, with the decreasing mobility of groups it became increasingly important for them to defend their settlements. Ultimately, the arrowhead became conceived, rather than the bestower of life, as harbinger of human death. Similarly, the greatly decreased use of quartz as a temper in pottery by the second millennium BC and its change in colour to red may suggest pottery was no longer associated with night and death. Rather, it was the vitality of life and blood which pottery now evoked. Previous generations had materially created the places where life and death meet through the metaphorical associations of the red and grey stones of the monuments. By the second millennium BC, it was the treatment of the human body that expressed how the worlds of the living and dead met and this was symbolised metaphorically by placing the red vessel of life in the ground with the grey harbinger of death.

Finally, let us consider whether this inverse shift in expression through colour symbolism also related to the change that I suggest takes place from haptic dominance to visual? The period when colour preference was for grey pottery and red arrowheads was when haptic dominance appears to have been stressed in material culture and by the time when we have predominantly red pottery and grey arrowheads a visual dominance had emerged. I have suggested that the shift in colour of these material categories relates to how they were conceived in relation to the structuring principles of dawn, day and night, dusk; birth, life and death, afterlife etc. I have also suggested that the changes in emphasis from haptic to visual dominance in part relate to the changing nature of the environment people lived in and the changing needs of sensory perception to live in such environments. It is unlikely that there is a direct correlation between changes in colour categories and sensory dominance. That the changes in sensory dominance and colour symbolism take place at the same time does, however, suggest, that they are influenced by or a result of the same historical dynamics taking place during the period of study. Fundamentally, we can suggest aspects of the changing emphasis in these material categories was at least partially inter-related by the manner in which material conditions partially structure the nature of embodied experience. It is unfortunate that in the absence of good evidence for the nature of social practice in settlements as expressed through material culture during the period of study, it is impossible to consider the nature of these metaphorical associations in other

social spheres. It is possible, however, to suggest with the shift in expression through the ceremonnial sphere downwards to water and the settlement upwards to stone we may find that there was an inverse relationship in the metaphorical associations of these materials and colours in the arenas of daily practice.

7) Finally, I have suggested that we can identify a general inverse trend in altitudinal changes in daily routine and the location of ceremonial places (see section 10.1.3). The details and sustainability of the proposed trend is impossible to clarify due to the limited nature and distribution of settlement during much of the period of study. Further fieldwork will undoubtedly help resolve this problem but the available evidence clearly indicates a shift or at least expansion of settlement (and possibly hunting ranges) from the valley bottom to the uplands by the second millennium BC.

Several other conclusions of the research, however, suggest that altitude, height or verticality may have been a structuring principle within cosmological systems. Change in altitude or height was not simply a movement through Cartesian space rather it was a phenomenologically distinct experience. The valley bottom represents a more enclosed sensory environment where the slopes of the hillsides around are the backdrops to daily life. If the landscape was more heavily forested, as was probably the case during much of the fourth and third millennia BC, visual perception would be less significant and sounds and smells would be more significant for orientating people and creating a daily sense of place (Gell 1995). In contrast, the experience of being in an upland environment is one of extensive views of landscape and a marked awareness of the expansive sky above and in absence of significant tree cover the sound and motion of the wind is rarely absent (see also p139-40 & 169-70). Clearly, the concern with altitude was not simply one of relative height but would relate to the different quality of experience which different places in the landscape offered and how those different experiences were conceived (Bloch 1995).

It can be suggested that the area of focus of social groups' daily activity become historically conceived as a place of safety in the world. In contrast, the areas beyond the geography of daily routine become characterised as the other; as places occupied by ancestors, gods or spirits not all of who are benevolent. Even with more mobile social strategies, as has been suggested for the fourth to third millennia BC in Aberdeenshire, the range of the group would be contrasted with the areas beyond and those areas beyond would be heavily mythologised. During the period when daily routine was grounded in the valley bottom the

uplands would rarely need be visited by people and consequently may have been conceived as a distinct sphere. Indeed, the higher ground may have been an area that was generally avoided as a place where ancestors, gods or spirits occupied. Only at certain times of the year was it safe or proper for the community, or perhaps privileged members of the community, to visit these different lands.

As groups became less mobile and settlement extended increasingly upwards. The nature and inter-relationship between people and the worlds of the ancestors, gods and spirits would have had to be constantly renegotiated. As people began to impinge more frequently on higher ground, perhaps at first with the gradual upwards extension of hunting ranges, they began to realise that they were not faced with the anger of the ancestors, gods or spirits. When they began living in the lands of ancestors, gods or spirits then focus may have shifted to the world of the living. This may have manifested itself with the return of individuals to what was now conceived as the ancestral home of the living community, the valley bottom. The concern with the living community and its ancestral origins may relate to the more formalised mortuary and funerary traditions that focussed on individuals. The places that were once conceived as significant and their metaphorical associations were no longer valued when the living community began to dwell in the ancestral lands of the ancestors, gods or spirits.

Changes in the landscape, the location of peoples' places of occupation, the nature of embodied perception of those landscapes and places and the conception of the inter-relationship between people and landscape in cosmological systems all contributed to the changes in the nature of peoples engagement with their material world. That these changes were long term, probably the unintended consequences of human practices, indicates the complexity of social change.

10.2.2

Within chapter five, certain criticisms were levelled at recent archaeological phenomenologies. In particular it was noted that the use of the concept of *Dasein* by Thomas (1996c) may result in the reproduction of a 20th century concept as opposed to aiding in the interpretation of what it was to be human at another time in history. In essence, it was suggested that these studies were ahistorical and as such brought us no further towards understanding the past. Hence, we must now consider whether the study of the fourth to second millennia BC in Aberdeenshire, with an awareness of the social

significance of sensory orders, has resolved some of these problems. Towards this end we must try to answer the questions: what was it to be a human being between the fourth and second millennia BC and how did the material conditions within which people lived affect them?

Within the thesis we have considered how the bodily engagement with the material remains of the past mediates our understanding of them. To begin to consider how material culture formed the fabric of social life we engaged with it in terms that might have been experienced in the past. Of particular importance has been the recognition that the material conditions, or the affordances of mediums, of material culture present a fundamental basis for the origins of the understanding of it. The study of CSBs, within chapter seven, indicated that the visual experience of the object is unstable. Thus visual scrutiny of a CSB presents us with several different objects including the multitude of different perspectives and the transformation of form during motion. Similarly, many aspects of the human experience of monuments is relatively unstable. The study of the inter-relationship between colour and texture of the RSCs indicated that the visual experience of the object is potentially less significant to the establishment of meaning. The colour of stones is inherently unstable, changing with light conditions, mood and weather. It is, however, the materiality of the stone as experienced through form and texture which is stable. This does not change through the course of a human life time, colour in contrast is in continual flux. It has been argued that systems of meaning in the past are embedded in cosmologies. These cosmologies relate peoples historical understanding of their place in the world to the material conditions or different mediums which people experience. In consequence the material culture of such societies blurs, and is imbued, with meaning from the genealogical origins of different mediums. Hence the study of the inter-relationship between water and stone has shown that historical dynamics can be identified in how these were related in different spheres of life. The gradual movement of ceremonial sites away from higher places where stone was exposed to places in proximity to water was mirrored by an increasing trend to the deposition of stone artefacts in watery places. This process took place during a period when settlement probably began to expand into more upland areas. Thus, the specialness of high places and the unusual views they afforded was gradually profaned by an almost daily presence.

Within chapters two and three it was suggested that we abandon the use of the terms Neolithic and Bronze Age. Every attempt has been made to undertake such an approach within this thesis. The absence of a secure chronology of most types of artefact, monument

and settlement from this period has resulted in a study that is at times broad brush. I hope that the finer brush strokes will be filled by further research in this area. I have, however, attempted to show that it is the historically changing rhythms of human life, which are embedded within landscape, that form the basis of different social systems which can be considered as 'historical eras'. Hence we may consider that there are a number of different overlapping periods. Each of these may relate to a different sphere of social life as experienced by different groups within societies (e.g. variations with affiliations to different age, gender, or sub-regional social groups). I would contend, therefore, that it is possible to study historical phenomenologies of these different groups. For example, in chapter nine, the study of variation in height of the recumbent stone at RSCs has indicated that there is a significant regional variation. This can be interpreted as relating to differences in the age group between these regions when access to the use and understanding of these monuments is socially sanctioned. Yet in all these areas we see that the monuments are ultimately modified by the addition of interior features in such a way which prevents the monuments being used in the same fashion. The revelation of approaching the stone is essentially denied and socialisation of the senses may take places in different arenas. It was argued in chapter six, that the way in which we learn to focus our attention on material culture sets a pattern for how we subsequently understand material culture. Thus, in small scale studies material culture becomes, almost by default, a didactic and conservative device. This relationship between material culture and social reproduction in turn ensures that the social understanding of the mediums from which material culture is produced from are sustained for long periods of time. Hence it is possible that the evocation of the form of Bennachie, in a variety of guises in ceremonial monuments, stems from the continuing perception of stone itself as a privileged medium. This is in turn reflected in choices how different mediums are suitably deployed in the production of material culture.

As discussed in part II, our experience of material culture during psychological development may result in a series of propensities as to how the world is experienced. This perspective has much in common with Bourdieus' (1977) concept of habitus but differs in the degree it implicates material culture in the creation and replication of social understandings. Hence the idea proposed in the work of Latour that material culture and human agents are embedded in heterogeneous networks is clearly of great significance to archaeological studies. Thus we must bear in mind the distinction between active and passive perception in relation to above points. Passive perception predominates our daily experience of material culture that comes with inhabitance of the world. The active experience of material culture occurs when attention is focused on particular objects. Although this happens to a certain

extent with the routine use of objects, I would argue that it is their deployment in the highly formal ceremonial arenas represented by monuments that this most frequently takes place. Consequently during the fourth to second millennia when monuments enclosed the human body, particular types of objects deployed in these contexts would have a heightened significance. The understanding of the significance of these objects would be entwined with, through its engagement with architecture, the socialisation of the body. The gradual decline of ceremonial spheres where the body is socialised results in a historical change in sensory socialisation taking place increasingly through the daily engagement with material culture in other social spheres. The enclosure of the human body, and resulting focus of attention on material culture, to place increasingly in the context of settlements, as ceremonial monuments were less frequently constructed, during the second millennium BC. We can, therefore, trace an historical change in the deployment of artefacts as a tool of pedagogic agencies to instil particular sensory awarenesses.

Ultimately if we recognise the didacticness of material culture and its role in the socialisation of the senses we must be more sensitive to the study of historical changes in material culture and the implications that has on how the world was perceived as being constituted. The study of several classes of artefact from Aberdeenshire dating from the fourth to second millennium BC suggests that there was a transition in how the world was understood. To be human in the fourth millennium BC meant a greater reliance on senses other than the visual; the composition of the environment, the choices in the form and decoration of objects meant that senses of touch and smell were fundamental to how the world was conceived. By the end of the third millennium BC to be human was to understand the world in terms of a visual primacy.

We are able to chart a series of historical changes relating to peoples place in the world (see Table 34). These changes stemmed from a variety of inter-related factors: how perception was socialised, how peoples place in the landscape was historically understood, the choices of location of monuments and choices of forms of material culture and how it was deployed.

These changes were not the result of a single linear proccess but of the constant ebb and flow of negotiation of social meaning in reference to the material conditions people experienced. There was no inevitability to this history, instead a combination of deliberate choices and unintended consequences resulted in the ultimate historical trajectory that can only be traced in retrospect.

That these changes were complex and at times potentially contradictory is evident through the contrast in social expressions between different mediums; the inverse expression of colour symbolism between pottery and arrowheads is a case in point. The variation in the construction and use of different monuments, through the example of the study of the RSCs in chapter nine indicates that there were slightly different ways of being. Indeed the multiplicity of perspectives means there is no single history but many historical phenomenologies.

In this study of the fourth to second millennia BC of Aberdeenshire we have considered a wide range of different material remains including monuments, pottery, stone tools and the landscape. As archaeologists, we share only two things with the people of the past; our ability to experience the same objects and the common point of reference that is the human body. The socialisation of the body and the subsequent parameters to understanding of the world means that the remains of the past have different meanings. Yet the exploration of how the material remains of the past are engaged with by the human body enables us to consider the historically changing conditions within which meanings were created. Ultimately this does give us insight into what it may have been like to be human between the fourth and second millennia BC in Aberdeenshire.

Although archaeological remains of the fourth to second millennia BC have proved the focus of study, the methods of interpretation have significance to the study of material culture in all historical contexts. Indeed, it rasies the posibilty of addressing the issue of longer term historical changes in what it was to be human in the past and the continued importance of material culture in making sense of the world today (MacGregor forthcoming). Clearly, the consideration of the historical differences in how sensory orders were constructed through material culture is potentially of value to all archaeological studies of the past.

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Plate 1: View of Bennachie to the north-east from North Strone

Plate 2: View of Bennachie from the north

Plate 3: View of Longman Hill

Plate 4: Wormy Hillock Henge

Plate 5: Cothiemuir Wood recumbent stone and flankers

Plate 6: Bachill of Drachlaw - East small circle

Plate 7: Raich Four Poster

Plate 8: Recumbent and flankers and outlier at Balquahain

Plate 9 Stereotypical agro-pastoral settlement

Plate 10: Mithers Tap framed between flankers at East Craig

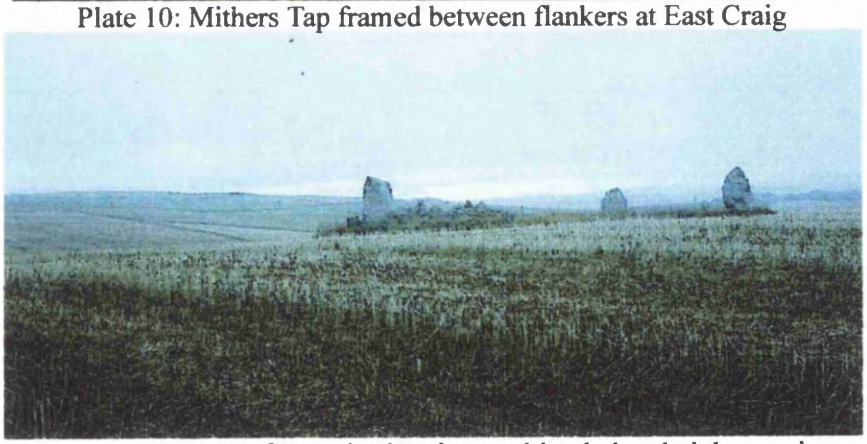


Plate 11: Kirkton of Boutrie showing position below heighest point

Plate 12: Ardlair showing stones obscuring interior from south

Plate 13: Castel Fraser showing interior obscured

Plate 14: Cothiemuir showing trident effect

Plate 15: Castle Fraser view from eastern flanker

Plate 16: Castle Fraser view perpendicular to recumbent

Plate 17: Castle Fraser view from wetern flanker

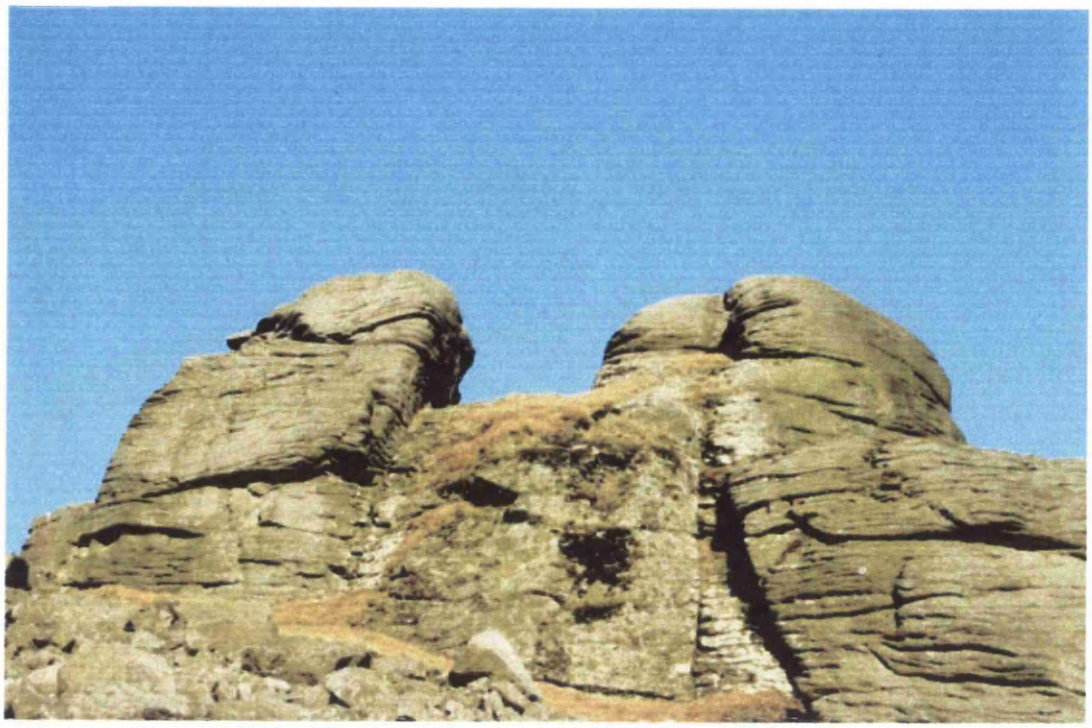


Plate 18: Cleft of Mither Tap

Plate 19: Shadow of mountain across landscape

Plate 21: Castle Fraser quartz disc on top of west flanker

Plate 20: Castle Fraser

Plate 22: Castle Fraser stones one to three showing variation in colour

Plate 23: Easter Aquorthies recumbent and flankers

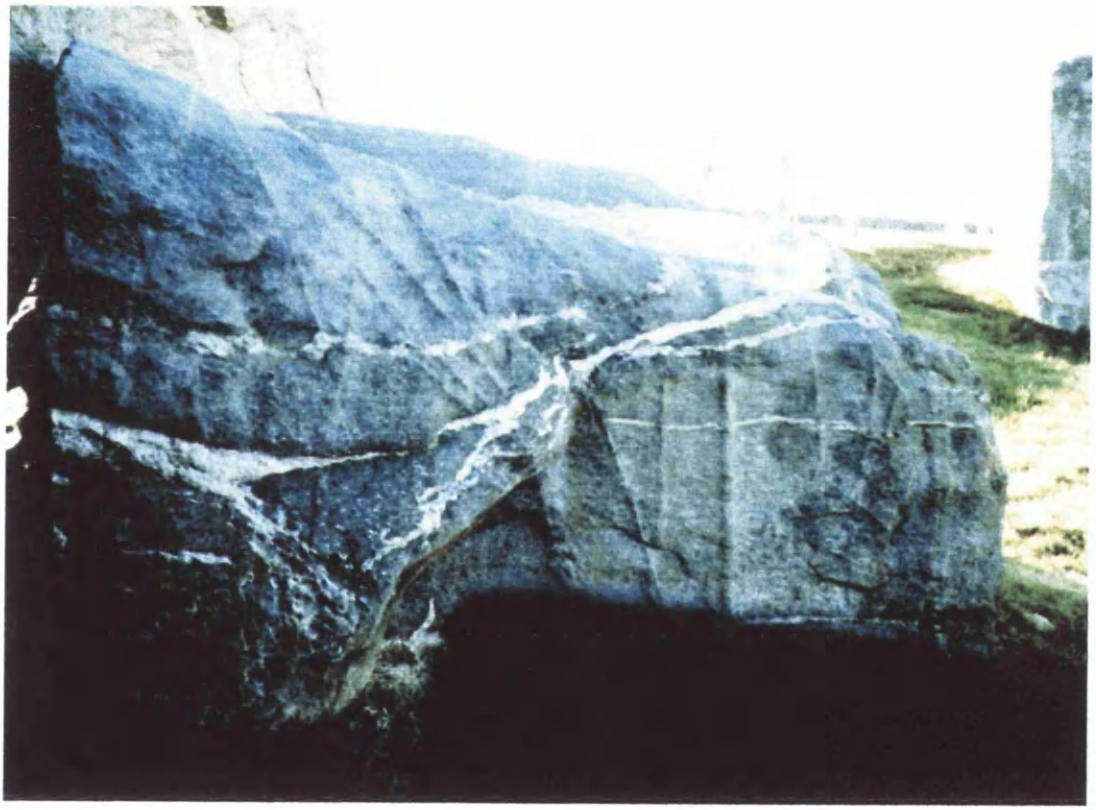


Plate 24: Easter Aquorthies banding in stone

Plate 25: Easter Aquorthies variation in colour of stones one to three

Plate 26: Midmar recumbent and flankers

Plate 27: Sunhoney

Plate 28: Sunhoney recumbent and flankers

Plate 29: Cothiemuir Wood

Plate 30: Old Keig from north

Plate 31: Old Keig view across recumbent stone

Plate 32: Old Keig view from south

Plate 33: Loanhead of Daviot

Plate 34: Loanhead of Daviot

Plate 35: Loanhead of Daviot

Plate 36: Berrybrae from south east

Plate 37: Berrybrae from north

TABLES

Scene	Description
1	Pan across Bennachie.
2	180° from top of Mithers Tap. Starts with Tap 'O Noth visible in distance then shows view across Garioch, Moray Firth and North Sea visible in distance. River Don becomes visible running from the Vale of Alford to the West.
3	Easter Auquorthies: walking towards recumbent stone along perpendicular line. Note way in which landscape beyond is revealed when reaching recumbent. Also note offering left in front of recumbent by an earlier visitor. Pan to east and then west showing extent of view possible through recumbent.
4	180° pan within Easter Auquorthies. Note Mithers Tap dominates horizon to the west.
5	180° pan within Strichen. Note quartz in ring cairn. Mormond Hill to the north-east with hill figure clearly visible.
6	180° pan within Kirkton of Bourtrie. Note Bennachie and extensive views to the west across Garioch.
7	180° pan within Hatton of Ardroyne. Note Hill of Flinders, Christ Kirk, Dunnideer and Tap O'Noth to west.
8	180° pan within Old Keig. An unsuitable dumping ground for farm machinery.
9	180° pan within Loanhead of Daviot. Note Old Craig circle located in wall of plantation to north west.
10	180° pan within basin on Bennachie showing the four peaks.
11	180° pan from Mithers Tap during sunset. Note shadow of mountain across landscape.
12	Closing scene - sunset on Mithers Tap.

Table 1: Accompanying video footage

Name	NGR	L (m)	W (m)	H (m)	Water (m)	H. O.D. (m)	Orientation	Source
Knapperty Hillock	NJ 946 503	90	20	1.8	600 SW	125	ESE	Henshall 1963
Midmill	NJ 795 151	65	29	3.5	250 S	60	ESE	Woodham1975
Longman Hill	NJ 737 620	63	21	4.2	400 SE	150	NNE	Henshall 1972
Newtongarry Hill	NJ 575 401	51	22	1.8			NE	Ray et al 1987
Long Cairn	NJ 851 070	48	16	2.7	500 SW	150	ESE	Henshall 1972
Cairn Catto	NK 074 421	47	22	1.8	550 W	80	SE	Henshall 1972
Blue Cairn	NJ 490 005	43	24	1.8	750 SE	240	ESE	Henshall 1963
Tarrieclerack	NJ 447 647	37	10	1.2	1250 E	205	E	Henshall 1963
Cairnborrow	NJ 453 414	35	15	1.8	350 SW	300	E	Henshall 1963
Balnacraig	NJ 479 008	35	15	2.5	350 NW	260	E	Edwards & Kenworthy 1974
Hill of Foulzie	NJ 723 596	33	18	1.5	700 NE	130	E	Henshall 1963
Pol Hill	NK 024 336	21	9	1.8	250 SE	70	N	Henshall 1963

Table 2: Long Mounds in Aberdeenshire (After Kinnes 1992)

Name	NGR	Diameter (m)	Class	Water (m)	Height (m)	Orientation	Source
Broomend	NJ 7702 1967	33.5	II	250 NE	61	N-S	Harding 1987
Cot Hill	NJ 9070 1164	20	?	750 NW	80	?	NMRS NJ 91SW 81
Dilly Hill	NJ 744 224	22	II	1000 NE	115	SE/NW	Harding 1987
Fullerton	NJ 783 179	?	?	350 NE	61	?	Harding 1987
Kemnay Forest	NJ 7745 1675	20	II	850 NE	90	NE/SW	NMRS NJ 71NE 104
Kintocher	NJ 5719 0886	20	II	350 NW	220	ENE	Harding 1987
Muirtown	NO 8372 8151	16.4	I	500 N	110	ESE	NMRS NO 88SW 27
Tuack	NJ 7957 1544	11	I	150 SE	61	SE	Harding 1987
Whitestripes	NJ 9194 1205	35	?	850 NE	79	?	Harding 1987
Wormy Hillock	NJ 4497 3075	16.5	I	15 W	305	SE	Harding 1987

Table 3: Henge monuments in Aberdeenshire

Site	NGR	Ref	Ba	Bu	Type	OD	W	Dr	D	L	H	V
Aikey Brae	NJ 959 471	B6	1	A1	RSC	110	650	SE	15.2	4.4	1.3	Y
Ardlair	NJ 552 279	G3	2	A2	RSC	240	550	NW	11	2.6	1.5	Y
Arnhill	NJ 531 456		3	A3	RSC	120	300	E	18	3.5	1.7	Y
Auld Kirk O' Tough	NJ 625 092		4	A6	RSC	360	150	W	ID	ID	ID	N
Auchmachar	NJ 948 503	B7	5	A4	RSC	120	1000	SW	15	ID	1.05 +	Y
Auchmaliddie	NJ 881 448	B8	6	A5	RSC	150	1000	W	ID	3.15	1.6	Y
Balnacraig	NJ 603 035		10	A9	RSC	230	400	E	14	3.05	1.35	N
Balquhain	NJ 735 241	G15	11	A10	RSC	95	600	NE	20.5	3.8		Y
Berrybrae	NK 028 572	B2	13	A11	RSC	45	150	S	13.2	3.3	1.6	Y
Binghill	NJ 855 023		14	A12	RSC	105	900	NE	10.5	1.2	1.1	N
Braehead	NJ 592 255	G9	15	A15	RSC	215	600	S	ID	3.1	1.8	Y
Brandsbutt	NJ 7601 2239		16	A16	RSC?	95	750	NE	25	ID	ID	N
Cairn Riv	NJ 675 466		19	A21	PRSC	100	500	NE	29	2.75	2.6	Y
Cairnton	NJ 58 44		20	A22	RSC	175	750	SW	ID	ID	1.5	Y
Candle Hill	NJ 599 299	G4	23	A23	RSC	266	750	NE	15	4.2	1.6	Y
Castle Frazer	NJ 715 125		24	A25	RSC	135	1000	NW	20.9	2.05	1.6	Y

Site	NGR	Ref	Ba	Bu	Type	OD	W	Dr	D	L	H	V
Clochforbie	NJ 80 58		25	A29	PRSC				ID	3.65	1.3	N
Corrstone	NJ 510 271	G2	27	A32	RSC	230	700	W	16	4.25	1.2	Y
Corrydown	NJ 707 445		28	A33	RSC	115	250	NE	22	3.05	1.4	Y
Cothiemuir Wood	NJ 617 198	A3	29	A35	RSC	160	300	N	20.9	4.15	1.5	Y
Druidsfield	NJ 578 177	A4	33	A42	RSC	140	250	S	ID	ID	ID	Y
Druidstone	NJ 616 222	A1	34	A43	RSC	230	550	SW	16.5	ID	ID	Y
Dunnideer	NJ 608 284	G6	35	A45	RSC	220	550	SW	ID	2.85	1.75	Y
Dyce	NJ 860 133		36	A46	RSC	155	150	NE	18.1	3.3	1.6	Y
Easter Aquorthies	NJ 732 208	G16	37	A47	RSC	175	1300	SE	19.4	5.85	1.2	Y
Frendraught	NJ 610 428		41	A50	RSC	210	600	N	26	2	1.9	N
Gavel	NJ 981 515	B3	45	A53	RSC	90	900	S	ID	ID	ID	Y
Gingomyres	NJ 46 42		46	A54	RSC?	ID	ID	ID	18	3.7	1.8	N
Greystone	NJ 56 16		48		PRSC?	ID	ID	ID	12	ID	ID	N
Harestane	NJ 664 438		49	B4	PRSC	160	800	NE	18	1.95	1.25	Y
Hatton of Ardoyne	NJ 659 268	G11	50	A58	RSC	126	900	NW	24.5	2.45	1.3	Y
Hill of Fiddes	NJ 935 243		52	A60	RSC	80	400	E	14	2.95	1.3	N
Holywell	NJ 549 270		53	A61	RSC	240	1000	NE	24.5	3.05	1.2	Y
Huntley	NJ 529 399		55	A63	RSC?	120	450	NW	15	ID	ID	Y
Inschfield	NJ 624 294	G7	57	A66	RSC	170	550	NE	22.5	4.1	1.7	Y
Kirkton of Bourtie	NJ 801 250	G17	58	A67	RSC	160	300	S	21	4.9	1.8	Y
Loanhead of Daviot	NJ 747 288	G13	59	A70	RSC	160	1000	E	20.6	3.4	1.55	Y
Loanend	NJ 604 242	G10	60	A69	RSC	220	250	W	ID	4.2	1.9	Y
Louden Wood	NJ 962 497	B5	61	A73	RSC	95	750	S	17.5	3.1	1.2	Y
Mains of Hatton	NJ 699 425		62	A74	RSC	160	450	SW	22.5	2.45	0.9	Y
Melgum	NJ 471 052		63	A75	RSC?	170	250	SE	22.6	ID	ID	N
Midmar Kirk	NJ 699 064		64	A76	RSC	200	1000	W	17.7	4.55	0.9	Y
Nether Coullie	NJ 709 156		66	A81	RSC?	85	350	S	25	ID	ID	Y
Nether Dunmeath	NJ 425 378		67	A82	RSC?	ID	ID	ID	12	ID	ID	N
Netherton	NK 043 573	B1	68	A83	RSC	30	300	E	17.5	2.95	1.1	Y
New Craig	NJ 745 296	G14	69	A84	RSC	155	1150	NW	ID	3.45	1.5+	Y
North Strone	NJ 584 138	A5	71	A85	RSC	260	1000	NW	20.4	1.4	0.5	Y
Old Keig	NJ 596 194	A2	73	A86	RSC	210	750	W	30	4.85	1.45	Y
Old Rayne	NJ 679 280	G12	74	A87	RSC	126	500	SW	26.4	3.95	1.8	Y
Pitglassie	NJ 686 434		75	A88	RSC	170	850	SE	18		1.4	Y
Potterton	NJ 952 163		76	A89	RSC	75	550	S	ID	2.75	1.8	N
Rappla Wood	NJ 736 402		81	A92	RSC?	135	550	SE	15	ID	ID	N
Sheldon	NJ 823 249		84	A94	RSC?	185	900	SE	23.8	ID	ID	Y
South Fornet	NJ 782109		86	A97	PRSC	183	1100	N	ID	ID	ID	N
South Ley Lodge	NJ 767 132		87	A98	RSC	110	600	S	ID	ID	1.2	Y
Stonehead	NJ 601 287	G5	89	A100	RSC	210	500	SE	ID	5.3	1.4	Y
Stonyfield	NJ 589 376		90	A101	RSC?	170	100	E	14	ID	ID	
Strichen House	NJ 936 544	B4	91	A102	RSC	85	400	N	13	3.1	1.1	Y
Sunhoney	NJ 716 058		92	A103	RSC	85	350	N	25.8	5.3	1.2	Y
Tomnagorn	NJ 651 077		95	A104	RSC	240	250	S	22.4	2.3	1.15	Y
Tomnaverie	NJ 486 034		96	A105	RSC	170	300	N	17.1	3.45	1	Y
Upper Auchnagorth	NJ 839 563	B9	98	A107	RSC?	150	400	E	13.7	ID	ID	Y
Upper Ord	NJ 484 269	G1	99	A108	PRSC?	230	350	SW	ID	ID	ID	Y
Wantonwells	NJ 619 273	G8	100	A110	RSC	180	250	NW	ID	3.35	2.05	Y
Wester Echt	NJ 739 084		101	A112	RSC?	160	1200	SE	ID	ID	ID	Y
West Haughs	NJ 682 385		102	A113	RSC?	145	600	S	23	ID	ID	N
Whitehill	NJ 643 135		103	A115	RSC	270	150	W	22	2.9	1.2	Y

Site	NGR	Ref	Ba	Bu	Type	OD	W	Dr	D	L	H	V
Whitehill wood - S	NJ 678 505		105	A116	PRSC?	110	650	SE	ID	3.35	2.4	N
Yonder Bognie	NJ 601 458		106	118	RSC	110	800	S	20.6	2.8	1.6	Y

Table 4: Recumbent Stone Circles in Aberdeenshire

(Ref: site reference to visibility study in chapter 8; Ba: Barnatt's reference number; Bu: Burl's reference number; OD: height above Ordnance Datum; W: closest distance to running water; Dr: direction to W; D: diameter of circle; L: length of recumbent stone; H: height of recumbent stone; V: visited during research)

Name	NGR*	Diameter (m) *	No. Stones*	Water (m)	Height (m)	Source
Backhill East	NJ 672 463	8.7 x 7.5	6	500 SE	130	Coles 1903
Backhill West	NJ 672 463	c 8.5	6	510 SE	130	Coles 1903
Broomend	NJ 779 196	11	c 6	250 E	61	Stuart 1856
Cullerlie	NJ 785 043	c 10 m	8	800 NE	90	Kilbride-Jones 1935a
Ellon	NJ 954 302	c 6 m	c 7-9	50 N	10	Ritchie 1917
Fullerton	NJ 783 179	c 8.5	c 6-8	350 NE	61	Stuart 1856
Image Wood	NO 524 991	3.4 x 3.9	6	50 W	140	Coles 1905
Thorax	NJ 582 549	5.6 x 6.9	6	750 NE	240	Coles 1906
Tuack	NJ 795 154	Unclear	Unclear	150 SE	61	Stuart 1856
Whitehill Wood	NJ 678 505	8.2	6 ?	550 E	125	Coles 1903
South Ythsie	NJ 885 304	8.5 x 7.5	6	250 S	80	Coles 1902

Table 5: Small circles in Aberdeenshire (*Details from Barnatt 1989)

Name	NGR*	Diameter (m)*	No. Stones*	Water (m)	Height (m)	Source
Deer Park	NJ 681 156	?	4?	50 SE	90	Coles 1901
Hill of Bucharn	NJ 581 360	c 8.0	4?	500 N	280	Burl 1971
Howemill	NJ 580 107	c 7.3 x 8.2?	4?	300 W	240	Coles 1902
Logie Coldstone	NJ 459 055	Unclear	4?	100 S	175	Stuart 1854
North Burredales	NJ 676 549	c 6.1 x 6.4	4	750 N	130	Coles 1906
Raich	NJ 618 436	c 4.9	4?	400 N	160	Coles 1903
Shethin	NJ 882 328	c 5.2	4?	650 SW	80	Coles 1902

Table 6: Four posters in Aberdeenshire. (*Details from Barnatt 1989)

No	Site	NGR	OD (M)	Water (M)	Dir
1	Milton	NJ 3860 1614	280	150	SW
2	Muats Stone	NJ 3360 1894	380	100	SW
3	Gowk Stone	NJ 454 004	170	50	NE
4	Lulach's Stone	NJ 4676 1942	215	400	NE
5	Wester Clova	NJ 4523 1938	240	50	S
6	Lang Stane	NJ 4803 1394	220	200	NE
7	Treasure Stone	NJ 4383 1374	220	100	S
8	Craiglea	NJ 4116 1092	300	100	NW
9	Templand	NJ 4810 2710	235	200	NW
10	Rhynie	NJ 4989 2709	180	250	E
11	Auchndoir	NJ 4796 2432	200	50	SE
12	Greystone	NJ 568 156	185	400	S
13	Balydvin Wood	NJ 592 167	135	100	NW
14	Gallow Hill	NJ 5604 1587	200	550	S
15	Ardlair	NJ 5549 2983	240	1250	W
16	Ringing Stone	NJ 5790 2517	230	700	S
17	Mill O'Noth	NJ 5033 2779	170	50	N
18	Drumel Stone	NJ 5167 3061	200	500	N

No	*Site	*NGR	OD (M)	Water (M)	Dir
19	St Marnan's Chair	NJ 5990 5020	60	250	S
20	Balblair	NJ 6988 0660	205	950	W
21	Learney	NJ 6229 0318	160	150	S
22	Tombeg	NJ 6793 1426	120	700	N
23	Luath's Stone	NJ 6404 1490	350	600	E
24	Mill of Carden	NJ 6932 2602	100	250	W
25	Gowk Stane	NJ 2765 2570	130	300	N
26	Westerton	NJ 6644 2647	160	500	S
27	Wantonwells	NJ 6178 2722	180	250	N
28	Dunnydeer	NJ 6157 2852	160	500	E
29	Logie Newton	NJ 6629 3883	160	150	S
30	Crighton	NJ 6925 3424	220	600	NW
31	Shielburn	NJ 6757 4633	140	400	E
32	Hill of Ardmiddle	NJ 688 468	150	660	SW
33	Hill of Laithers	NJ 6791 4818	140	550	SW
34	Greystone, Banff	NJ 6886 6399	20	550	E
35	Boyndie Manse	NJ 642 639	50	700	SE
36	Camies' Stone	NJ 7686 1792	120	550	S
37	The Cloven Stone	NJ 7675 1778	120	450	S
38	Back Fornet	NJ 7863 1031	155	1400	E
39	South Leylodge	NJ 7628 1322	95	300	S
40	Burnside	NJ 7745 1216	90	100	S
41	The Knock	NJ 7611 1334	120	550	S
42	South Leylodge	NJ 7690 1309	100	150	S
43	Leylodge School	NJ 7633 1290	105	100	S
44	Craighead Wood	NJ 7730 1269	95	300	N
45	East Leylodge	NJ 7729 1316	90	260	S
46	East Leylodge	NJ 7729 1316	80	150	S
47	East Leylodge	NJ 7780 1314	95	500	S
48	Blackchambers	NJ 7954 1164	110	1100	SW
49	Blackchambers	NJ 7993 1125	135	500	S
50	Blackchambers	NJ 7999 1115	140	450	S
51	Strathray	NJ 7904 1209	95	900	NW
52	Blackchambers	NJ 799 115	170	200	NE
53	Little Fornet	NJ 7810 1160	110	500	NW
54	North Fornet	NJ 7891 1117	145	1250	SE
55	The Lang Stane	NJ 7238 1493	80	300	W
56	Woodend	NJ 7105 1340	90	100	W
57	Castle Fraser	NJ 7174 1250	65	900	E
58	Castle Fraser	NJ 7212 1270	100	600	NE
59	Braeneil	NJ 7306 1235	125	300	NW
60	Lauchintilly	NJ 7297 1210	130	550	S
61	Balhalgardy	NJ 7598 2431	90	500	NE
62	Conglas	NJ 753 229	67	400	NW
63	Hillhead	NJ 7916 2387	130	650	N
64	Liggars' Stane	NJ 7457 2485	110	600	W
65	Cushieton	NJ 710 302	145	750	NE
66	Tow Stone	NJ 7010 3352	175	700	NE
67	Monk's Hill	NJ 7994 4159	140	750	NW
68	Burnhead	NJ 8086 0907	185	900	E
69	Auchinleuch	NJ 8281 0915	125	350	E
70	South Auchinleck	NJ 8289 0856	140	100	S
71	South Auchinleck	NJ 8277 0870	145	250	S
72	Monykebbuck	NJ 8715 1830	80	850	NE
73	Peat Hill	NJ 8211 1906	90	500	SW
74	The Gouk Stone	NJ 8345 1516	80	250	W
75	Cairntradlin	NJ 8168 1385	110	1250	E
76	Ferneybrae	NJ 8021 1459	70	350	NW
77	Scotsmill	NJ 8239 1369	90	650	NE
78	Tertowie	NJ 8232 1066	100	550	E
79	Foot O' Hill	NJ 8375 1307	160	800	W
80	Clinterty	NJ 8348 1052	110	750	S

No	*Site	*NGR	OD (M)	Water (M)	Dir
81	Concraig Cloch More	NJ 8294 1002	130	400	NE
82	Little Clinterty	NJ 8312 1207	80	600	NW
83	Shethin	NJ 8827 3286	80	700	NW
84	Lang Stane Hilton	NJ 9223 0836	90	ID	ID
85	Gilcomston	NJ 9349 0664	80	ID	ID
86	Lochgreens	NJ 9151 1539	90	1500	SE
87	Mundurno	NJ 9400 1309	60	400	S
88	Horth Allans	NJ 9153 1468	90	1000	SE
89	The Candle Stone	NJ 9214 3485	50	600	E
90	Skelmuir Hill	NJ 9838 4159	140	600	S
91	Skelmuir Hill	NJ 9822 4170	140	700	S
92	Hanging Stone	NJ 9212 6553	70	1250	SE
93	Green Hill	NK 0968 4007	50	200	W
94	Gray Stone	NK 0271 5071	40	300	S

Table 7: Single standing stones from Aberdeenshire (*Information from CANMORE)

Name	Pottery Type	Site type	Context	Discovery	Source
Cullykhan	Bowl	LBA settlement	Redeposited	Excavation	Henshall 1983
Knapperty Hillock	Bowl	MLB	Cist	Excavation	Henshall 1983
Easterton	Bowl	Roman marching camp	Redeposited	Excavation	Henshall 1983
Ferniebrae	Bowl	Scatter	Scatter	Surface	Henshall 1983
Pitcaple	Bowl	ID	ID	ID	McInnes 1969
Leggatsden	Bowl	Scatter	Scatter	Surface	Henshall 1983
Loanhead of Daviot	Bowl	SC	Various	Excavation	Kilbride-Jones 1935a
Den O Craig	Bowl	Burial	Cist	Excavation	Henshall 1983
Atherb	Carinated	Cairn	Scatter	Excavation	Henshall 1983
Pitglassie	Carinated	Cairn	Redeposited	Excavation	Shepherd 1997
Binn Hill	Carinated	Scatter	Scatter	Surface	Henshall 1983
Clova	Carinated	ID	ID	ID	Henshall 1983
East Finnercy	Carinated	Cairn	Scatter	Excavation	Henshall 1983
Berrybrae	? Grooved	SC	Within 2nd phase bank	Excavation	Burl 1978
Strichen	? Grooved	SC	Pit	Excavation	Abramson & Hampshire-Monk 1981
Balbridie	Unstan	Structure	Various	Excavation	Fairweather & Ralston 1993
Spurryhillock	Unstan	Occupation	Pit	Excavation	Alexander 1997

Table 8: Neolithic Pottery from Aberdeenshire

Period	Late Mesolithic	Early Neolithic	Late Neolithic	Early Bronze Age
Forms	Microliths	Leaf shaped arrow head	Oblique arrowhead forms	B&T arrow head
	Pebble-hammers	Polished Axe	Maceheads	Battle Axe
	Narrow Blade Cores	Narrow Blade Cores	Plano-convex / Discoidal knives	Wristguard
	Angled Scrapers	End Scrapers	Horseshoe Scraper	'Thumb Nail' Scraper
	Microburins	Serrated Flakes	Carved Stone Balls	Whetstones

Table 9: Characteristic lithic forms of the Late Mesolithic to Early Bronze Ages.
(NB currency of many of these forms extends well into later periods)

Site	Lab. No.	Material	Date bp	Cal BC* (95% confidence)	Source
Spurry Hillock	Beta-73552	*Quercus* Charcoal	3910±70	4904-4541	Alexander 1997
Spurry Hillock	Beta-73553	*Quercus* Charcoal	3750±70	4718-4363	Alexander 1997
Balbride	GU-1038i	Wood Charcoal	5160±100	4227 - 3716	Fairweather & Ralston 1993
Balbride	GU-1831	Wood Charcoal	5015±125	4215 - 3517	Fairweather & Ralston 1993
Balbride	GU-1035	Wood Charcoal	4840±165	3979 - 3105	Fairweather & Ralston 1993
Balbride	GU-1831	Wood Charcoal	5015±125	4215 - 3517	Fairweather & Ralston 1993
Balbride	GU-1831	Wood Charcoal	5015±125	4215 - 3517	Fairweather & Ralston 1993
Balbride	GU-1038ii	Wood Charcoal	5020±90	3978 - 3646	Fairweather & Ralston 1993
Balbride	OxA-1769	*Malus sylvestris*	5010±90	3973 - 3644	Fairweather & Ralston 1993
Pitglassie	GU -2014	Wood charcoal	4935±105	3961 - 3388	Shepherd 1997
Wardend	GU-2958	Wood Charcoal	5050±50	3960 - 3715	Russell-White 1995
Balbride	GU-1828	Wood Charcoal	5030±60	3956 - 3703	Fairweather & Ralston 1993
Balbride	GU-1830	Wood Charcoal	4970±75	3947 - 3641	Fairweather & Ralston 1993
Balbride	GU-1037	Wood Charcoal	4930±80	3946 - 3532	Fairweather & Ralston 1993
Balbride	OxA-1768	*Linum usitatissimum*	4940±70	3942 - 3542	Fairweather & Ralston 1993
Balbride	GU-1832	Wood Charcoal	4970±160	3941 - 3645	Fairweather & Ralston 1993
Balbride	GU-1829	Wood Charcoal	4785±150	3941 - 3102	Fairweather & Ralston 1993
Balbride	GU-1421	*Triticum* spp.	4745±160	3934-3036	Fairweather & Ralston 1993
Balbride	GU-1036	Wood Charcoal	4740±135	3793 - 3048	Fairweather & Ralston 1993
Balbride	OxA-1767	*Avena* sp.	4820±80	3769 - 3376	Fairweather & Ralston 1993
Cairnwell	GU-4402	mixed charcoal	4680±80	3650-3190	Rees 1997

Site	Lab. No.	Material	Date bp	Cal BC* (95% confidence)	Source
Pitglassie	GU- 2049	Wood Charcoal	4660±50	3626 - 3338	Shepherd 1997
Den of Boddam	GU-3438	buried soil; humic	4580±60	3504 - 3038	Saville 1994
Den of Boddam	GU-3439	buried soil; humin	4530±50	3366 - 3040	Saville 1994
Wardend	GU-2955	Wood Charcoal	4360±90	3339 - 2700	Russell-White 1995
Den of Boddam	GU-3440	peat; humic	3840±90	2557 - 1986	Saville 1994
Den of Boddam	AA-12233	peat; humin	3790±60	2452 - 2034	Saville 1994
Tavelty Farm	GU-2169	Bone collagen	3710±70	2308-1889	Ralston 1996
Berrybrae	HAR-1849	Wood Charcoal	3450±80	1935-1527	Burl 1978
Berrybrae	HAR-1893	Wood Charcoal	3319±90	1868-1402	Burl 1978
Sands of Forvie	GU-1827	Unknown	1120±140	1615-924	Murray et al 1992
Scotstown	UB-2097	Wood Charcoal	3140±90	1592-1169	Ralston 1996
Cairnwell	GU-4397	mixed charcoal	3100±50	1515-1270	Rees 1997
Cairnwell	GU-4399	mixed charcoal	3070±60	1515-1180	Rees 1997
Rattray	GU-2719	*Salix*	1180±50	1501-1265	Murray et al 1992
Cairnwell	GU-4400	mixed charcoal	3020±70	1435-1035	Rees 1997
Cairnwell	GU-4396	mixed charcoal	3020±50	1420-1135	Rees 1997
Cairnwell	GU-4401	mixed charcoal	2970±50	1395-1125	Rees 1997
Cairnwell	GU-4398	mixed charcoal	2970±50	1395-1125	Rees 1997

Table 10: Radio-carbon dates from Aberdeenshire

Site	Lab. No.	Material	Date bp	Cal BC* (95% confidence)	Source
Boghead	SRR-683	Wood Charcoal	4946±175	4221 - 3347	Burl 1984
Boghead	SRR-684	Wood Charcoal	4823±60	3756 - 3379	Burl 1984
Boghead	SRR-685	Wood Charcoal	5031±100	4036 - 3637	Burl 1984
Boghead	SRR-686	Wood Charcoal	4898±60	3899 - 3529	Burl 1984
Boghead	SRR-687	Wood Charcoal	3867±70	2552 - 2053	Burl 1984
Boghead	SRR-688	Wood Charcoal	4124±200	3329 - 2050	Burl 1984
Boghead	SRR-689	Wood Charcoal	4959±110	3979 - 3390	Burl 1984
Boghead	SRR-690	Wood Charcoal	6006±60	5052 - 4779	Burl 1984
Balnuaran	AA-21251	*Corylus* charcoal	2740±55	992 - 806	Bradley 1996b
Balnuaran	AA-21252	*Corylus* charcoal	2770±55	1023-809	Bradley 1996b
Balnuaran	AA-21253	*Corylus* charcoal	2790±60	1113-813	Bradley 1996b
Balnuaran	AA-21254	*Corylus* charcoal	2765±60	1032-806	Bradley 1996b
Balnuaran	AA-21255	*Corylus* charcoal	6410±80	5479-5145	Bradley 1996b
Balnuaran	AA-21256	*Corylus* charcoal	3605±75	2176-1744	Bradley 1996b
Balnuaran	AA-21257	*Betula* charcoal	2990±70	1395-1012	Bradley 1996b
Balnuaran	AA-21258	*Alnus* charcoal	1445±130	340-885 AD-	Bradley 1996b
Balnuaran	AA-21259	*Corylus* charcoal	1290±95	609-967 AD	Bradley 1996b
Balnuaran	AA-21260	*Pinus* charcoal	6670±85	5684-5434	Bradley 1996b
Balnuaran	AA-21261	*Corylus* charcoal	2855±70	1252-840	Bradley 1996b
Balnuaran	AA-25237	*Pomoideae* charcoal	2945±50	1308-995	Bradley 1997
Balnuaran	AA-25236	*Corylus* charcoal	3145±55	1516-1266	Bradley 1997
Balnuaran	AA-25235	*Corylus* charcoal	3600±50	2127-1775	Bradley 1997
Balnuaran	AA-25234	*Corylus* charcoal	3475±45	1894-1677	Bradley 1997
Balnuaran	AA-25233	*Corylus* charcoal	3530±45	1968-1740	Bradley 1997
Balnuaran	AA-25232	*Corylus* charcoal	3595±60	2129-1754	Bradley 1997
Balnuaran	AA-25231	*Corylus* charcoal	3535±45	1973-1741	Bradley 1997
Balnuaran	AA-25230	*Corylus* charcoal	5535±55	4468-4253	Bradley 1997
Balnuaran	AA-25229	*Corylus* charcoal	2420±45	762-395	Bradley 1997

Site	Lab. No.	Material	Date bp	Cal BC* (95% confidence)	Source
Balnuaran	AA-25228	*Corylus* charcoal	2770±45	999-820	Bradley 1997
Balnuaran	AA-25227	*Corylus* charcoal	2745±45	989-809	Bradley 1997
Balnuaran	AA-25226	Alder charcoal	2680±45	907-795	Bradley 1997
Dalladies	SRR-289	Carbonised timber	4660±50	3630-3340	Piggott 1972
Dalladies	SRR-290	Carbonised timber	4535±55	3380-3030	Piggott 1972
Newton of Petty	AA-25225	*Betula* charcoal	3755±50	2316-1981	Bradley 1997
Newton of Petty	AA-25224	Alder charcoal	2620±75	921-423	Bradley 1997
Newton of Petty	AA-25223	*Betula* charcoal	2765±45	995-819	Bradley 1997
Newton of Petty	AA-25222	Alder charcoal	2785±45	1015-823	Bradley 1997
Newton of Petty	AA-25221	*Betula* charcoal	2685±45	909-797	Bradley 1997
Newton of Petty	AA-25220	Alder charcoal	2890±45	1203-923	Bradley 1997
Newton of Petty	AA-25219	*Corylus* charcoal	3580±50	2100-1752	Bradley 1997
Newton of Petty	AA-25218	*Corylus* charcoal	2845±45	1126-853	Bradley 1997
Newton of Petty	AA-25217	*Corylus* charcoal	2750±45	990-812	Bradley 1997
Newton of Petty	AA-25216	Alder charcoal	2625±45	899-557	Bradley 1997
Raigmore	SRR-187	Wood charcoal	4737±90	3706-3137	Simpson 1996
Raigmore	SRR-188	Wood charcoal	4983±130	4074-3382	Simpson 1996
Raigmore	SRR-420	Wood charcoal	553±150	1164-1947AD	Simpson 1996
Raigmore	SRR-421	Wood charcoal	5270±650	5441-2476	Simpson 1996
Raigmore	SRR-422	Wood charcoal	2710±70	1010-775	Simpson 1996
Raigmore	SRR-423	Wood charcoal	2940±80	1383-920	Simpson 1996
Raigmore	SRR-424	Wood charcoal	5000±100	3989-3542	Simpson 1996
Raigmore	SRR-425	Wood charcoal	4100±70	2874-2475	Simpson 1996
Raigmore	SRR-426	Wood charcoal	4890±60	3894-3524	Simpson 1996
Raigmore	SRR-427	Wood charcoal	3270±100	1860-1311	Simpson 1996
Raigmore	SRR-428	Wood charcoal	3890±50	2471-2197	Simpson 1996
Raigmore	SRR-429	Wood charcoal	3890±60	2553-2145	Simpson 1996
Raigmore	SRR-430	Wood charcoal	3720±100	2454-1788	Simpson 1996
Raigmore	SRR-431	Wood charcoal	6920±150	6039-5505	Simpson 1996
Raigmore	SRR-432	Wood charcoal	4650±120	3661-2934	Simpson 1996
Raigmore	SRR-433	Wood charcoal	4100±45	2871-2494	Simpson 1996

Table 11: Radiocarbon dates from north-east Scotland.

Knowledge about object	**Exploratory procedure**
Substance-related properties:	
Texture	Lateral motion
Hardness	Pressure
Temperature	Static contact
Weight	Unsupported holding
Structure related properties:	
Weight	Unsupported holding
Volume	Enclosure, contour following
Global shape	Enclosure
Exact shape	Contour following
Functional properties	
Part motion	Part motion test
Specific function	Function test

Table 12: Haptic exporatory procedures

(From Lederman and Klatzky 1987, 345, table 1)

	General alertness	**Attentional Selectivity**	**Speed**	**Accuracy**	***STM capacity**
Anxiety	+	+	0	-	-
Noise	+	+	0	-	-
Incentive	+	+	+	+	+
Heat	+?	+	0	-	0
Alcohol	-	+?	-	-	-
Tranquilizers	-	-	-	-	-
Sleeplessness	-	-	-	-	0
Prolonged Work	-	+?	-	-	0
Time of day AM	-	?	-	+	+
Time of day PM	+	?	+	-	-

Table 13: Changes in Performance Resulting from Different Stressors (From Hockey 1984)

+ = increase; - = decrease; 0 = no change; in particular condition. *STM = Short Term Memory

Origins	Type
Earliest	
Mesolithic	Pebble-hammer & Antler mattocks
Neolithic (earlier)	Antler mace-head & Ovoid mace-head
Neolithic (later)	Pestle & Cushion mace-head
Bronze Age	Axe-hammer
Bronze Age	Battle-axe
Latest	

Table 14: Chronological sequence of shafthole implements

Name	NGR	Region	Context	Source
Crichie	NJ 7792 1967	Aberdeenshire	Grave	Dalrymple 1884
Strichen	NJ 9390 5493	Aberdeenshire	Grave	Clarke 1970
Burnside Mill	NO 494 510	Angus	Cist	RCAHMS 1978
Oban	NM 852 288	Argyll & Bute	Grave	RCAHMS 1975
Ormsary	NM 740 724	Argyll & Bute	Cist	Morrison 1971
Carwinning Hill	NS 287 528	Ayrshire	Cairn	Cowie 1978
Rig Hill	NS 5306 0977	Ayrshire	Cairn	McLeod 1938
Waterside Wood	NS 542 208	Ayrshire	River	Roe 1967
Sandmill	NX 084 617	Dumfries & Galloway		Anderson 1886
Ballinbreich	NO 27 20	Fife	River	Anderson 1886
Barns Farm	NT 1780 8417	Fife	Grave	Watkins 1982
Mugdrum Island	NO 22 18	Fife	River	Anderson 1886
Victoria Park	NS 538 673	Glasgow	Cemetery	Roe 1966
Scotsburn	NH 72 76	Highland	Cairn	Roe 1966
Wick	ND 368 508	Highland	Sea	Roe 1966
Pentland	NT 26 65	Midlothian	Cist	Roe 1966
Whitehall	HY 6422 2819	Orkney	Cist	Roe 1966
Grandtully	NN 91 52	Perth & Kinross	Cist	NMRS NN95 SW 42
Perth	NO 120 231	Perth & Kinross	River bank	McGregor 1974
Lawfield	NS 377 692	Renfrewshire	Grave	Roe 1966

Table 15: Battle-axes (B) from context in Scotland

Name	NGR	Region	Context	Source
Cleuchhead	NO 761 847	Aberdeenshire	Cist	Gammack 1878
Hill of Barra	NJ 802 256	Aberdeenshire	Ditch	Simpson 1943
Largs	NS 205 596	Ayrshire	Cemetery	Munro 1910
River Tay	NO 2131 1836	Fife	River bank	Lyddieth 1970
Barnhouse	HY 306 124	Orkney	Settlement	Richards forthcoming
Stenness	HY 32 11	Orkney	Grave	NMRS HY31SW 52
Achmore	NB 321 285	Western Isles	Peat	Curtis & Curtis 1994
Knock	NB 49 31	Western Isles	Peat	Gibson 1934

Table 16: Maceheads (M) from context in Scotland

Context	M	B	Total
Cemetery	1	1	2
Cairn	0	3	3
Cist	1	5	6
Ditch	1	0	1
Collared Urn	0	1	1
Grave	1	5	6
Peat	2	0	2
River	0	3	3
River bank	1	1	2
Sea	0	1	1
Settlement	2	0	2
Total from Context	9	20	29
Total	97	121	218

Table 17: No of Battle-axes (B) & Maceheads (M) from types of context in Scotland

Location	Region	Context	Source
Ardkeilling	Moray	Cist	Marshall 1977
Ballater	Aberdeenshire	Kerb cairn	Smith 1875
Banff	Aberdeenshire	Cairn	PSAS 1886
Budsfield	Aberdeenshire	Tumulus	Smith 1875
Buckhall	Aberdeenshire	'Grave'	Smith 1875
Ben-A-Chielt	Highland	Bog	PSAS 1881
Cairn Robin	Aberdeenshire	Cairn	Smith 1875
Dale Moss	Highland	Bog	Foxon 1986
Dunaverty Bay	Argyll & Bute	Beach	Powell et al 1969
Dyce	Aberdeenshire	Bog	Marshall 1977
East Braikie	Angus	Cairn	Smith 1875
Eilean Domhnuill	Western Isles	Dwelling	Armitt 1996
Moss of Cree	Dumfries & Galloway	Bog	Smith 1875
Old Deer	Aberdeenshire	Cairn	Smith 1875
Red Moss	Aberdeenshire	Bog	PSAS 1885
River Earn	Perth & Kinross	Water x2	PSAS 1910
River Tay	Perth & Kinross	Water x2	Wilson 1863
River Thurso	Highland	Water	PSAS 1893
Rusky Burn	Stirling	Water	PSAS 1949
Skara Brae	Orkney	Dwelling	Petrie 1868; Childe 1931
Tomintoul	Moray	Bog	Anderson & Black 1888
Walton	Fife	Bog	Marshall 1977

Table 18: Examples of CSBs with contextual information

Context	No
Beach	1
Bog	8
Cist	1
Cairn	4
Tumulus	1
'Grave'	1
Dwelling	3
Water	6
Total	**25**

Table 19: Numbers of CSBs from different depositional contexts

Site	Inter-visibility	MH	MT	B
B1	B2	Y	N	N
B2	B1	Y	N	N
B3	N	Y	N	N
B4	N	Y	N	N
B5	N	N	Y	Y
B6	N	N	Y	Y
B7	N	N	Y	Y
B8	N	Y	Y	Y
B9	N	N	N	N
A1	A3, A5	N	N	Y
A2	A3, A4, A5	N	N	Y
A3	A1, A2, A4, A5	N	N	Y
A4	A2, A3	N	Y	Y
A5	A1, A2, A3	N	Y	Y
G1	N	N	N	N
G2	G3, G4	N	N	Y
G3	G2, G4, G5, G6	N	Y	Y
G4	G2, G5, G6, G7, G17	Y	Y	Y
G5	G3, G4, G7, G8	N	N	N
G6	G4, G5, G7, G10	Y	N	N
G7	G4, G5, G6, G8, G10	N	N	N
G8	G5, G7, G10	N	N	N
G9	N	N	Y	Y
G10	G6, G7, G8	N	N	Y
G11	N	N	N	Y
G12	G17	N	Y	Y
G13	G14, G17	N	Y	Y
G14	G13	N	Y	Y
G15	G17	N	Y	Y
G16	N	N	Y	Y
G17	G4, G13, G15	N	Y	Y

Table 20: Monument inter-visibility and lines of sight to Mithers Tap (MT), Bennachie (B) and Mormond Hill (MH)

	MH	MT	B
Total (31)	7 (23 %)	15 (48 %)	22 (71 %)
Buchan (9)	5 (56 %)	4 (44 %)	4 (44 %)
Alford (5)	0 (0 %)	2 (40 %)	5 (100 %)
Garioch (17)	2 (12 %)	9 (53 %)	12 (71 %)

Table 21: Regional variation in visibility to peaks

Stone	W	R	E	1	2	3	4	5	6	7	8
Colour	G	G	G	G/P	P	G	?	G	P	G	G/P
Texture	M	F	M	M-C	C	C	?	F-M	F-M	F	F-M

Table 22: The predominant colour and texture of stones at Castle Fraser

Stone	W	R	E	1	2	3	4	5	6	7	8	9
Colour	lG	dG	lG	P	P/W	P	P	P	P	G	P	G
Texture	F-M	M	F-M	C	Gl	C	F-M	vF	F	F	M	M

Table 23: The predominant colour and texture of stones at Easter Auquorthies

Stone	W	R	E	1	2	3	4	5	6	7	8
Colour	P	P	P	P	P	?	P	P	P	?	?
Texture	M-C	M-C	M-C	M	M	?	M	M	M	?	?

Table 24: The predominant colour and texture of stones at Midmar

Stone	W	R	E	1	2	3	4	5	6	7	8	9
Colour	P	G	P	P	P	P	P	P	P	P	P	P
Texture	M	F	M	M	M	M	M	M	M	M	M	M

Table 25: The predominant colour and texture of stones at Sunhoney

Stone	W	R	E	1	2	3	4	5	6	7	8	9
Colour	P	W/G	P	G	?	?	?	P	?	P	P	P
Texture	C	M	C	F	?	?	?	C	?	C	C	C

Table 26: The predominant colour and texture of stones at Cothiemuir

Stone	W	R	E	1	2	3	4	5	6	7	8
Colour	G	G	G	P	P	P/G	G	G	P	G	P
Texture	F	F	F	F	F	M	M-C	F-M	F-M	F-M	F-M

Table 27: The predominant colour and texture of stones at Loanhead of Daviot

Stone	W	R	E	1	2	3	4	5	6	7	8
Colour	G	P	G	G	?	?	?G	?P	?	?	?
Texture	F-M	C	M	M	?	?	?M	?M-C	?	?	?

Table 28: The predominant colour and texture of stones at Old Keig

Site	Colour			Texture		
	W flanker	Recumbent	E flanker	W flanker	Recumbent	E flanker
Easter Aquorthies	Light grey	Dark grey	Light grey	Fine-medium	Medium	Fine-medium
Castle Fraser	Grey	Grey	Grey	Medium	Fine	Medium
Midmar Kirk	Pink	Pink	Pink	Medium-coarse	Medium-coarse	Medium-coarse
Sunhoney	Pink	Grey	Pink	Medium	Fine	Medium
Cothiemuir	Pink	White-grey	Pink	Coarse	Medium	Coarse
Loanhead of Daviot	Grey	Grey	Grey	Fine	Fine	Fine
Old Keig	Grey	Pink	Grey	Fine-medium	Coarse	Medium

Table 29: Variation in colour and texture of recumbent and flankers

Group	Diameter	Length	Height
All RSCs	19.14	3.25	1.39
Alford	21.95	3.47	1.15
Buchan	15	3.38	1.30
Garioch	19.69	3.76	1.60

Table 30: Regional variation in height and length of recumbent stones

Group	Dir	Distance	Height
All RSCs	S	590	161
Alford	Multi	570	200
Buchan	S	616	97
Garioch	S/N	635	187

Table 31: Regional variation in average height and predominant orientation to water of RSCs

Type	Dir	Dist (m)	Height (m)
Long mounds	SW to SE	470	157
RSCs	S	590	161
SSSs	S	499	139
Henges	NE	477	129
Small circles	N to E	370	100
FPs	N	392	87
Beakers	W	325	91

Table 32: Predominant direction and average distance to water and average height of different forms of monuments

Earlier	Time	Later
Sacred places higher	→	Sacred places lower
Sacred stone	→	Sacred water
Daily routine lower	→	Daily routine higher
High mobility	→	Low mobility

Table 33: Historical trends in the occupation of landscape (fourth to second millennia BC)

Earlier	Time	Later
Sacred places higher	→	Sacred places lower
Stone	→	Water
Accessibility of sacred places	→	Inaccessibility of sacred places
Daily routine lower	→	Daily routine higher
High mobility	→	Low mobility
Red stone	→	Grey stone
Grey pottery	→	Red pottery
Haptic dominance	→	Visual dominance
Red stone	→	Grey stone
Grey pottery	→	Red pottery
Expression through body	→	Expression with body

Table 34: Historical trends between the fourth and second millennia BC

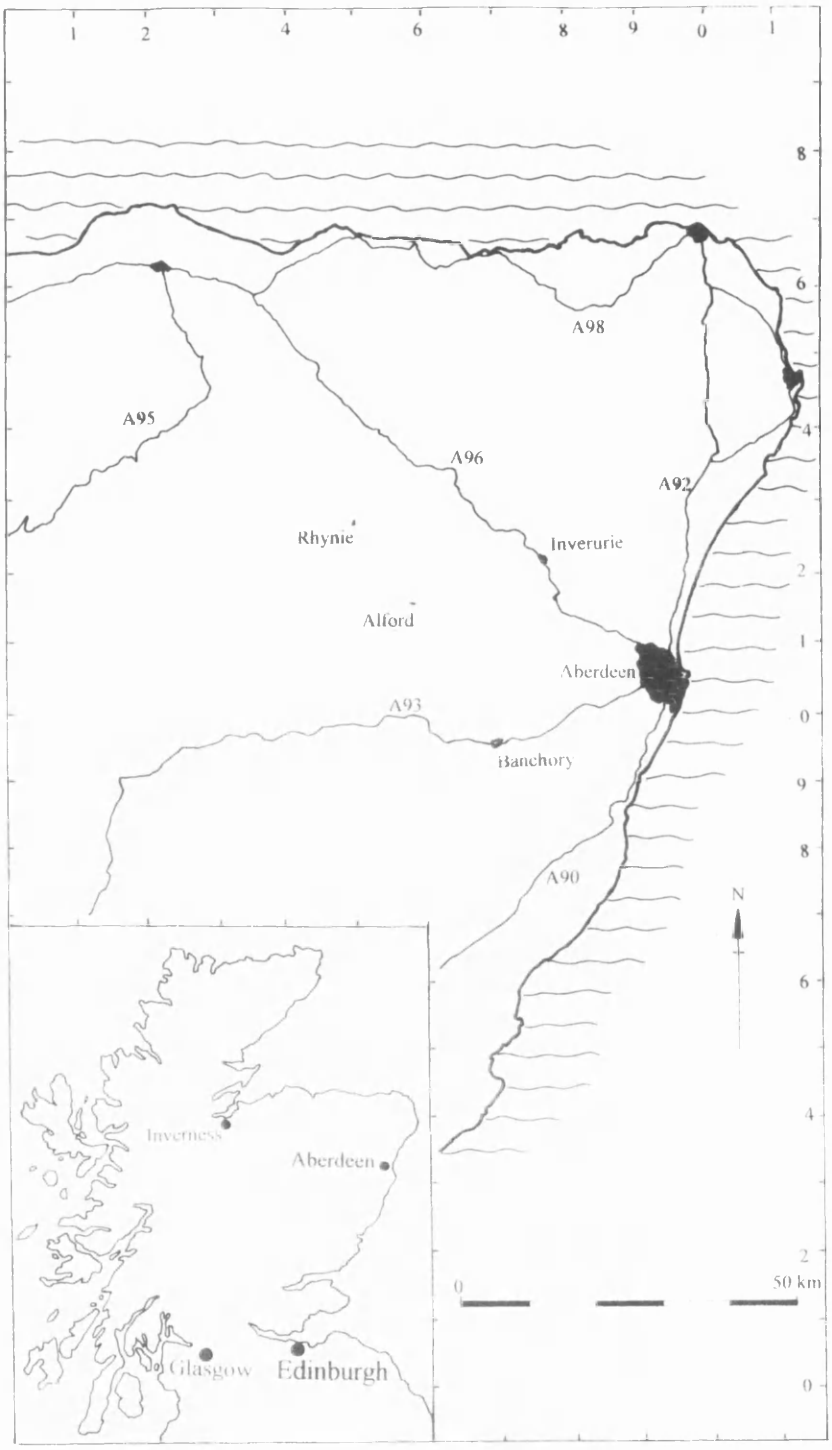


Figure 1: Location map

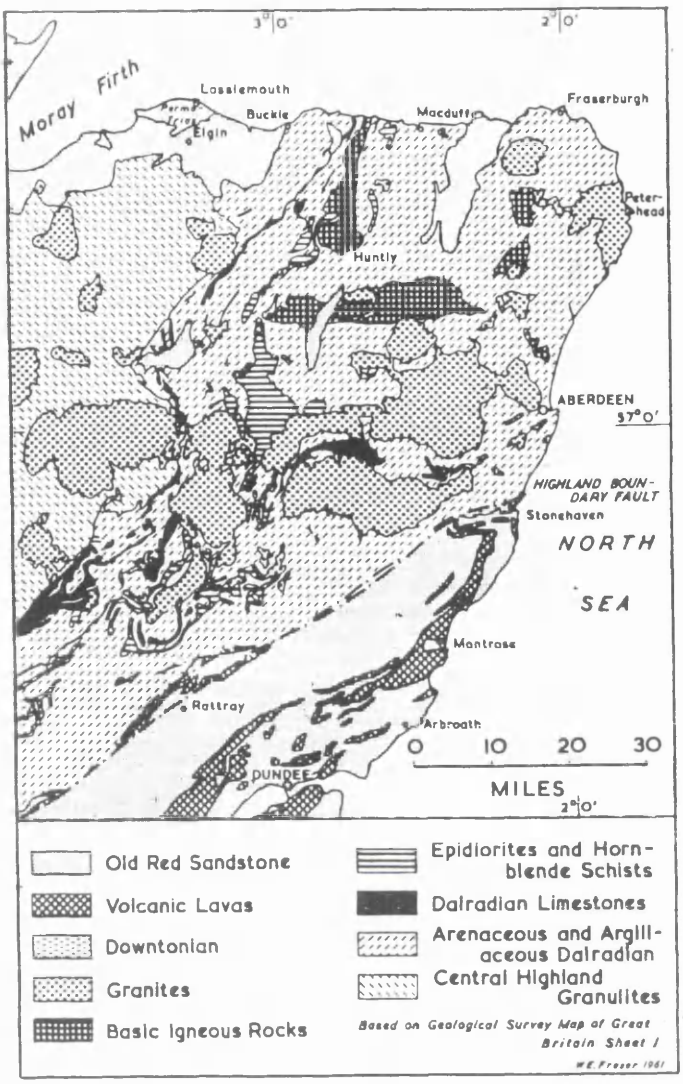


Figure 2: Geological map

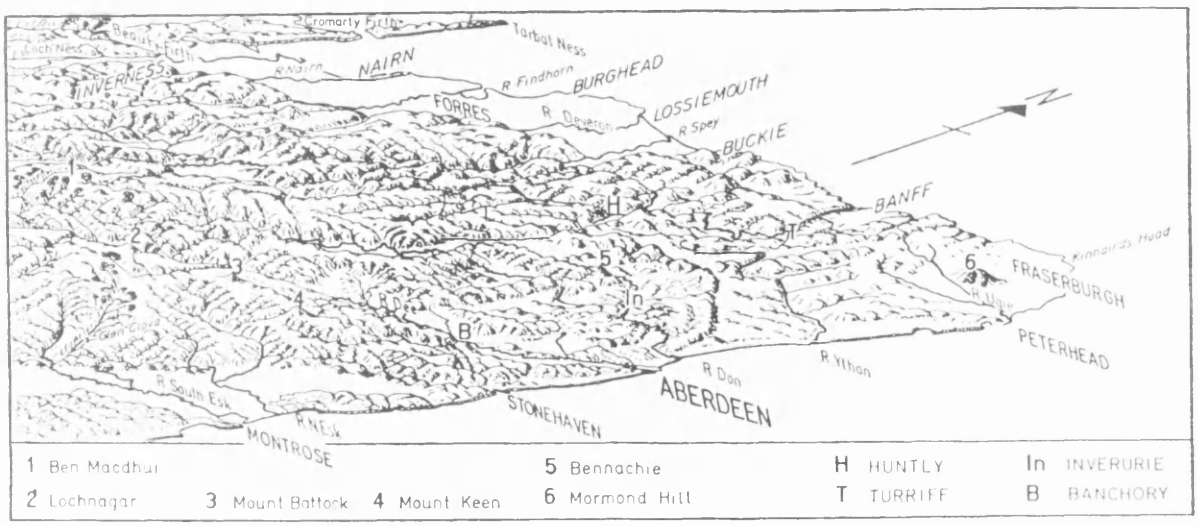


Figure 3: Topographic relief

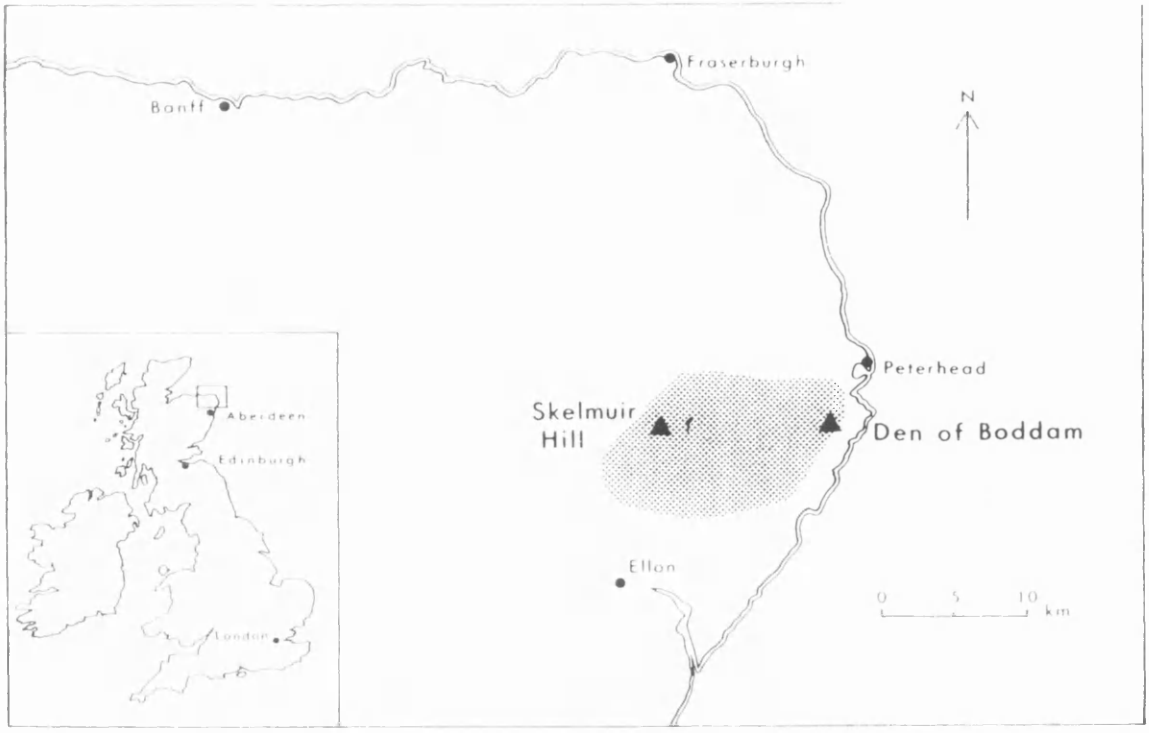


Figure 4: Location of Buchan ridge gravel (From Saville 1992b)

Figure 5: Map showing sub-regions of Alford, Buchan & Garioch

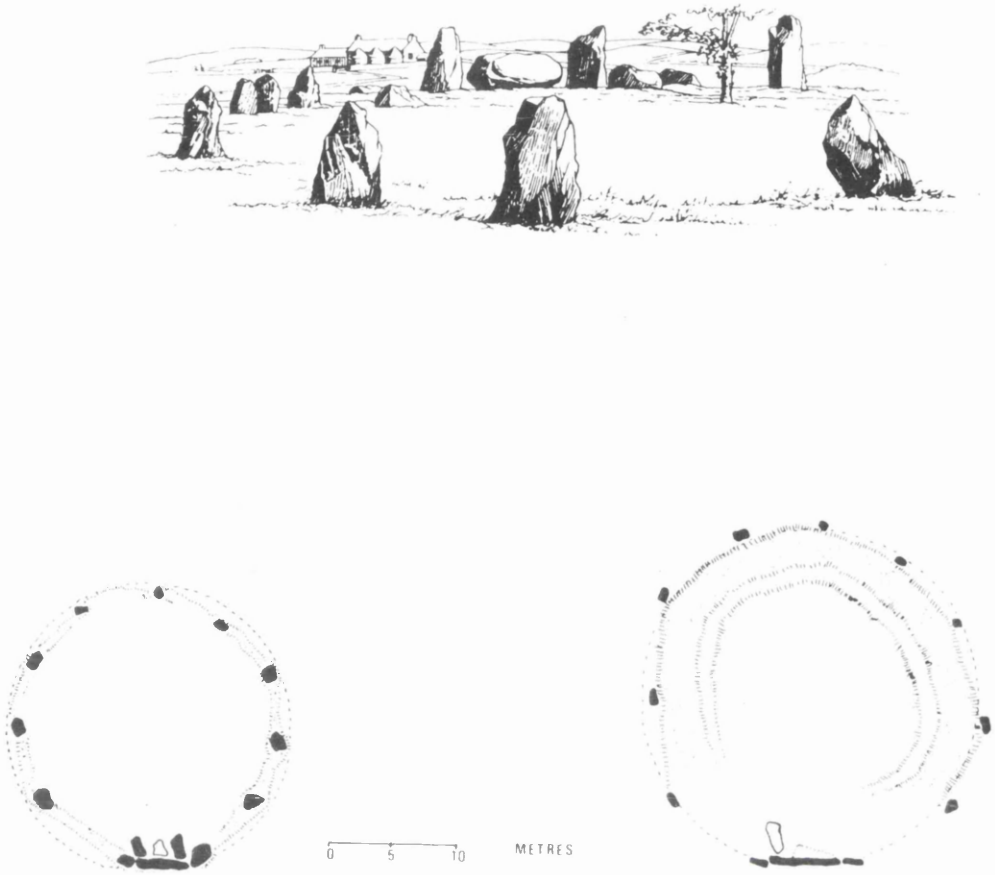


Figure 6: Plans of RSCs showing degree of lateral symmetry (From Burl 1988)

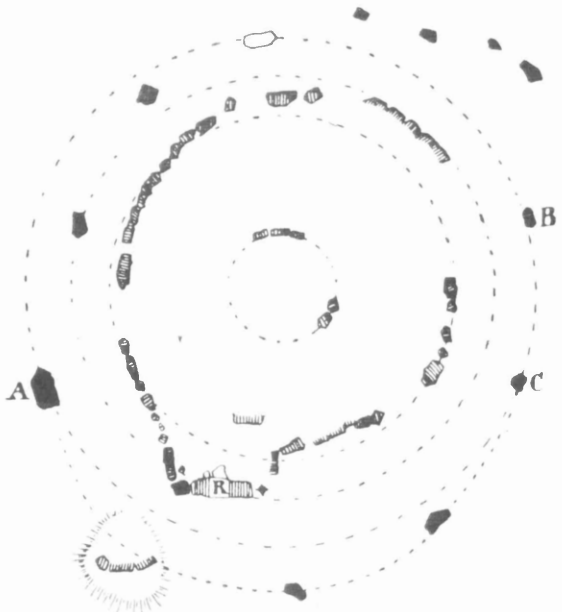


Figure 7: Plan of RSC showing interior features (From Burl 1988)

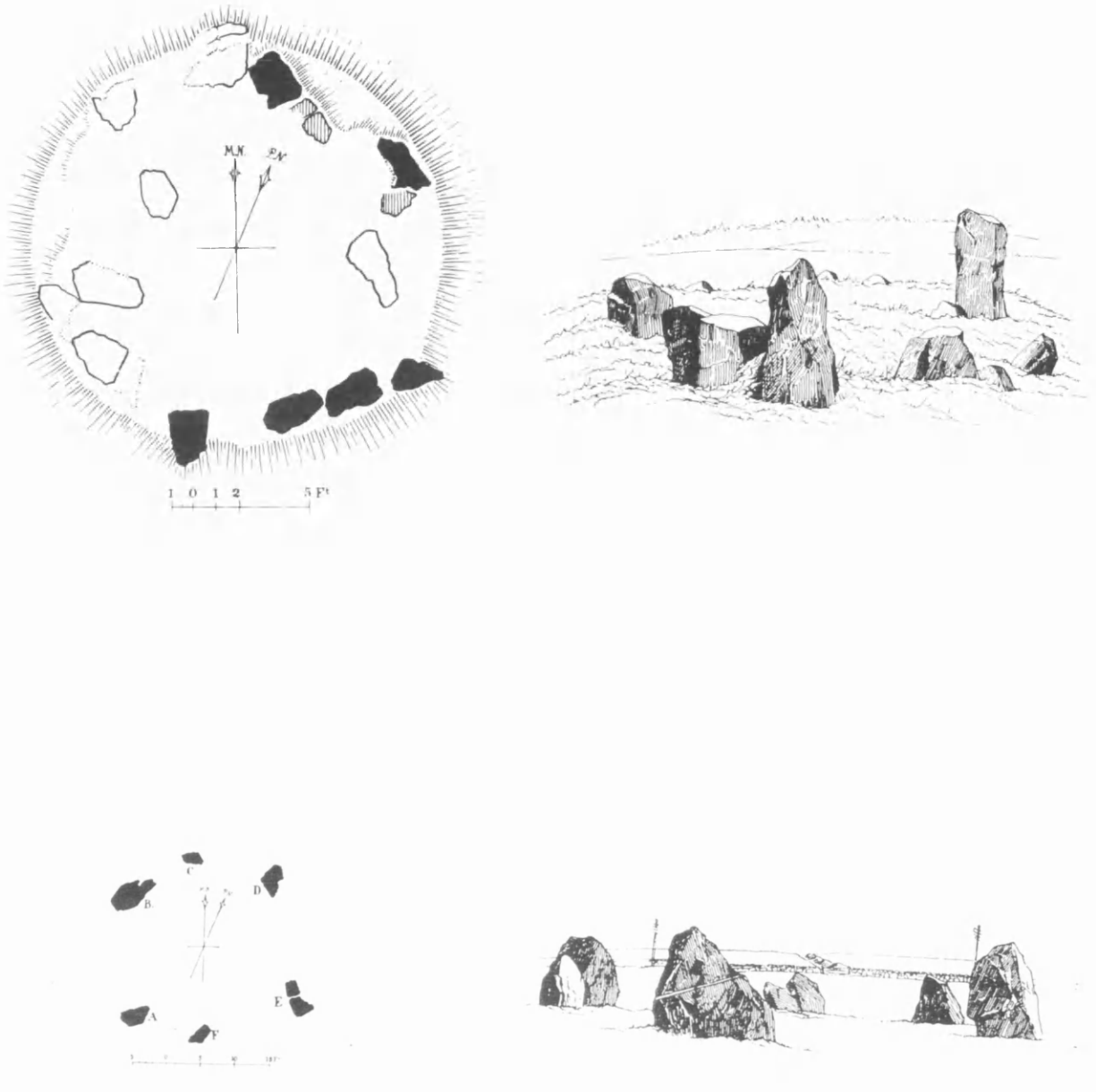


Figure 8: Illustrations of Backhill of Drachlaw and Raich (From Coles 1903)

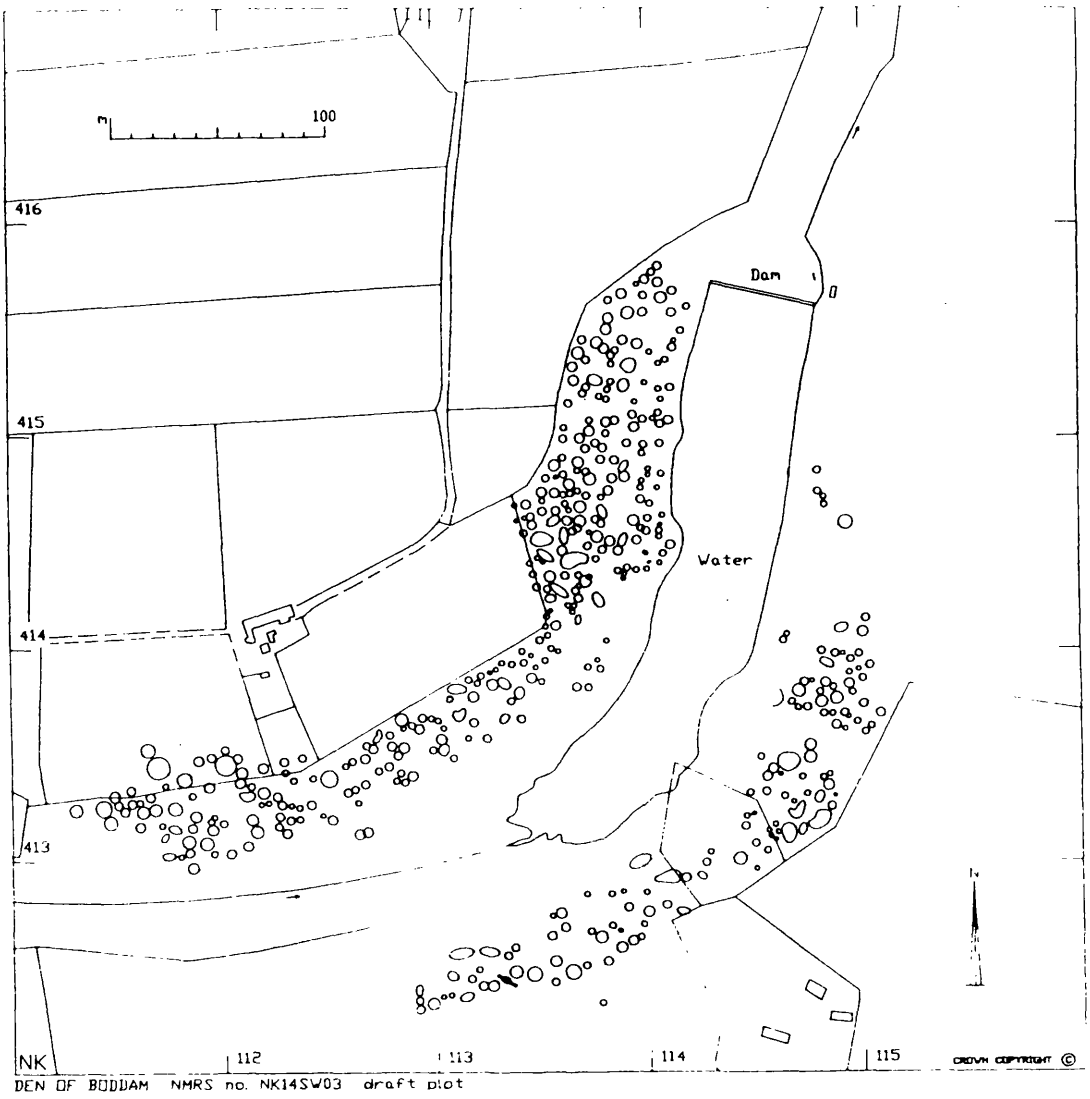


Figure 9: Plan of Den of Boddam, flint mines (From Saville 1994)

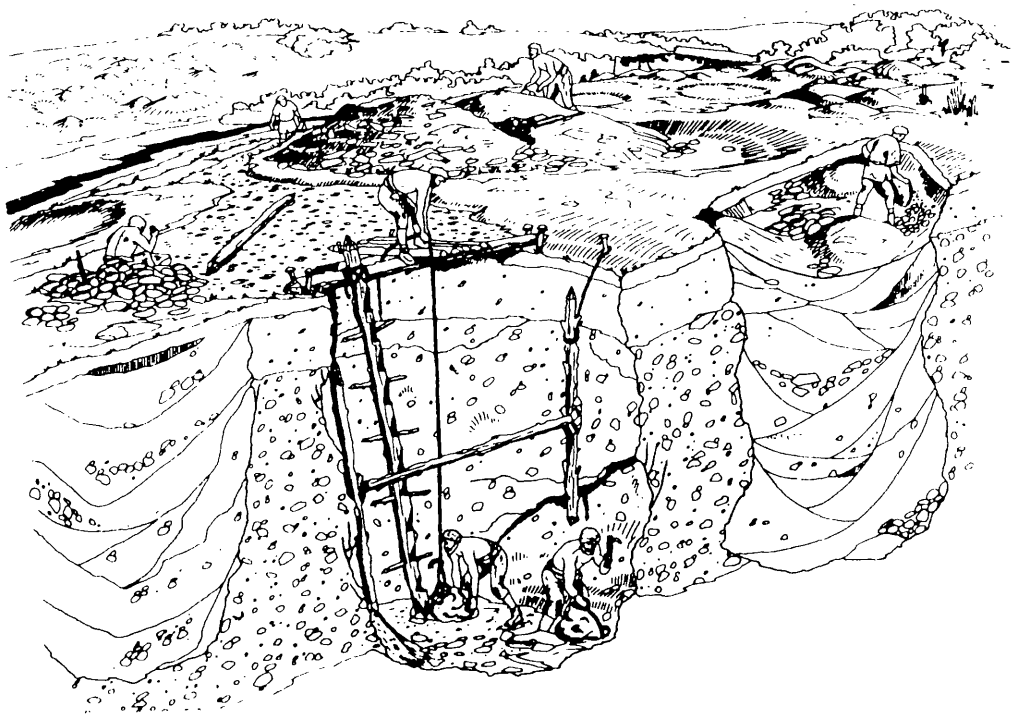


Figure 10: Reconstruction of flint mining (From drawing by Alan Braby)

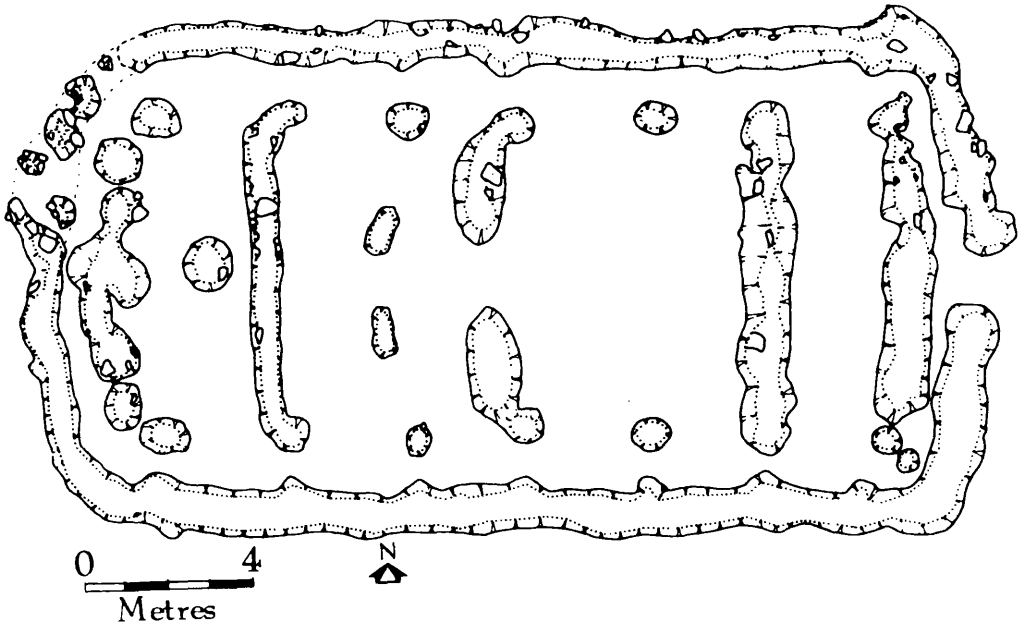


Figure 11: Plan of Balbride structure (From Ralston 1982)

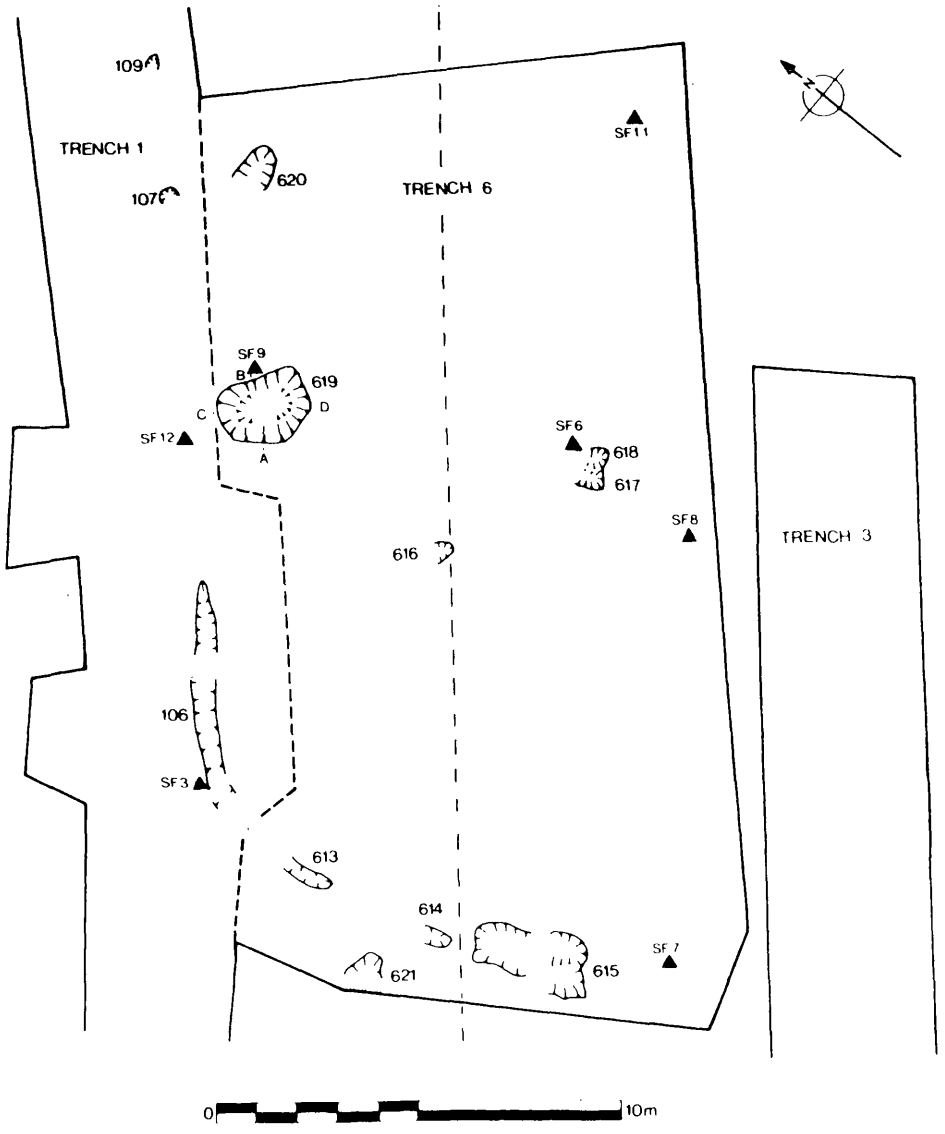


Figure 12: Spurryhillock : features typical of Neolithic settlement (After Alexander 1997

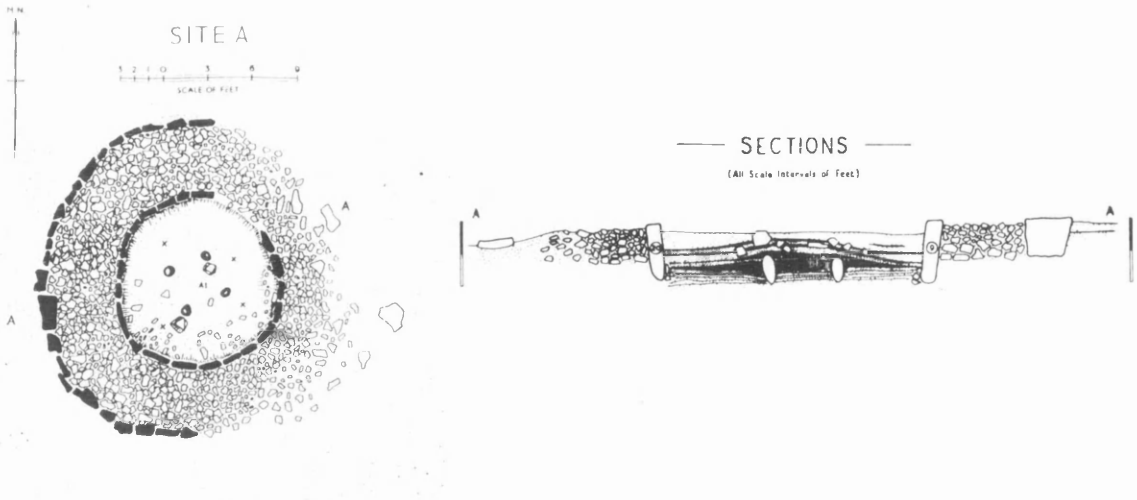


Figure 13: Sands of Forvie - site A (After Kirk 1953)

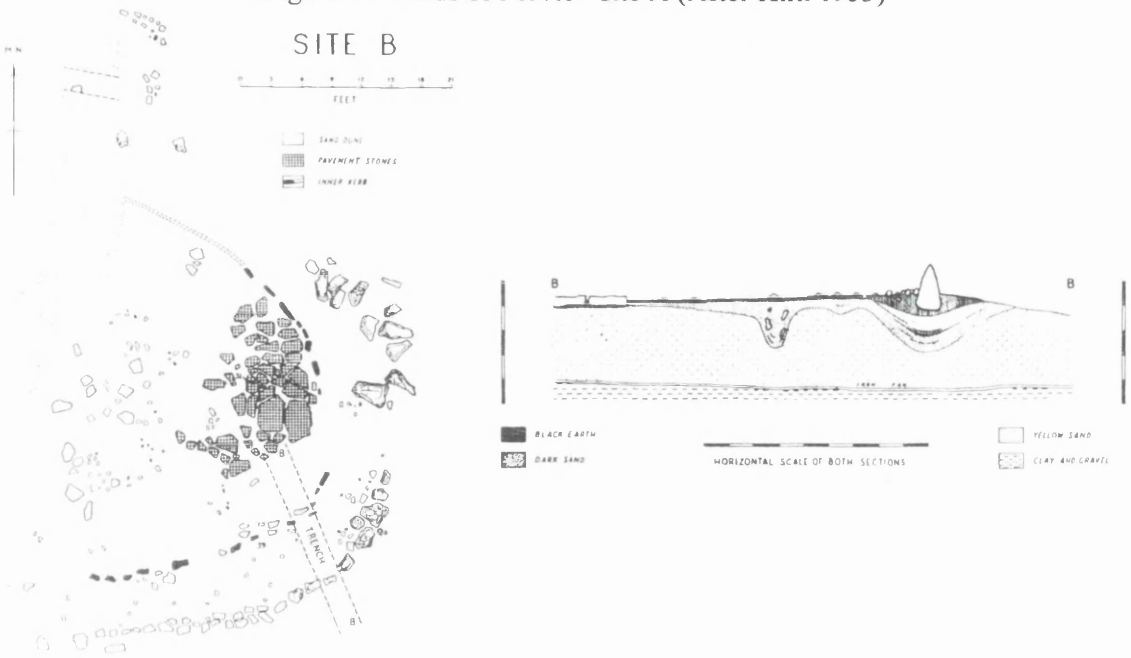


Figure 14: Sands of Forvie - site B (After Kirk 1953)

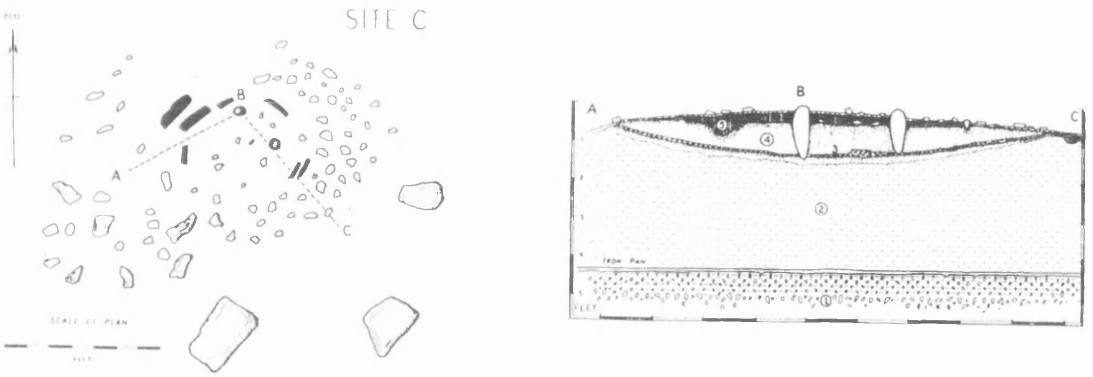


Figure 15: Sands of Forvie - site C (After Kirk 1953)

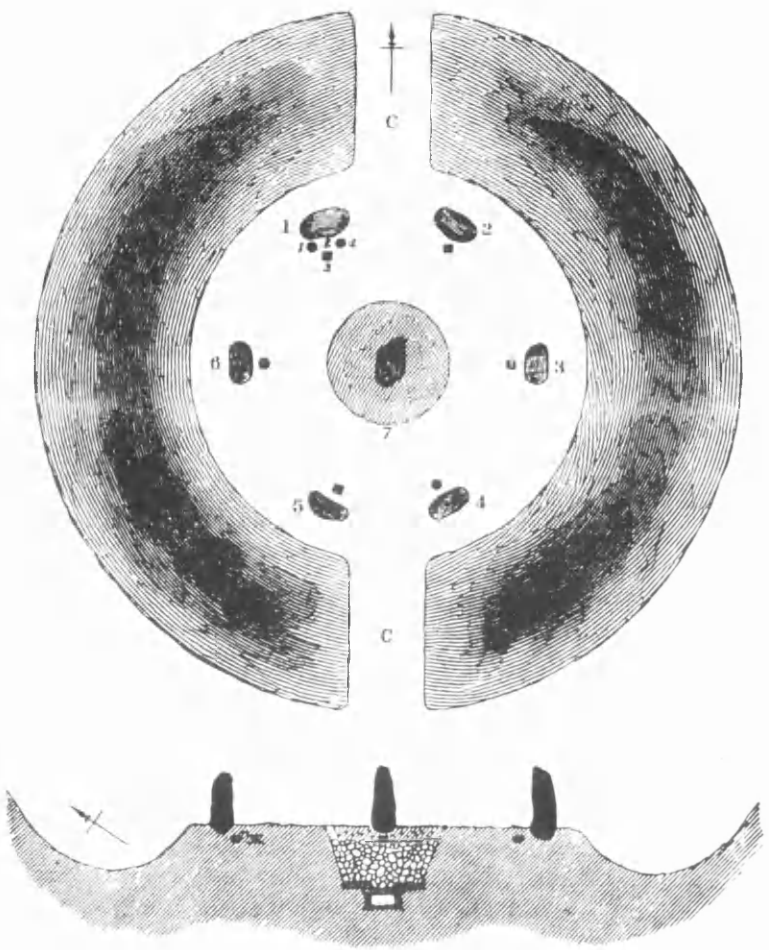
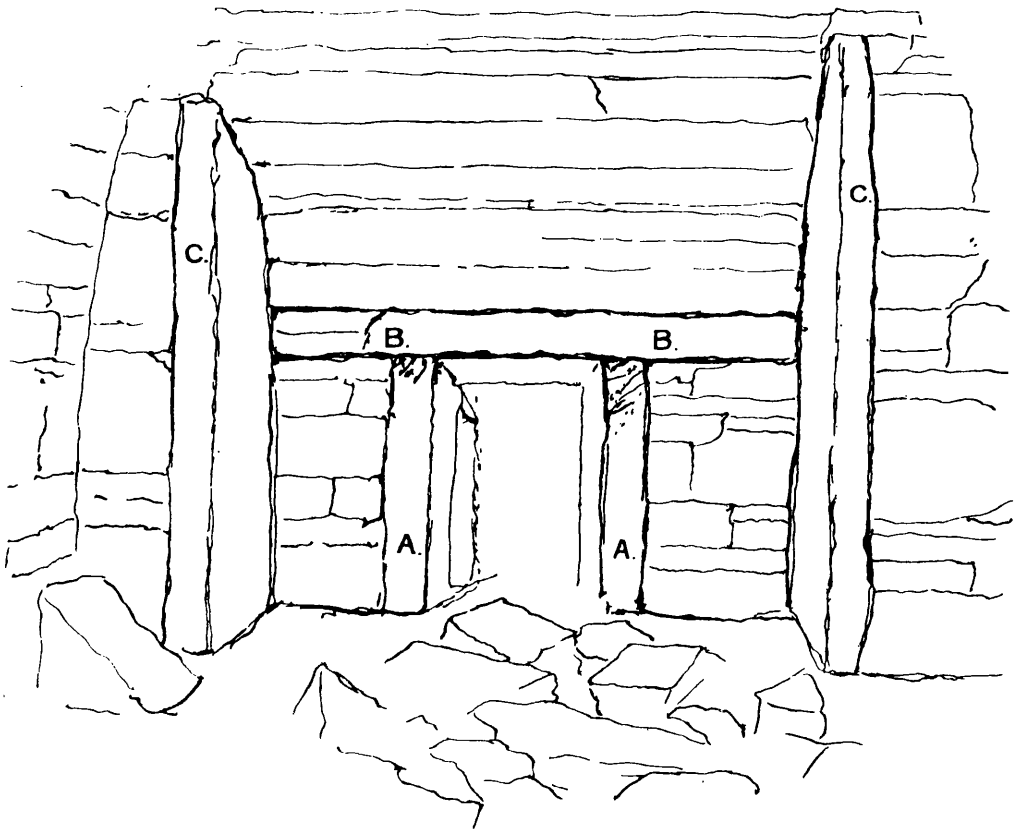


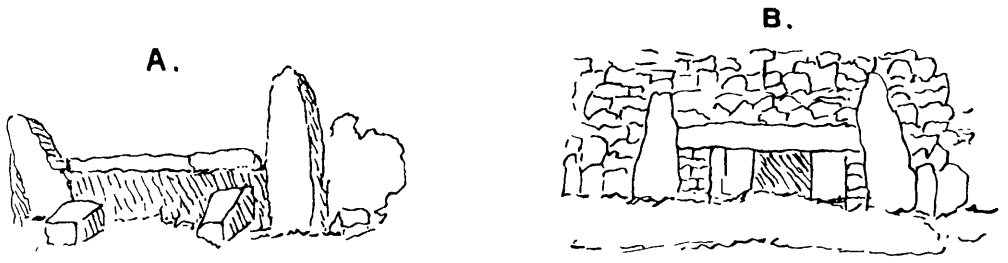
Figure 16: Broomend of Crichie (From Dalrymple 1884)



A. A. Short stone doorposts.

B. B. Lintel of door, otherwise called "Great Altar Stone," "Long recumbent Stone," &c.

C. C. The two tall stones, one at each end of the "Great Altar Stone"—this stone being used for steadying the whole masonry.



AUQUHORTHIES.—INVERURIE.

A. Stones or door of circle showing the short supports, the long stone lintel, and the two upright stones acting as stays.

B. Restoration of the same, showing the position of stones in the wall.

Figure 17: MacLagan's theory of collapsed lintels (From Maclagan 1884)

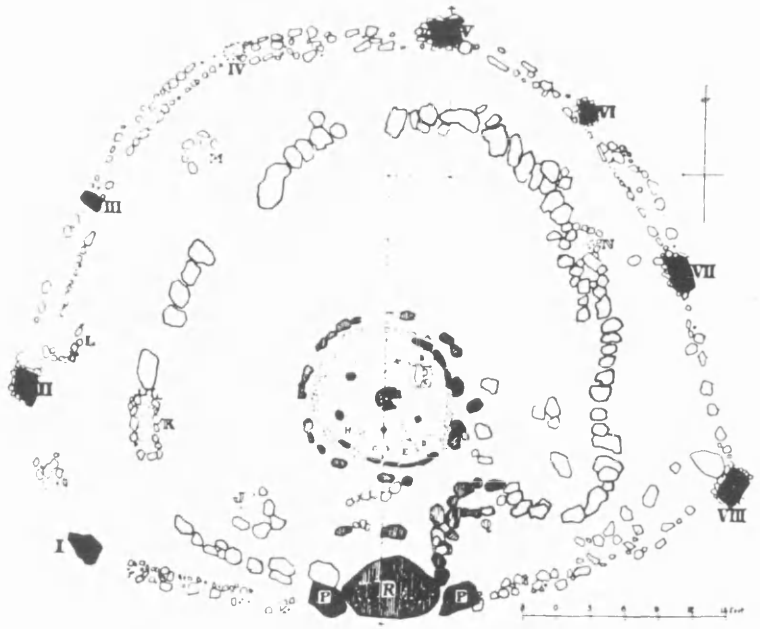


Figure 18: Excavation plan of Garrol Wood (From Coles 1905)

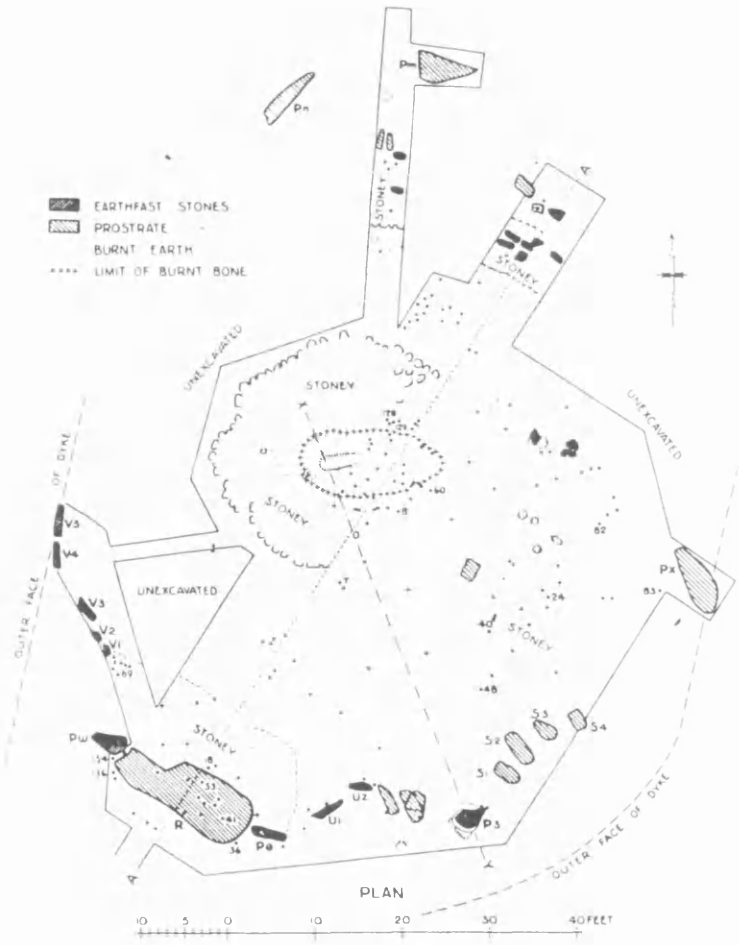


Figure 19: Excavation plan of Old Keig (From Childe 1934)

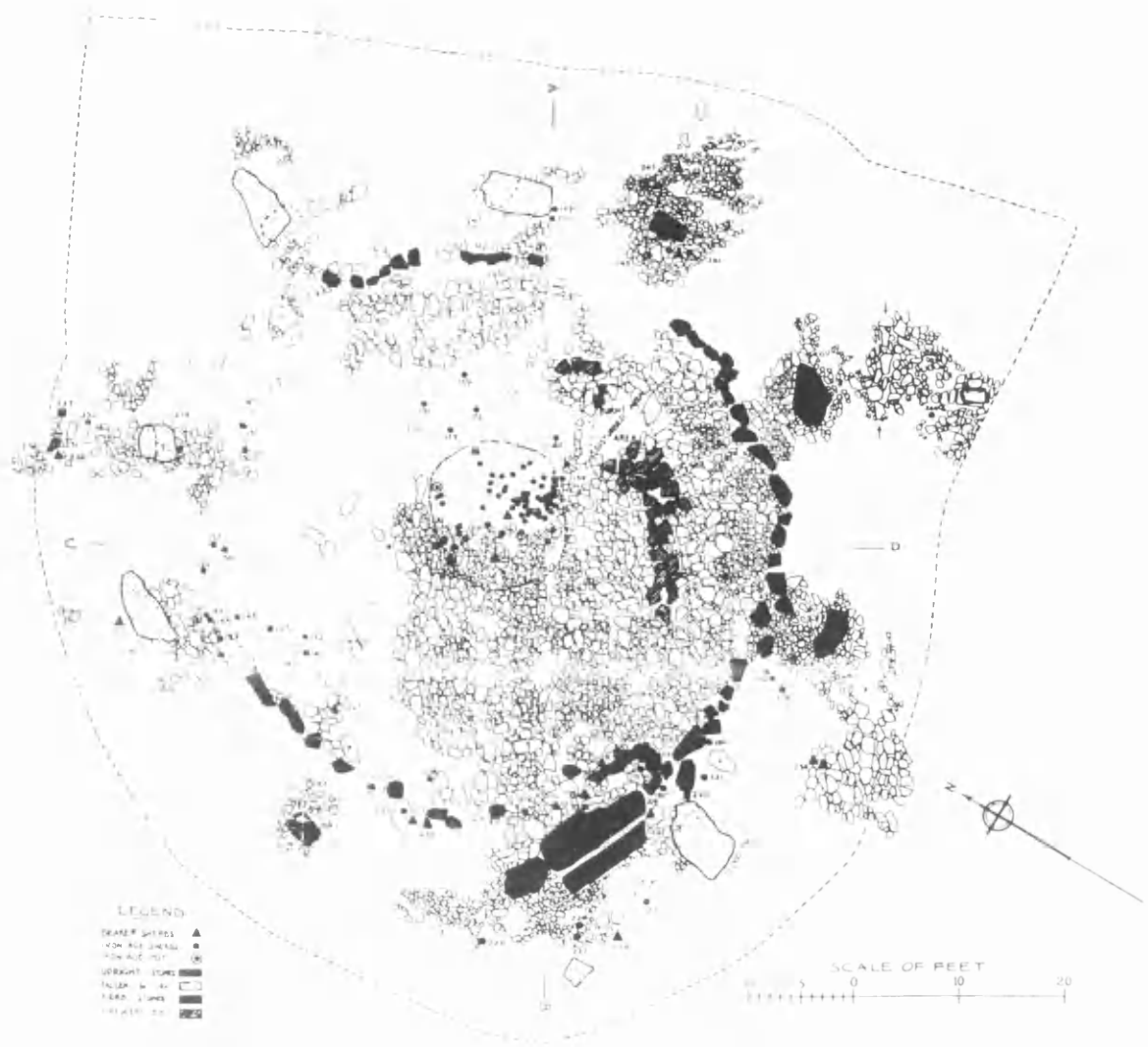


Figure 20: Excavation plan of Loanhead of Daviot (From Kilbride-Jones 1935a)

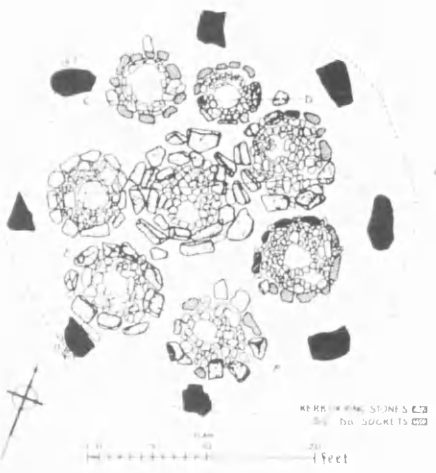


Figure 21: Excavation plan of Cullerlie (From Kilbride-Jones 1935a)

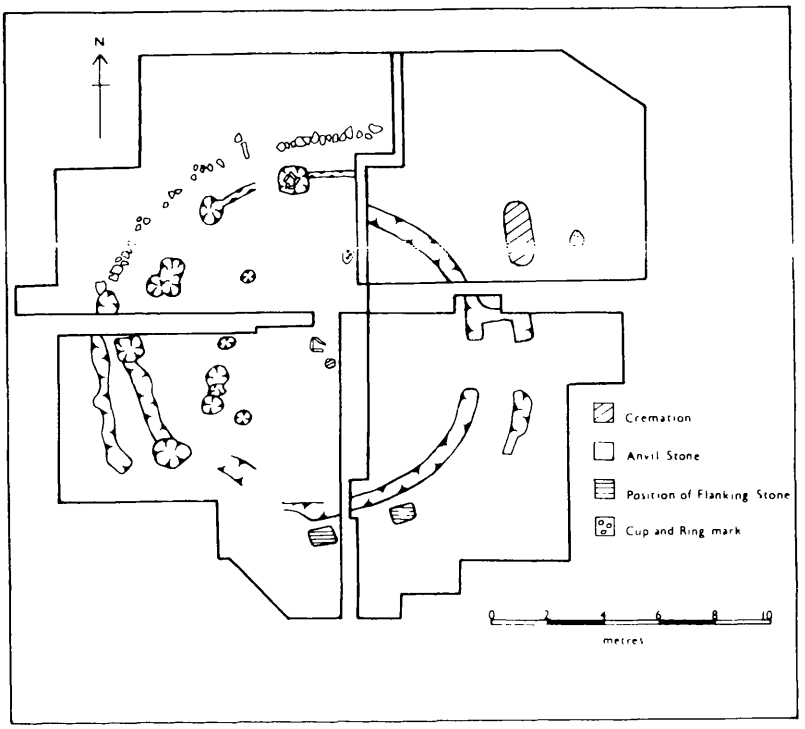


Figure 22: Excavation plan of Strichen (From Hampshire-Monk & Abramson 1982)

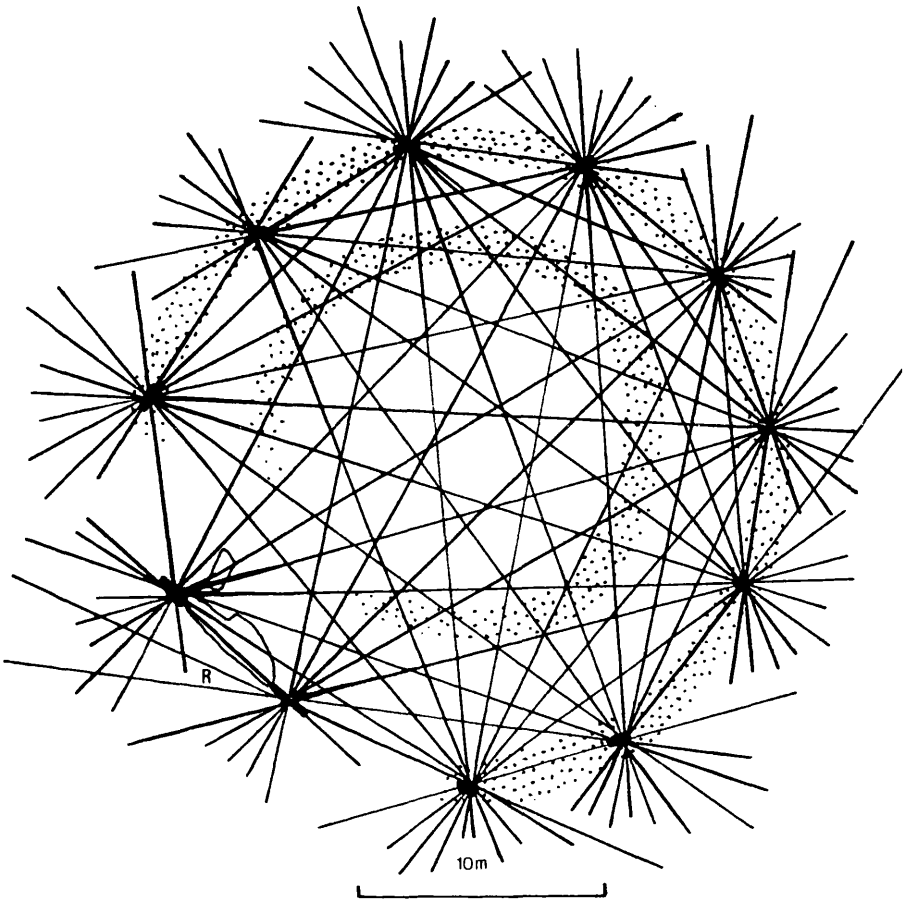


Figure 25: Possible alignments at RSCs (After Barnatt 1989)

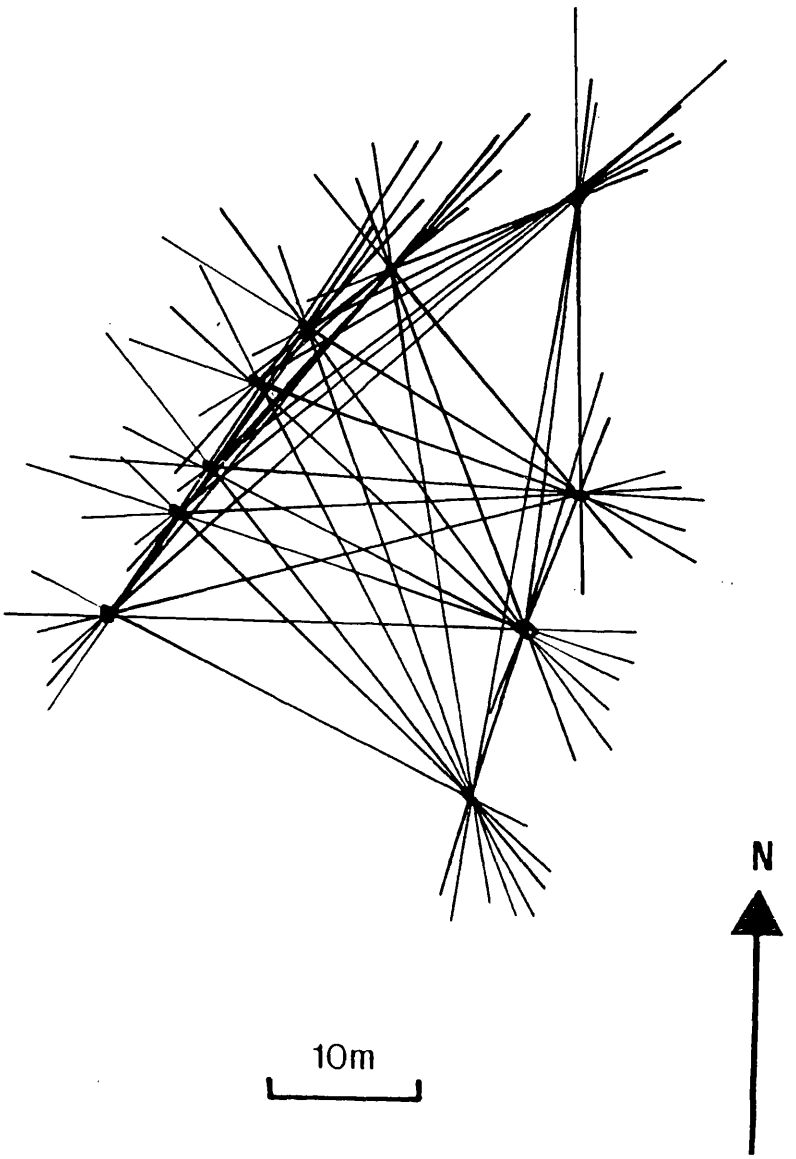


Figure 26: Possible alignments at Caithness 'horse shoe' (After Barnatt 1989)

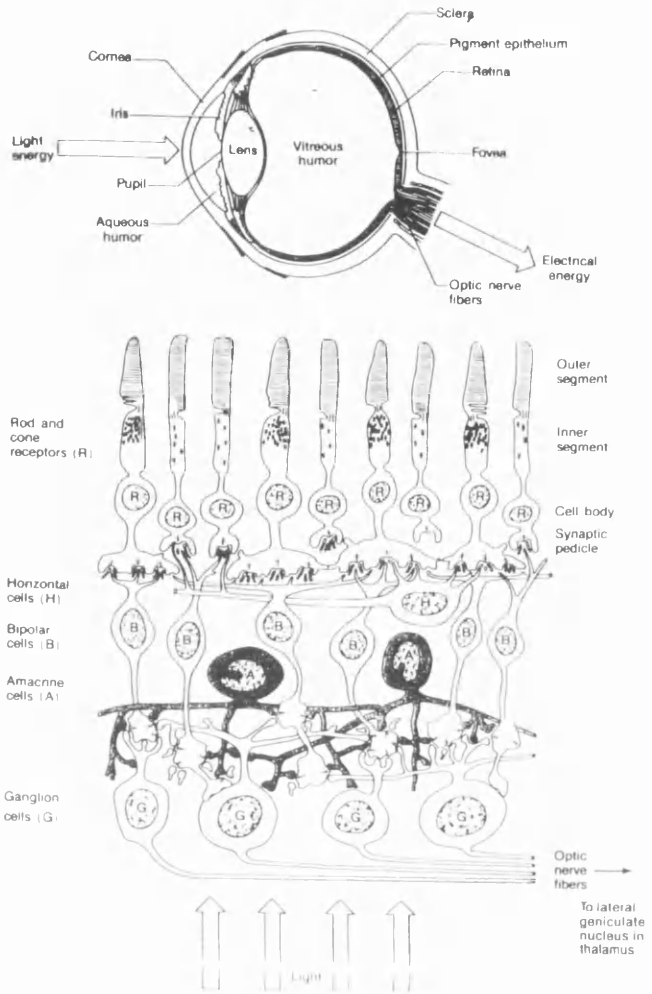


Figure 27: Apparatus of vision (From Goldstein 1996)

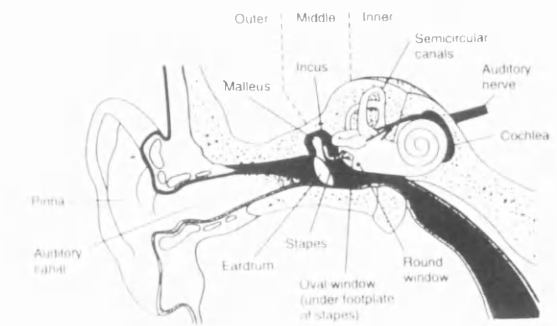


Figure 28: Apparatus of hearing (From Goldstein 1996)

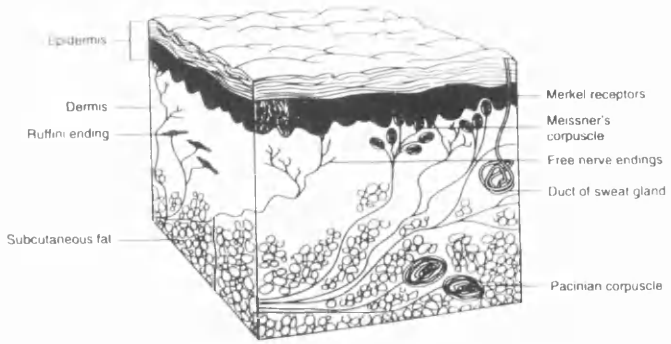


Figure 29: Apparatus of touch (From Goldstein 1996)

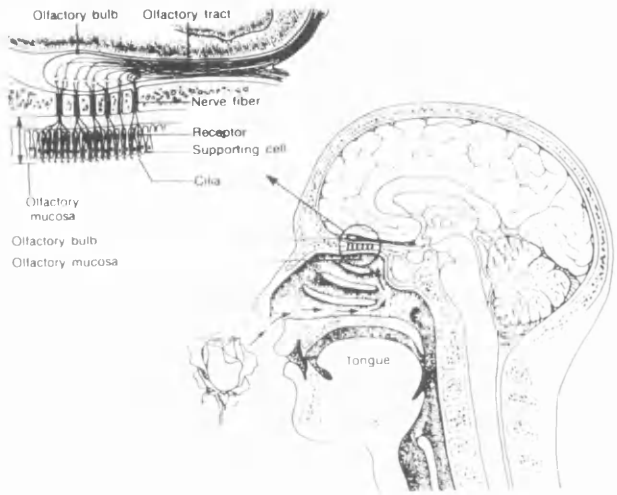


Figure 30: Apparatus of smell (From Goldstein 1996)

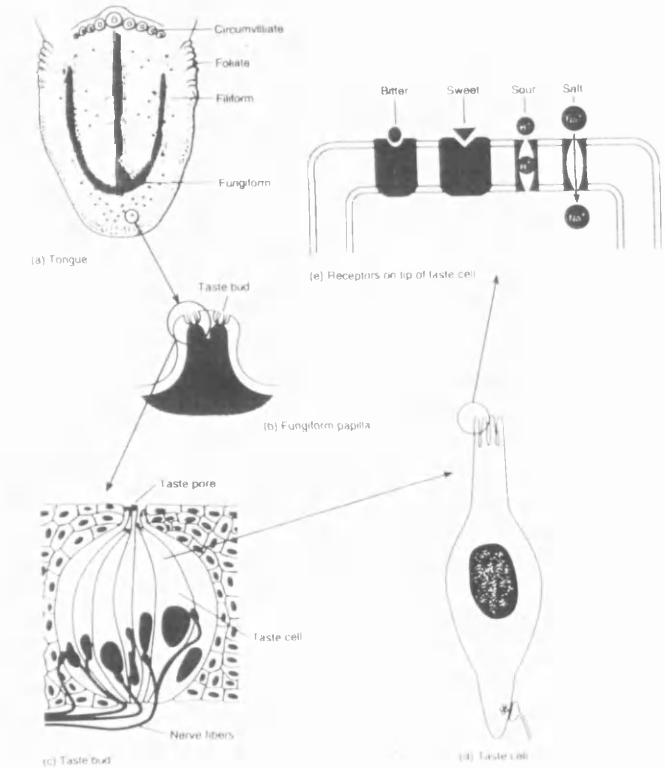


Figure 31: Apparatus of taste (From Goldstein 1996)

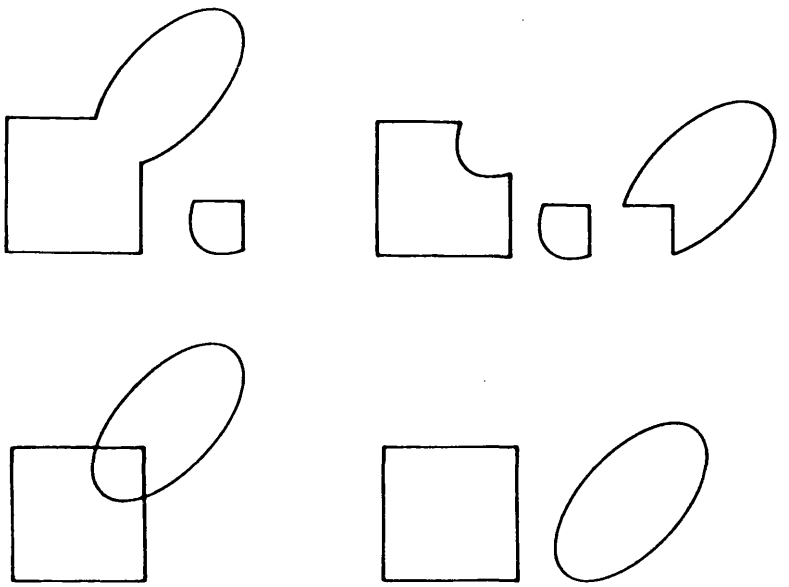


Figure 32: Gestalt principle of simplicity (praganz) (From Goldstein 1996)

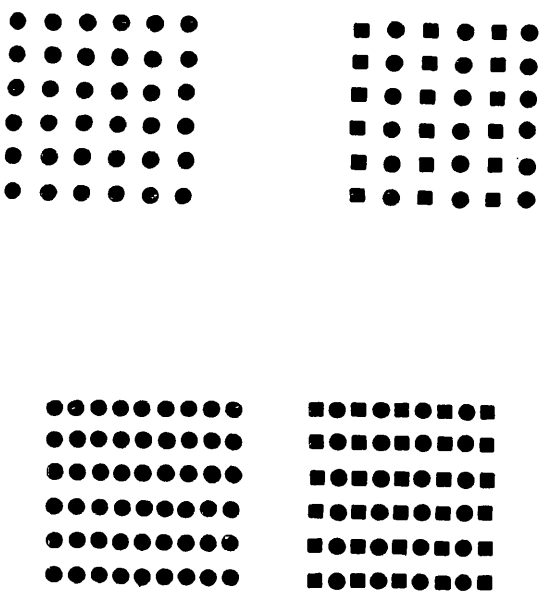


Figure 33: Gestalt principles of similarity and proximity (From Goldstein 1996)

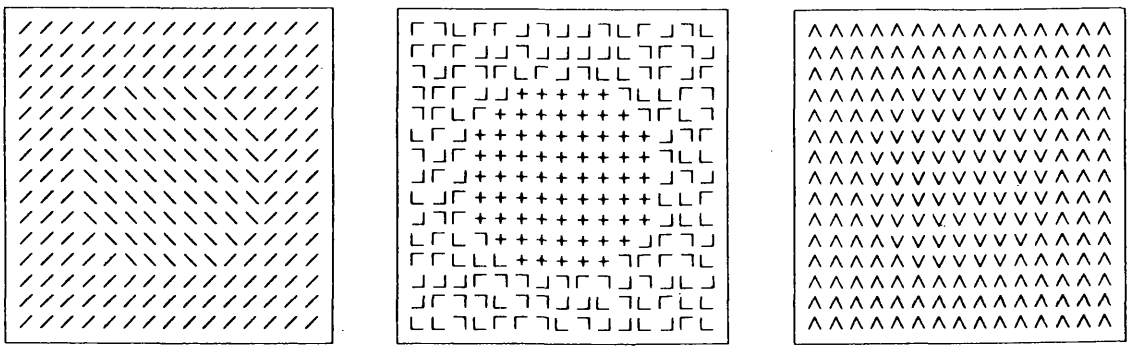


Figure 34: Textons

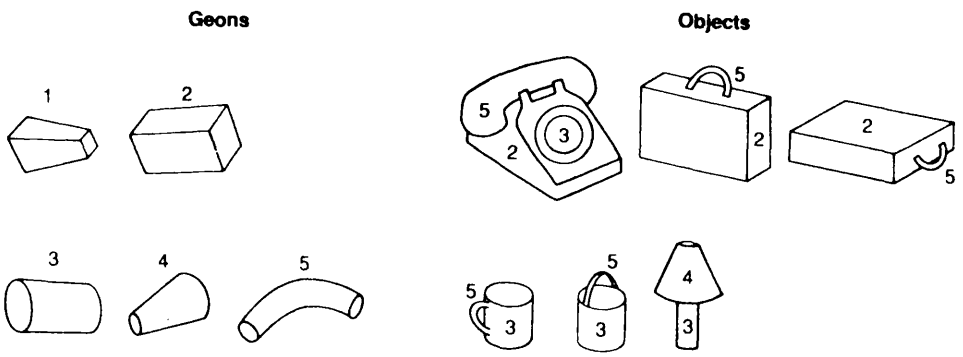


Figure 35: Geons

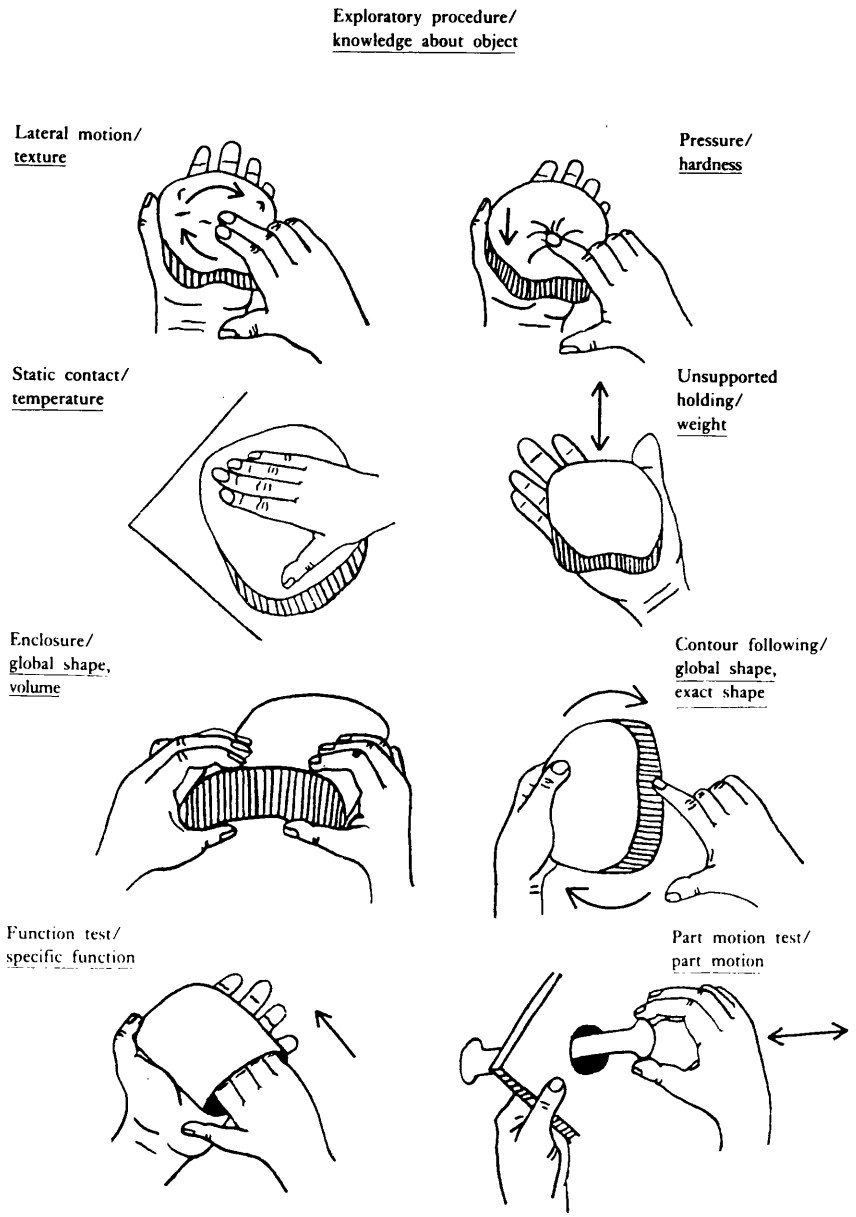


Figure 36: Haptic exploratory procedures (From Klatsky & Lederman 1993)

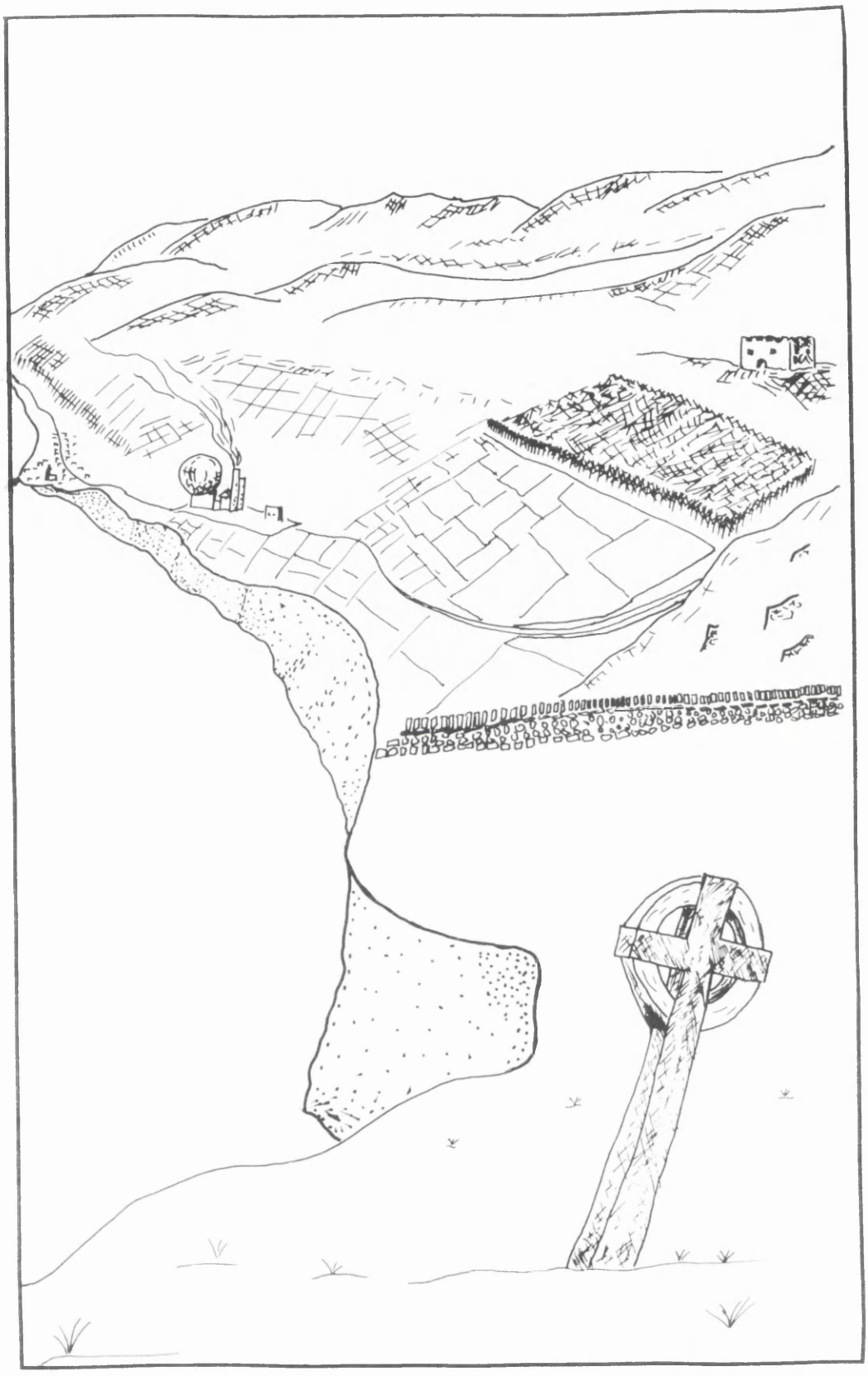


Figure 37: Monuments in a contemporary landscape

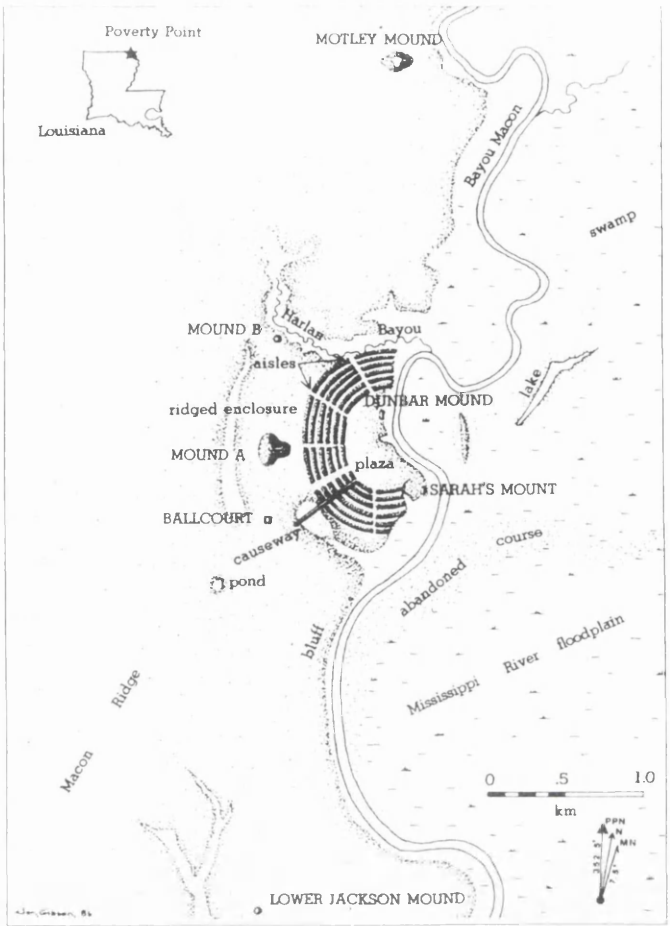


Figure 38: Plan of Poverty Point environs (From Gibson 1996)

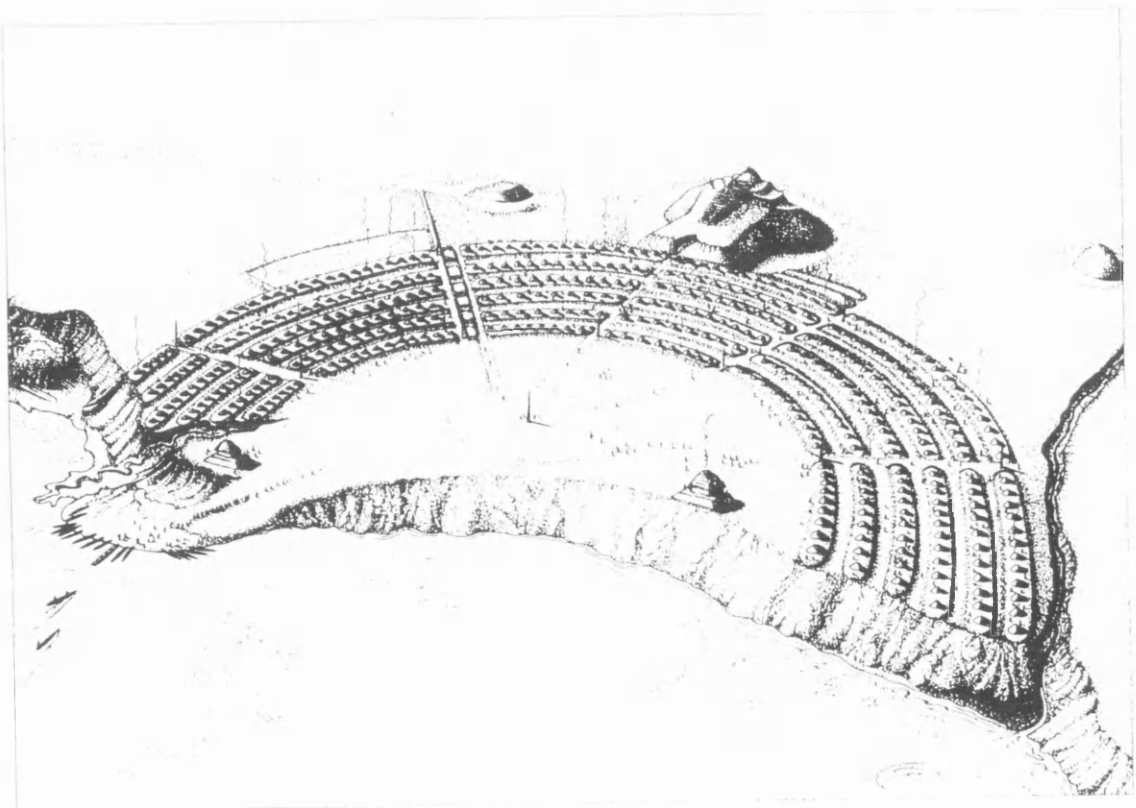


Figure 39: Reconstruction of Poverty Point (From Gibson 1996)

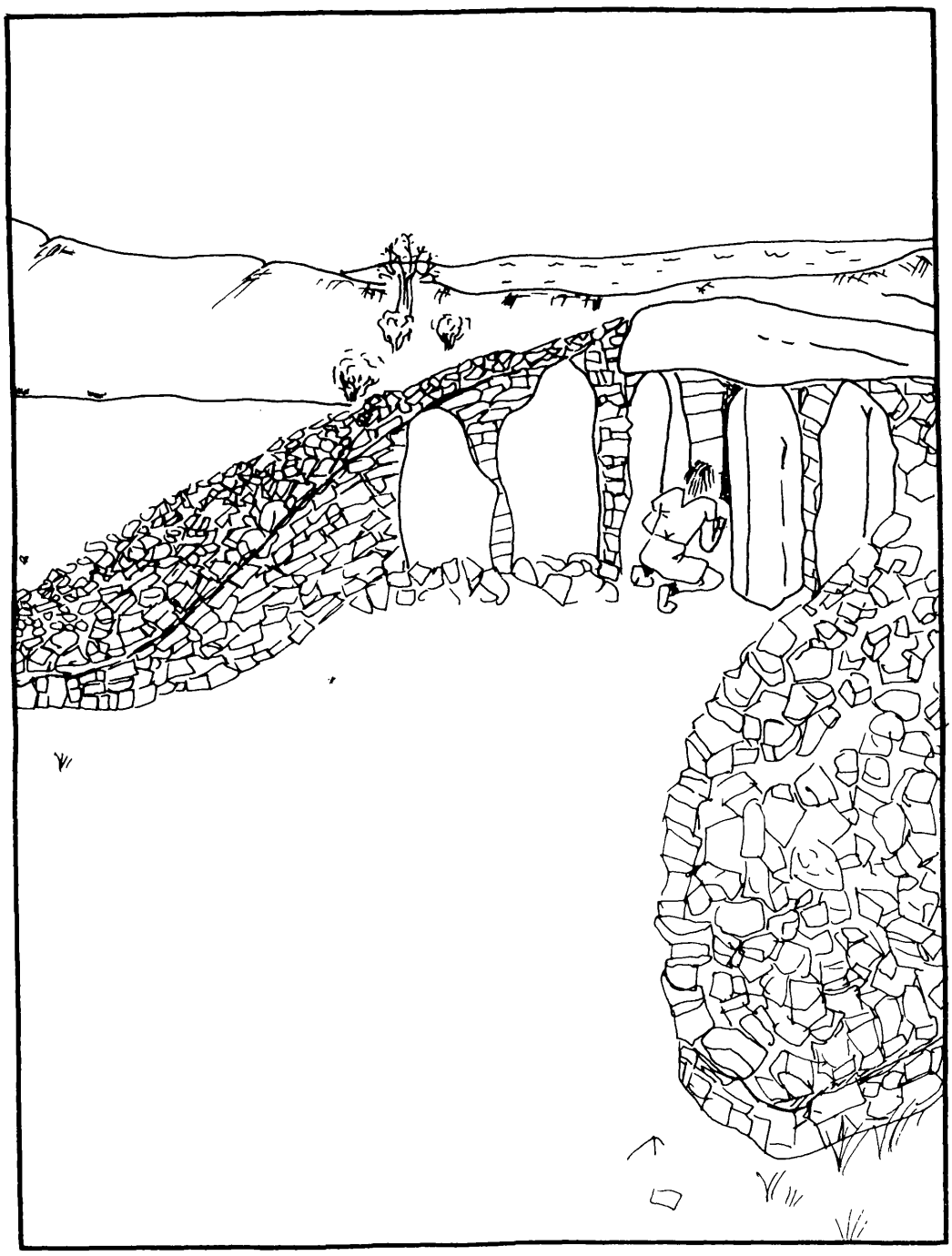


Figure 40: Incorporation of body in architecture

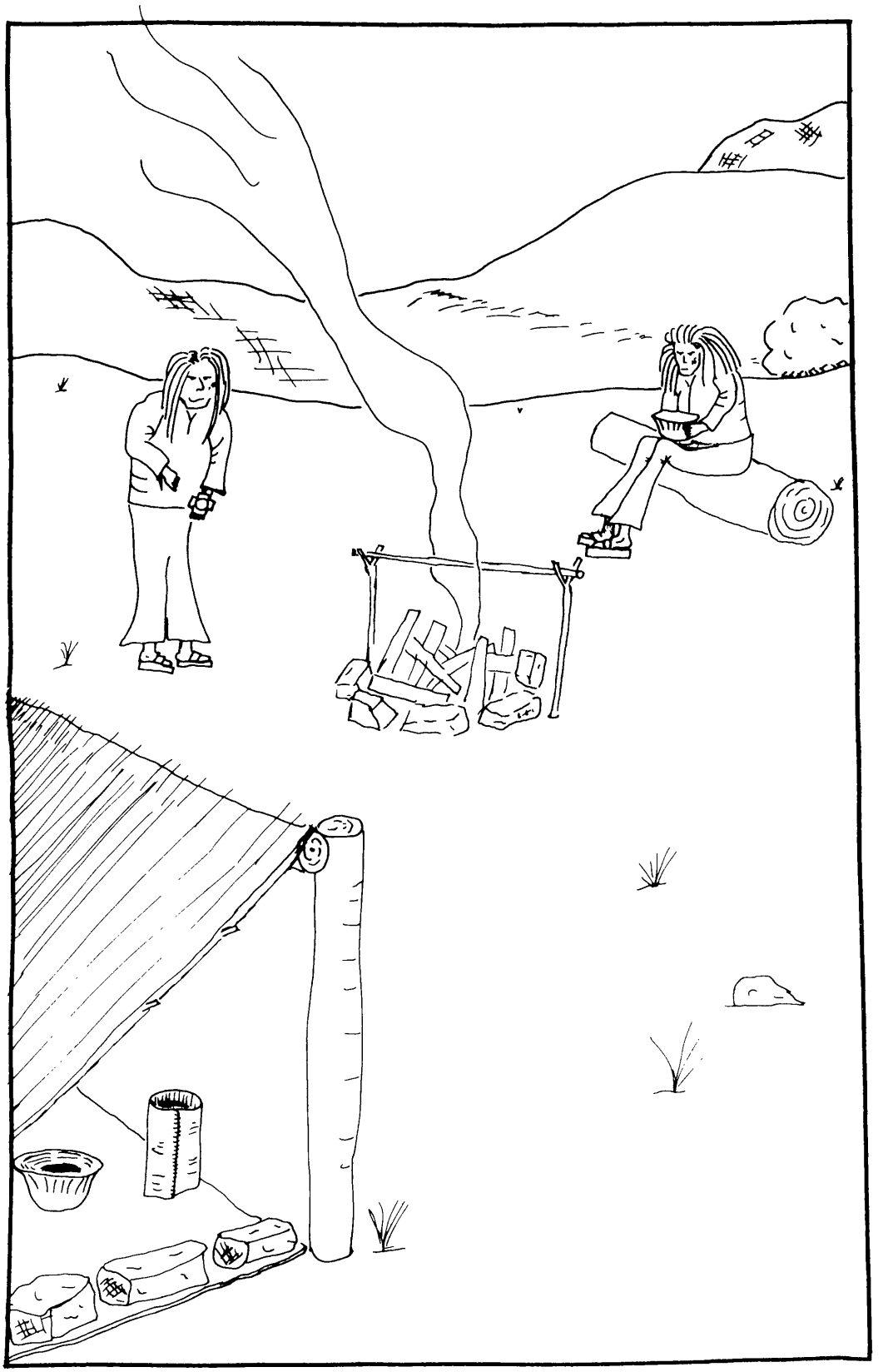


Figure 41: Body incorporating material culture

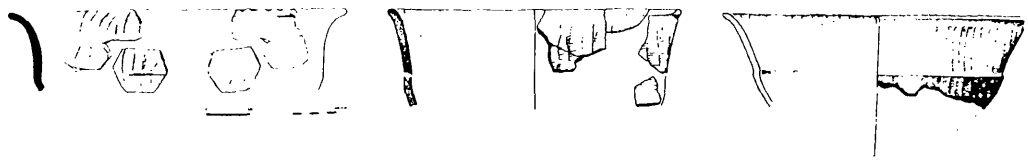


Figure 42: Fluted carinated bowls (From Henshall 1983; Burl 1984; Shepherd 1997)

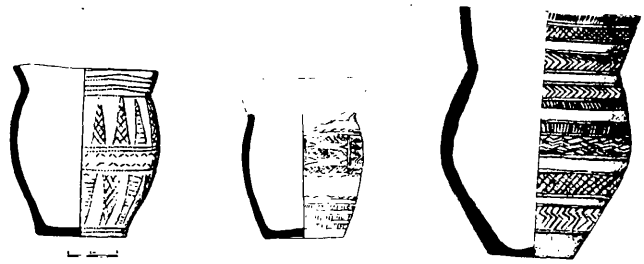


Figure 43: Beaker pottery (From Ralston 1996)

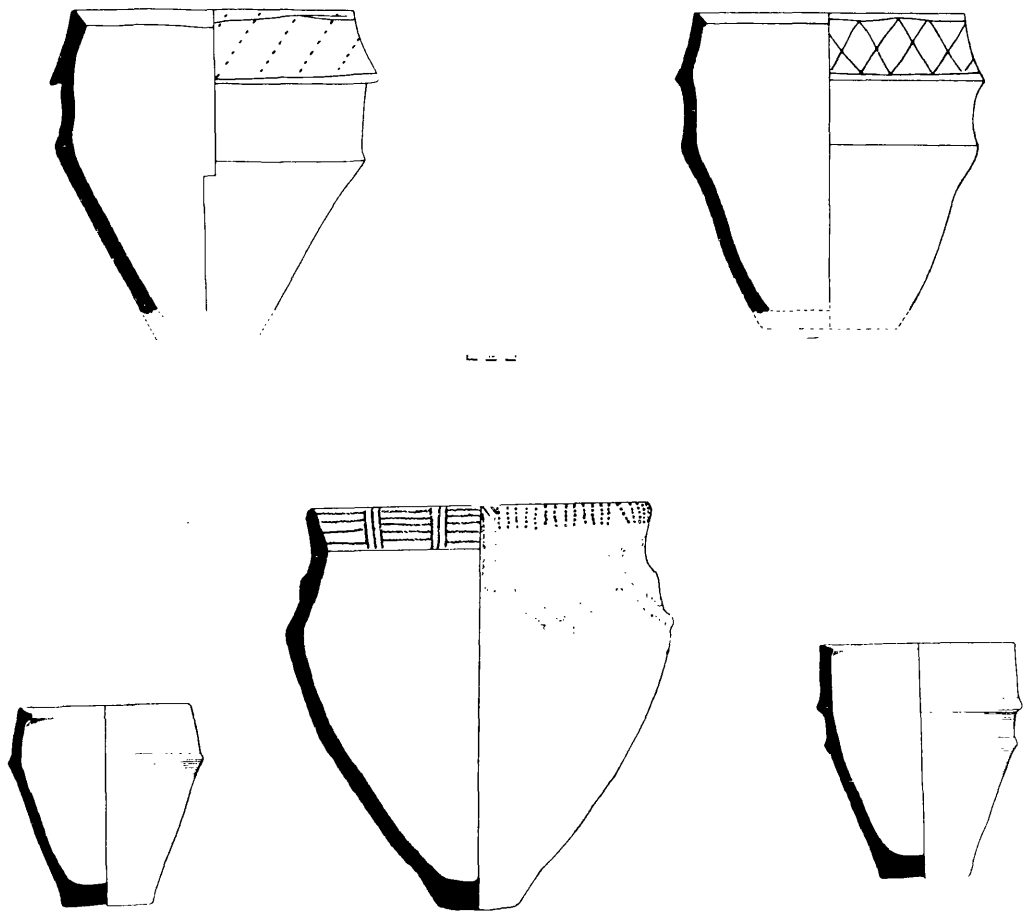


Figure 44: Forms of urn of second millennium BC (From Kilbride-Jones 1936; Cowie 1978)

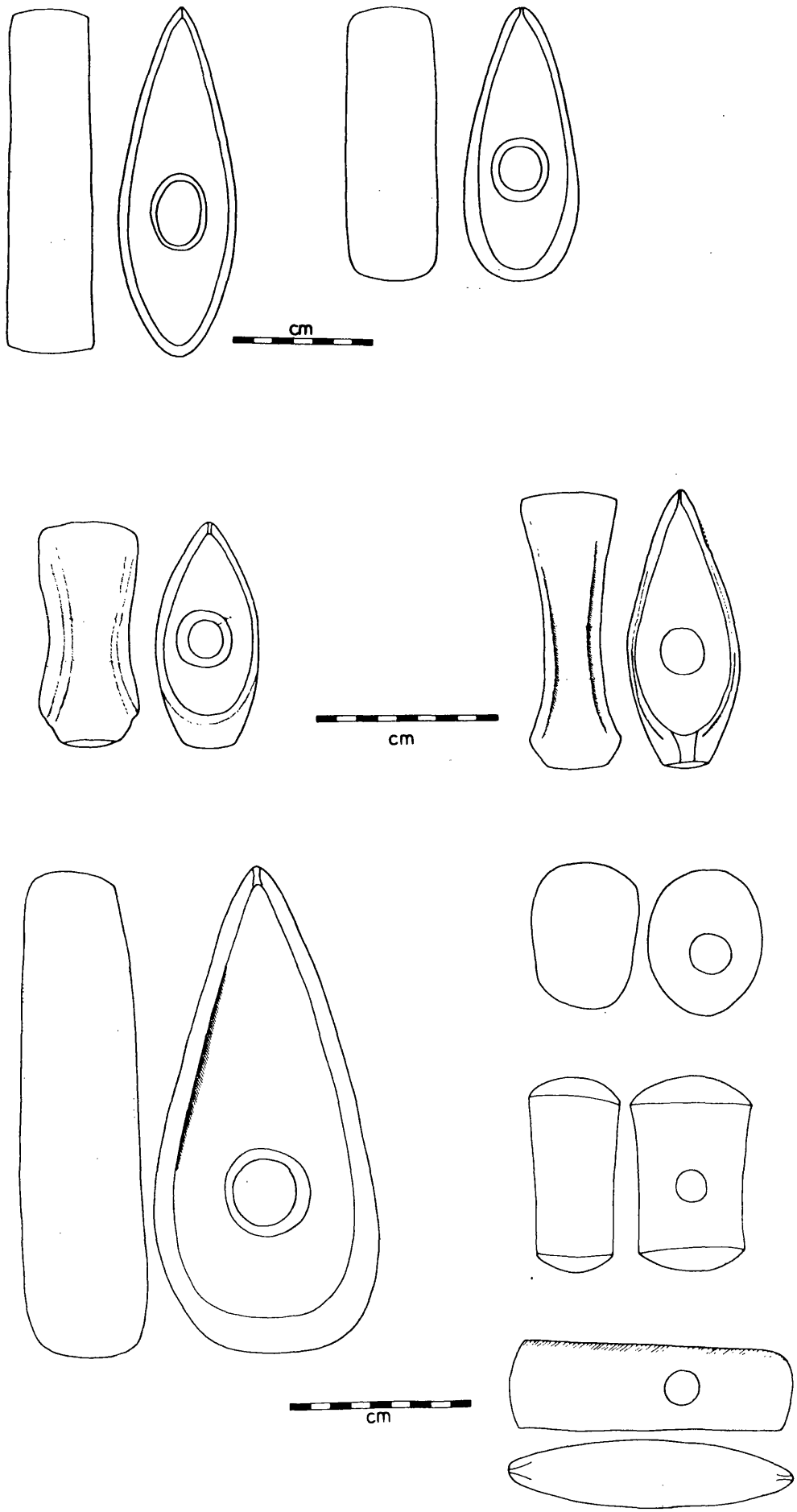


Figure 45: Shaft hole implements (From Roe 1968)

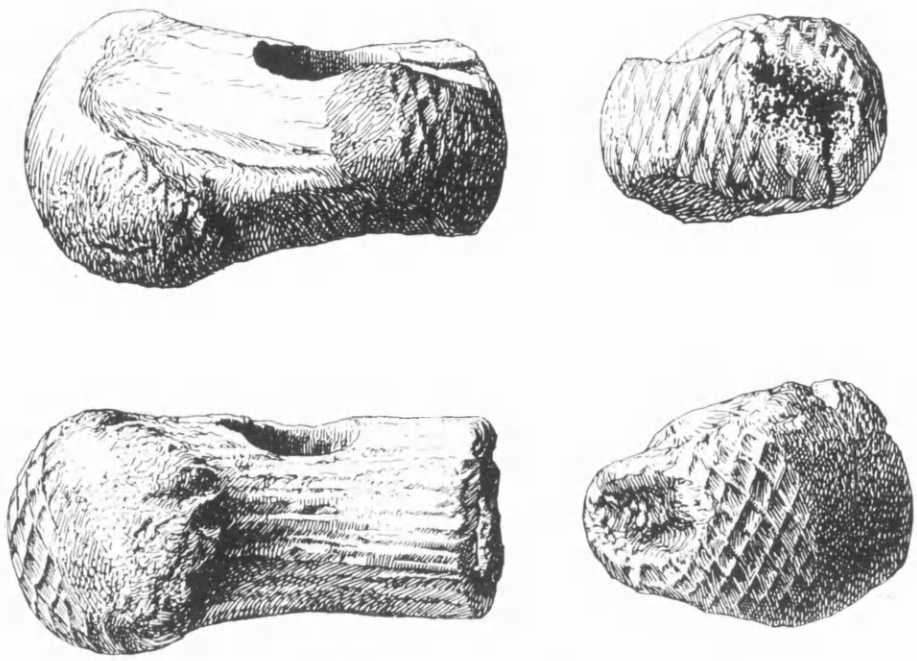


Figure 46: Antler mace-head (From Smith 1918)

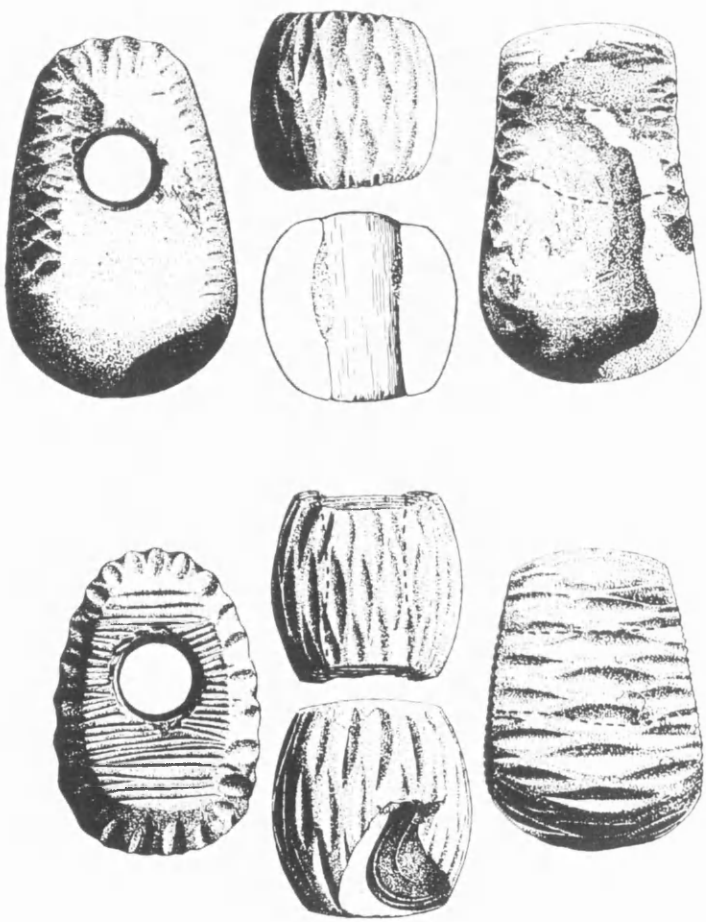


Figure 47: Maesmore type mace-head (From Anderson 1909)

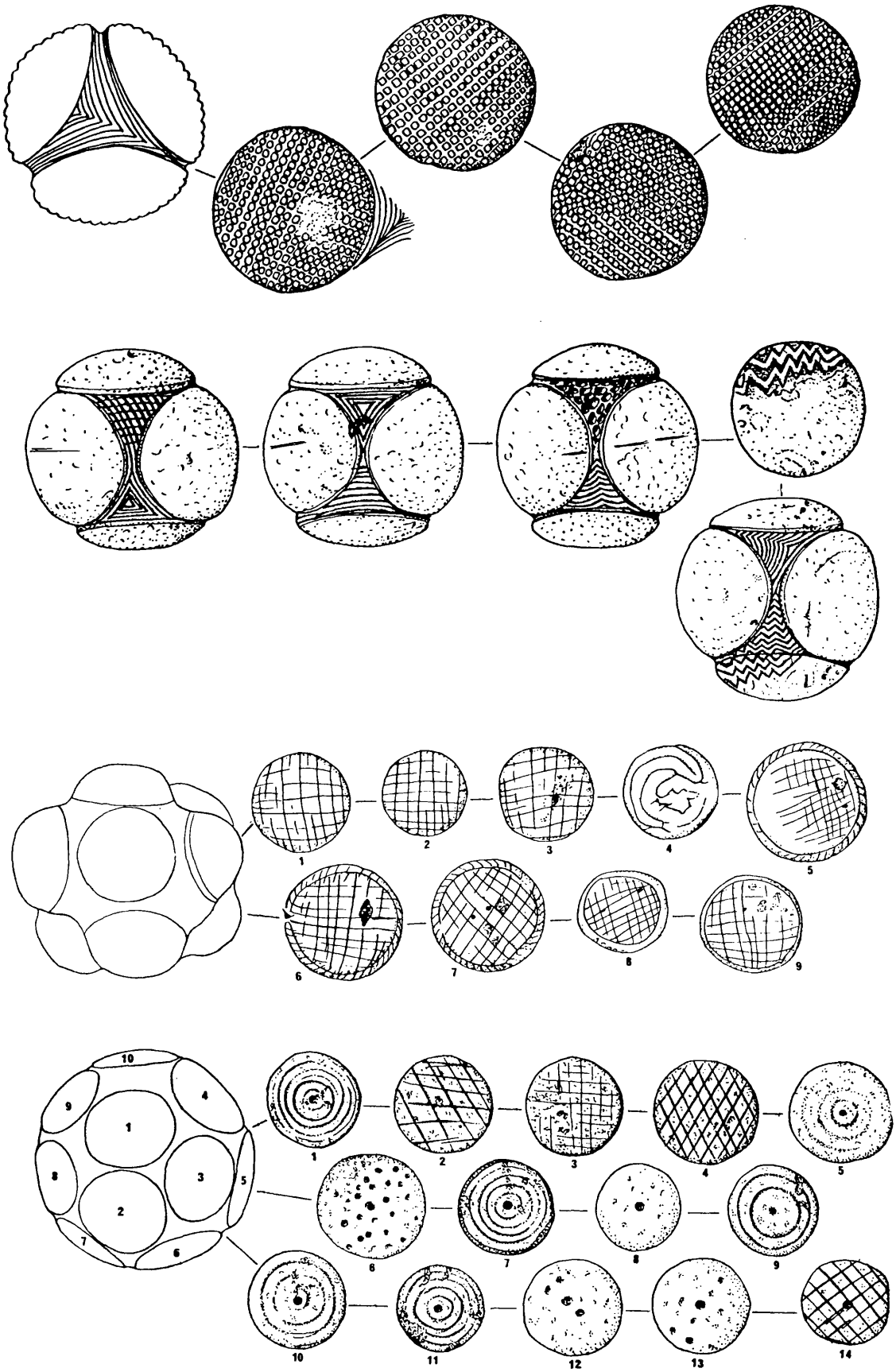


Figure 48: Carved stone balls (From Marshall 1977)

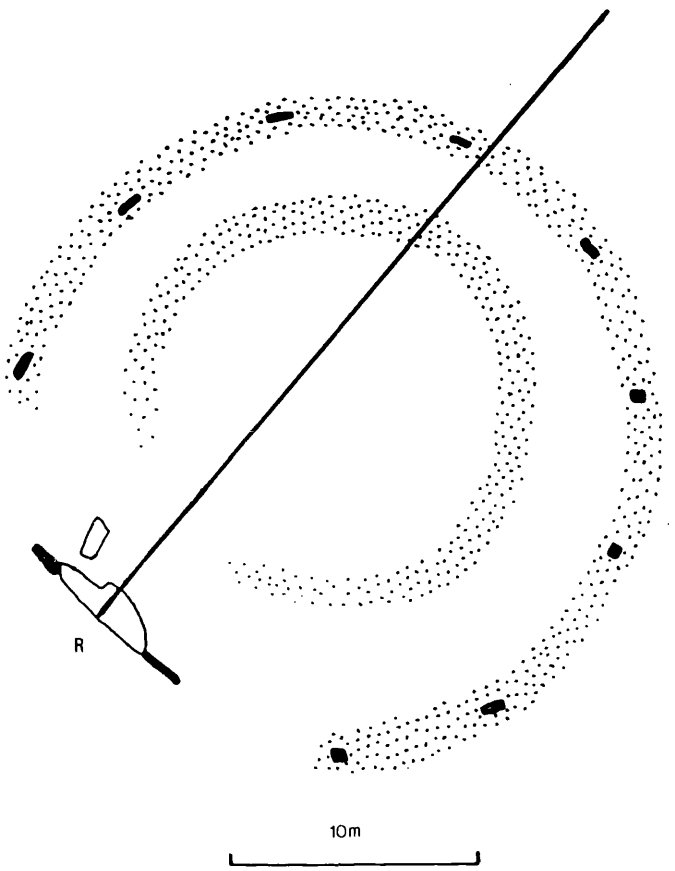


Figure 49: Perpendicular unit of analysis (After Barnatt 1989)

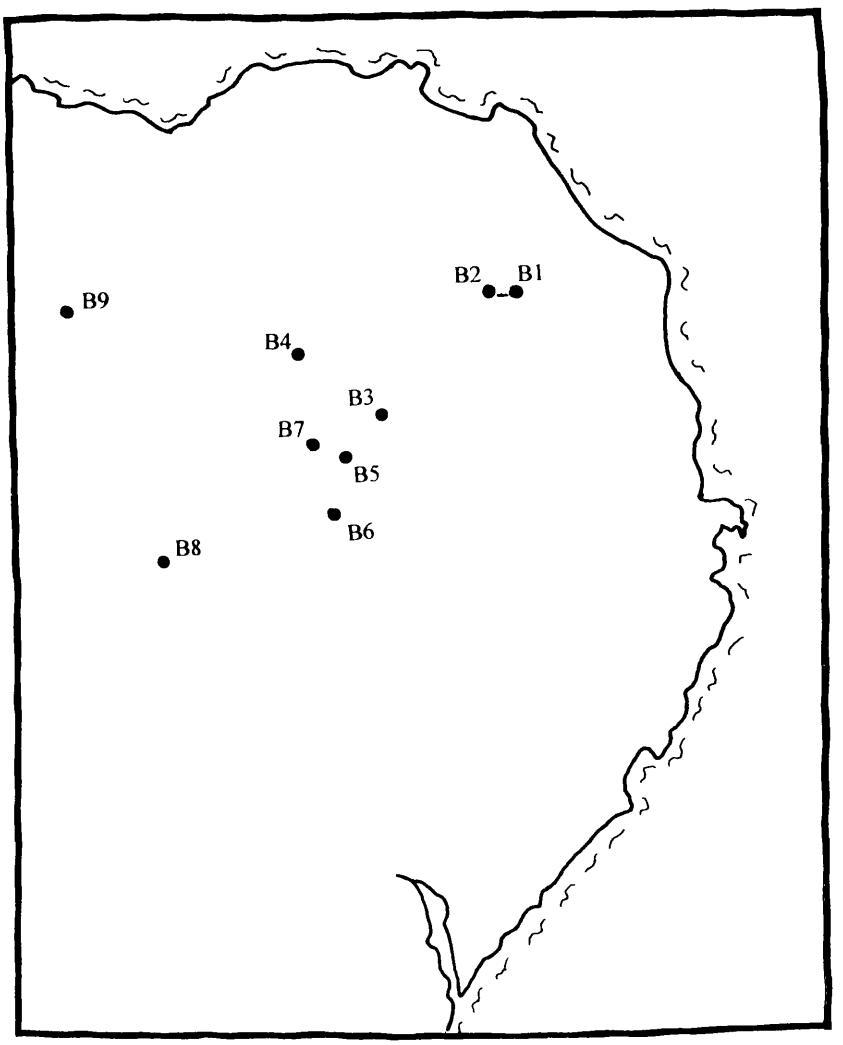


Figure 84: Inter-visibility of Buchan group

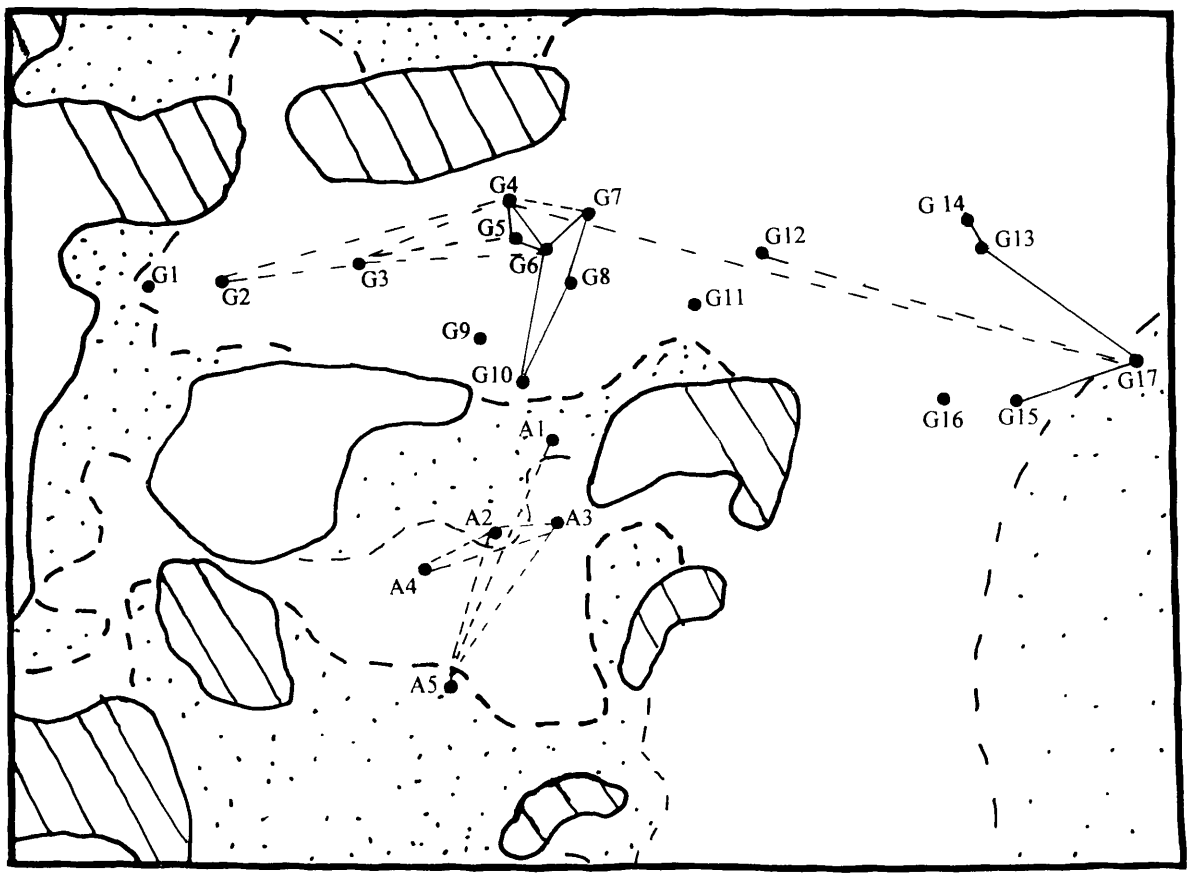


Figure 85: Inter-visibility of Alford and Garioch groups

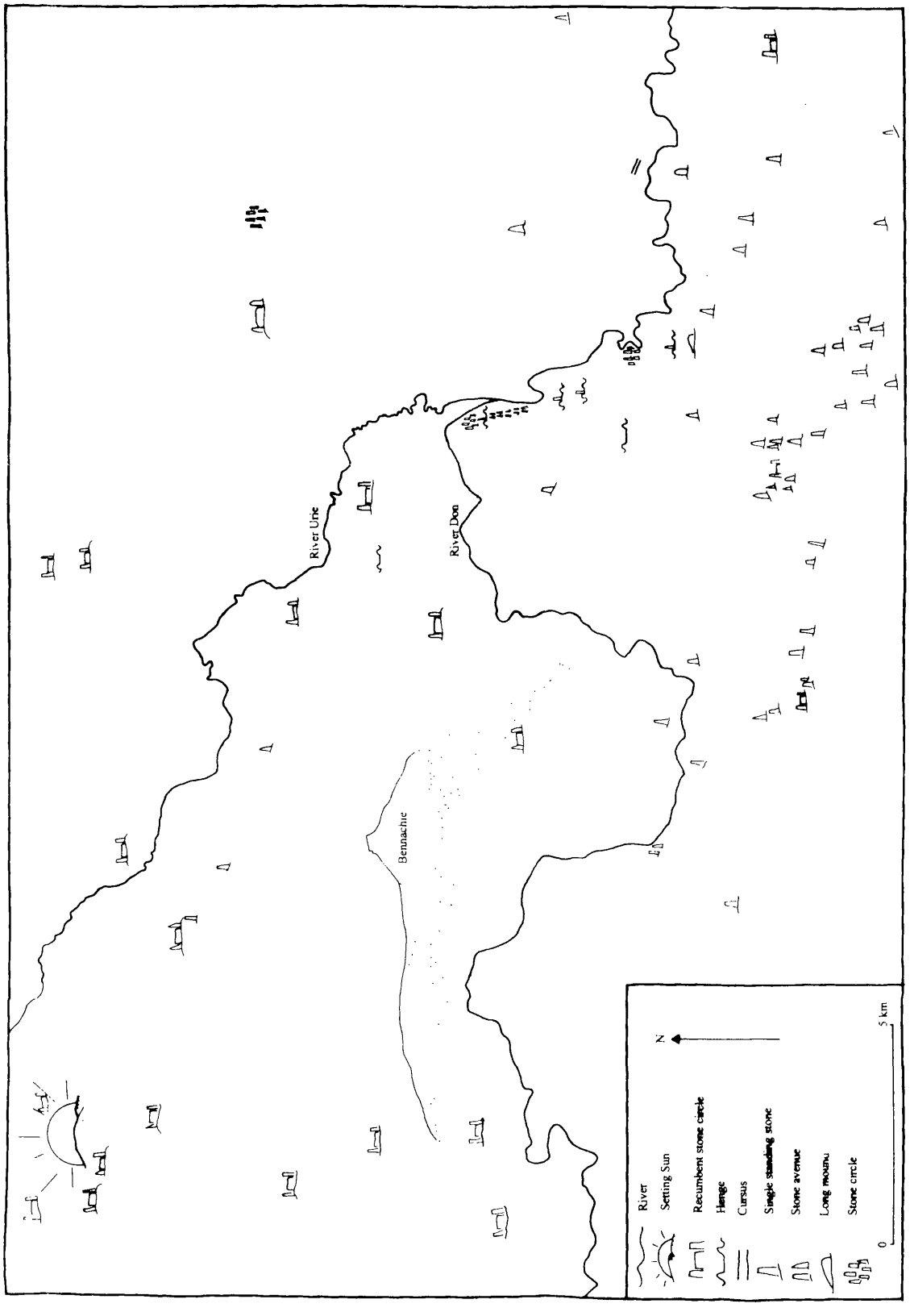


Figure 86: Monuments in area of Don/Urie confluence

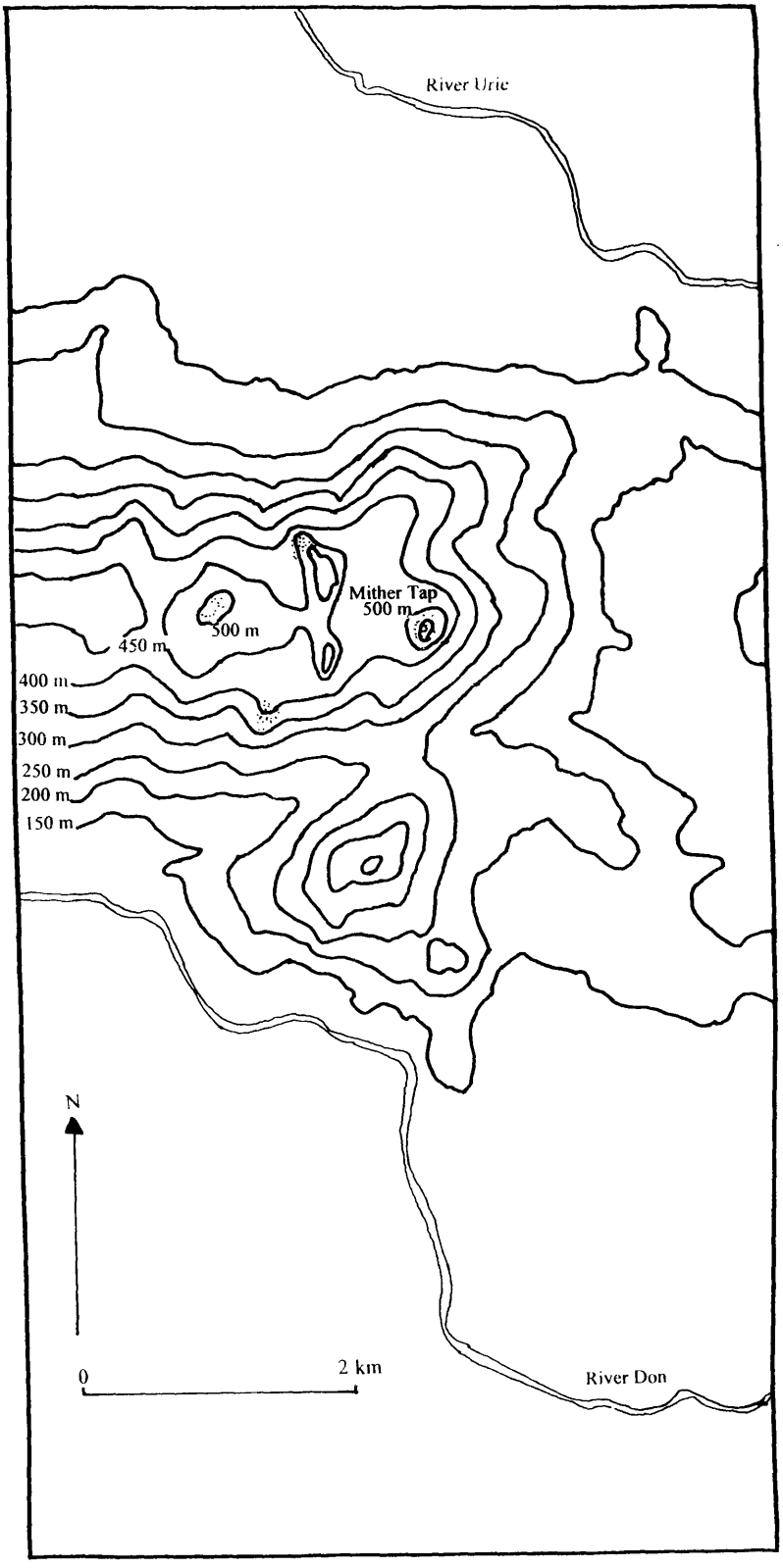


Figure 87: Top of Bennachie

Figure 88: Plan of Castle Fraser (From Burl 1976a)

Figure 89: Plan of Easter Auquorthies (From Burl 1976a)

Figure 90: Plan of Midmar (From Burl 1976a)

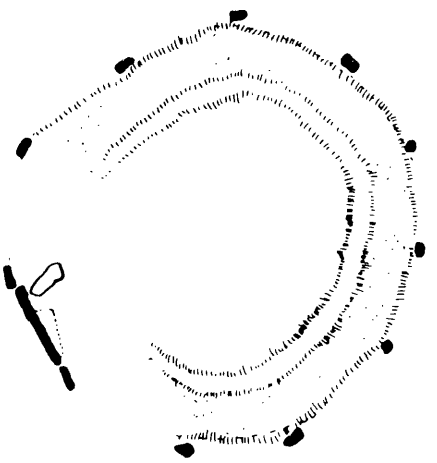
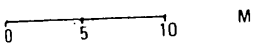


Figure 91: Plan of Sunhoney (From Burl 1976a)



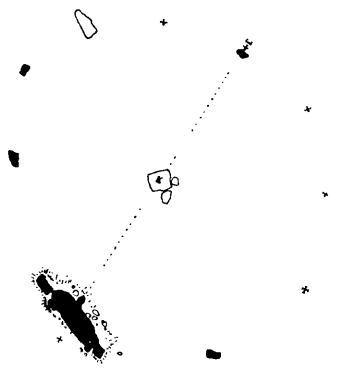


Figure 92: Plan of Cothiemuir (From Coles 1902)

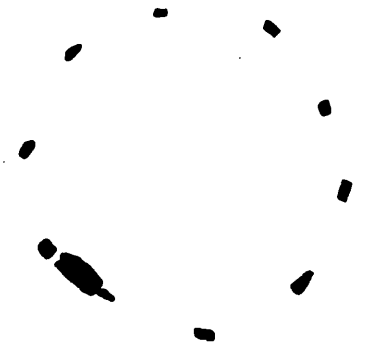


Figure 93: Plan of Loanhead of Daviot (After Lynch 1998)

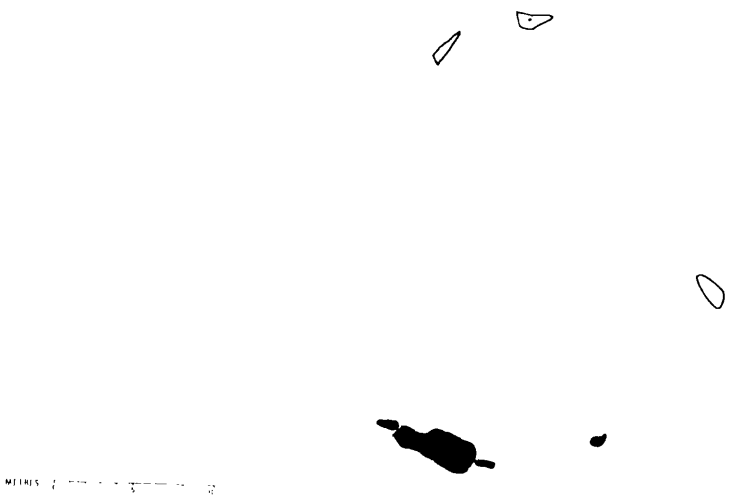


Figure 94: Plan of Old Keig (After Childe 1934)

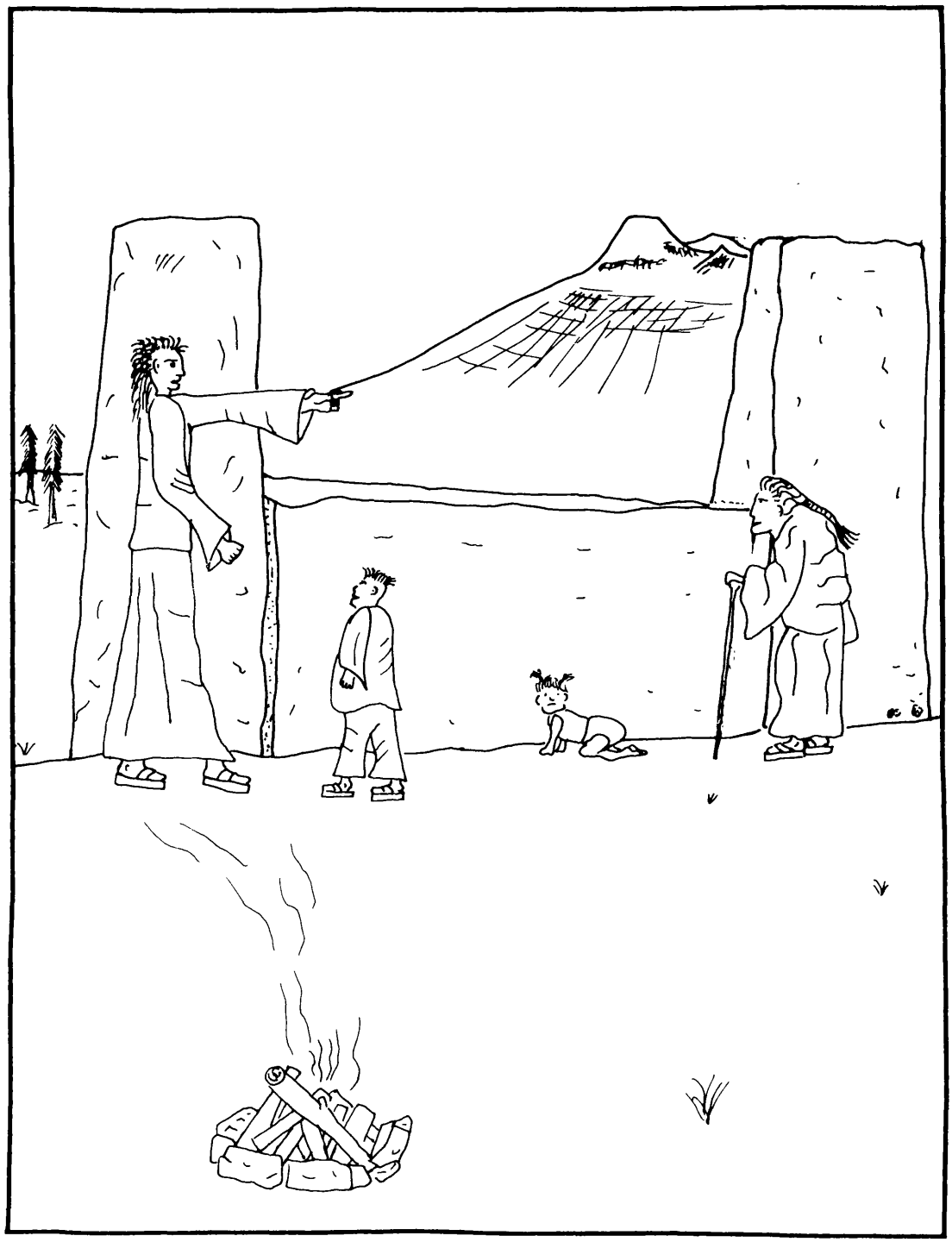


Figure 95: Variation in experience of monument in relation to age/height

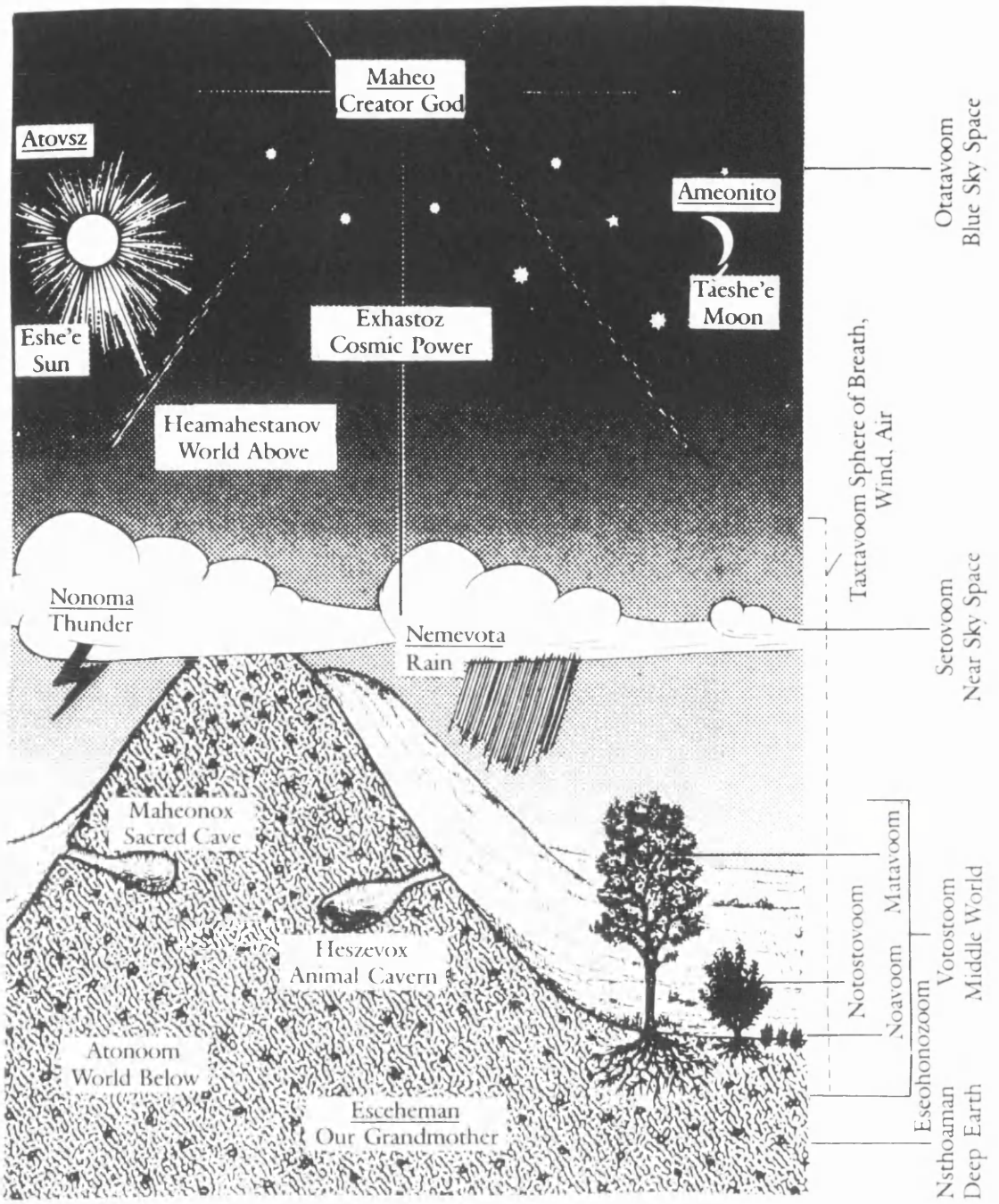


Figure 96: Cosmological tiers of the world (From Schlesier 1987)

THE NEOLITHIC AND BRONZE AGES OF ABERDEENSHIRE:

A STUDY OF MATERIALITY AND HISTORICAL PHENOMENOLOGY

Gavin MacGregor

Figures 50 - 80

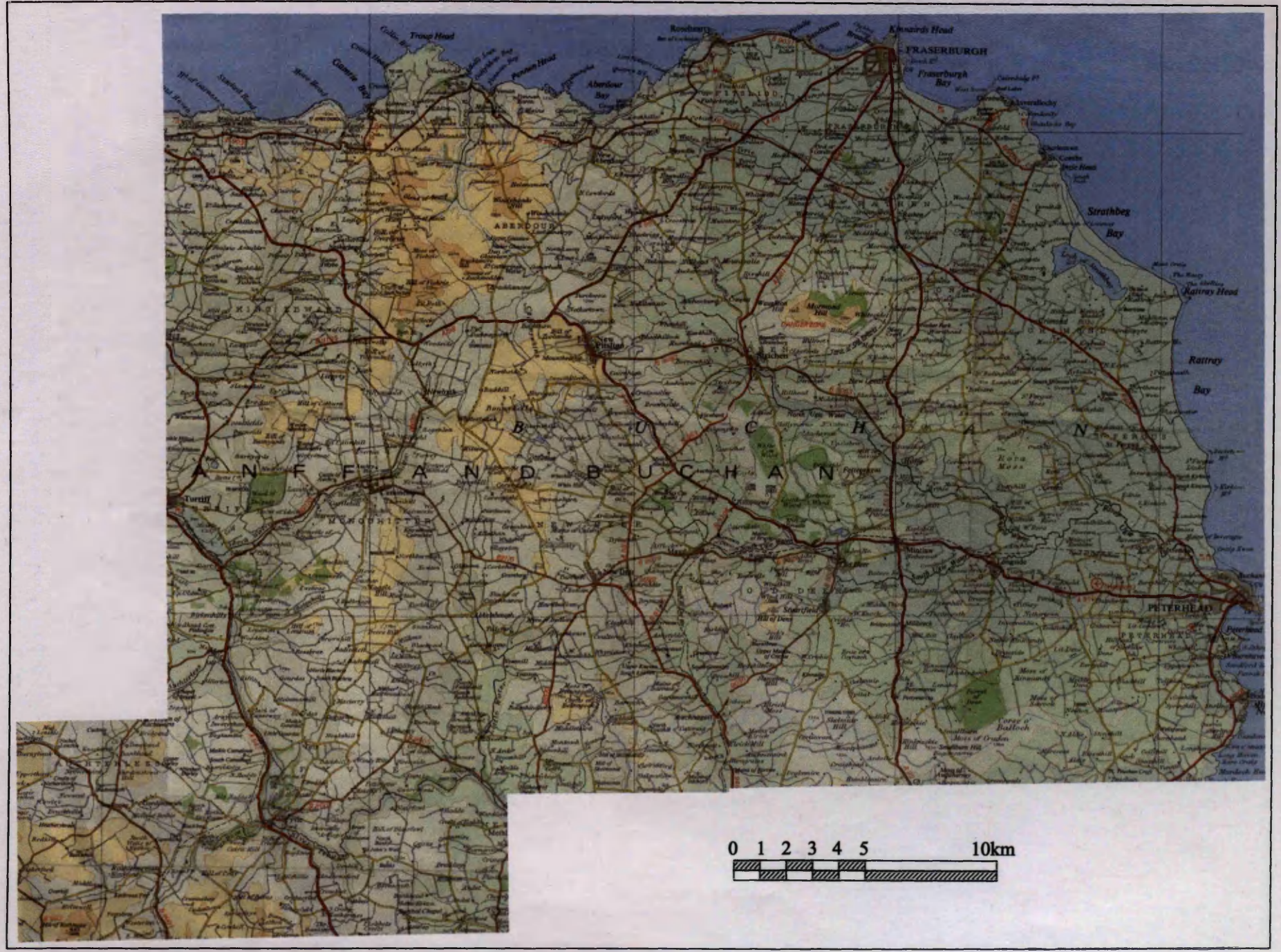


Figure 50: Visual field Buchan base map

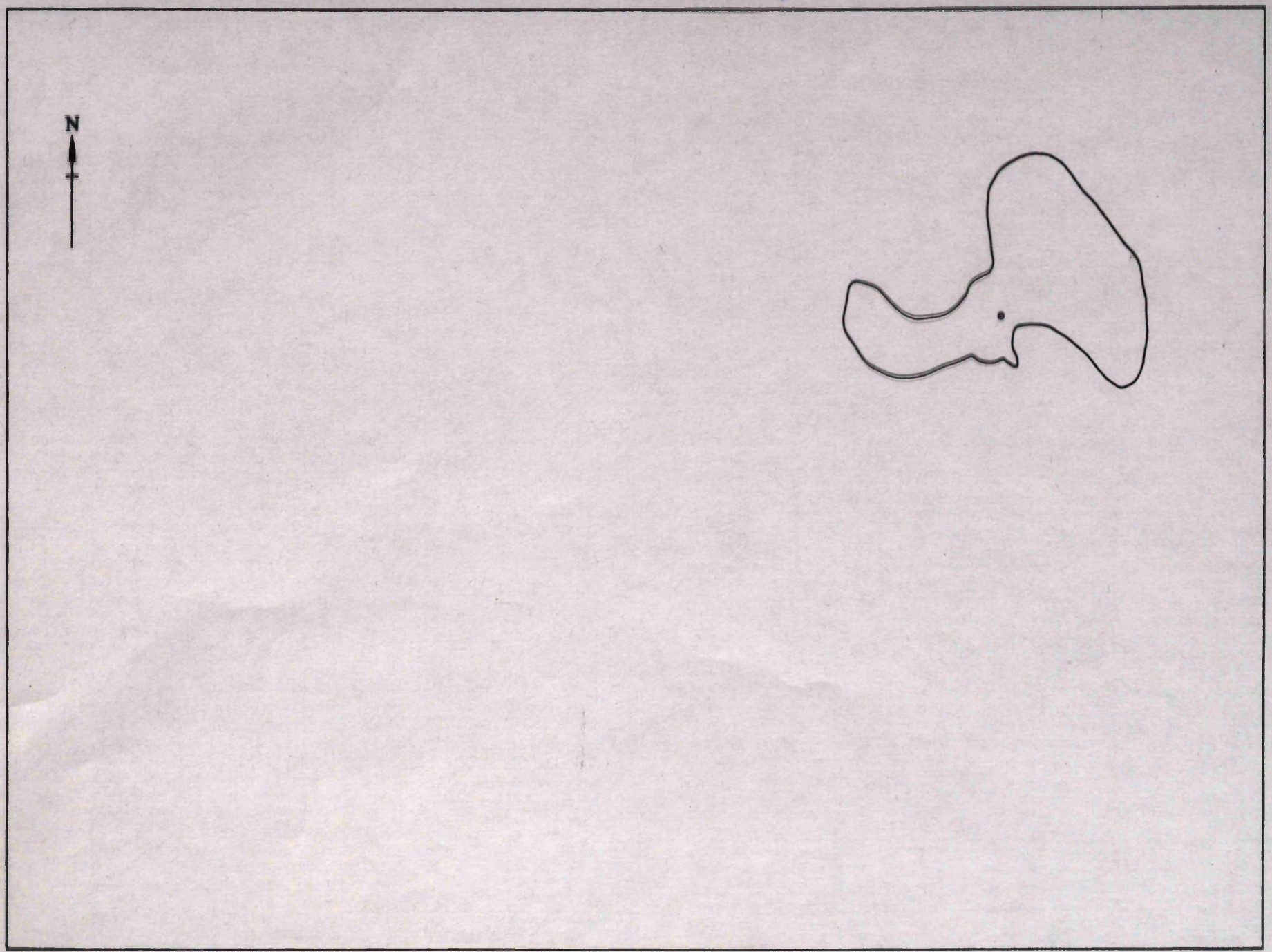


Figure 51: Visual field B1

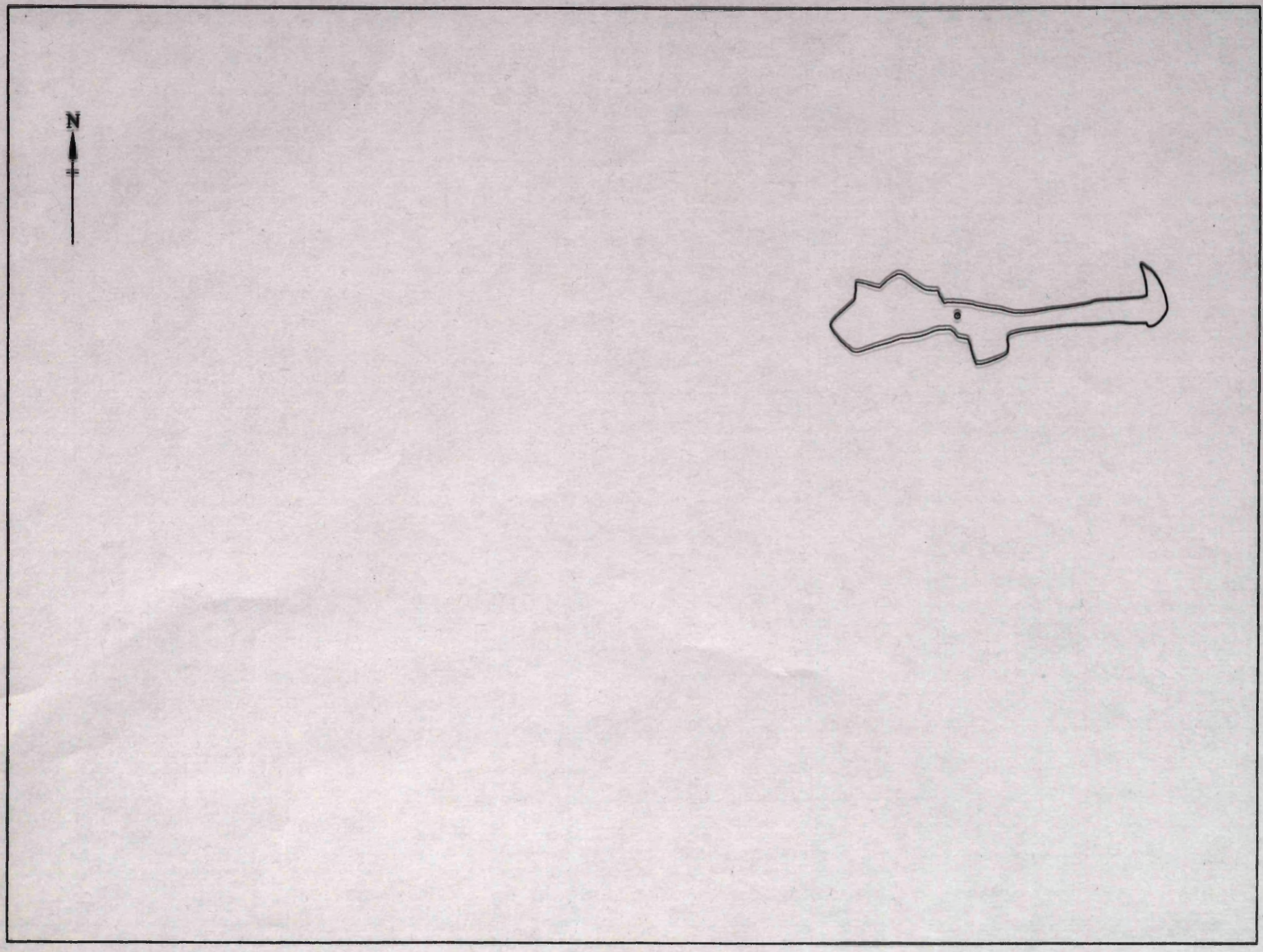


Figure 52: Visual field B2

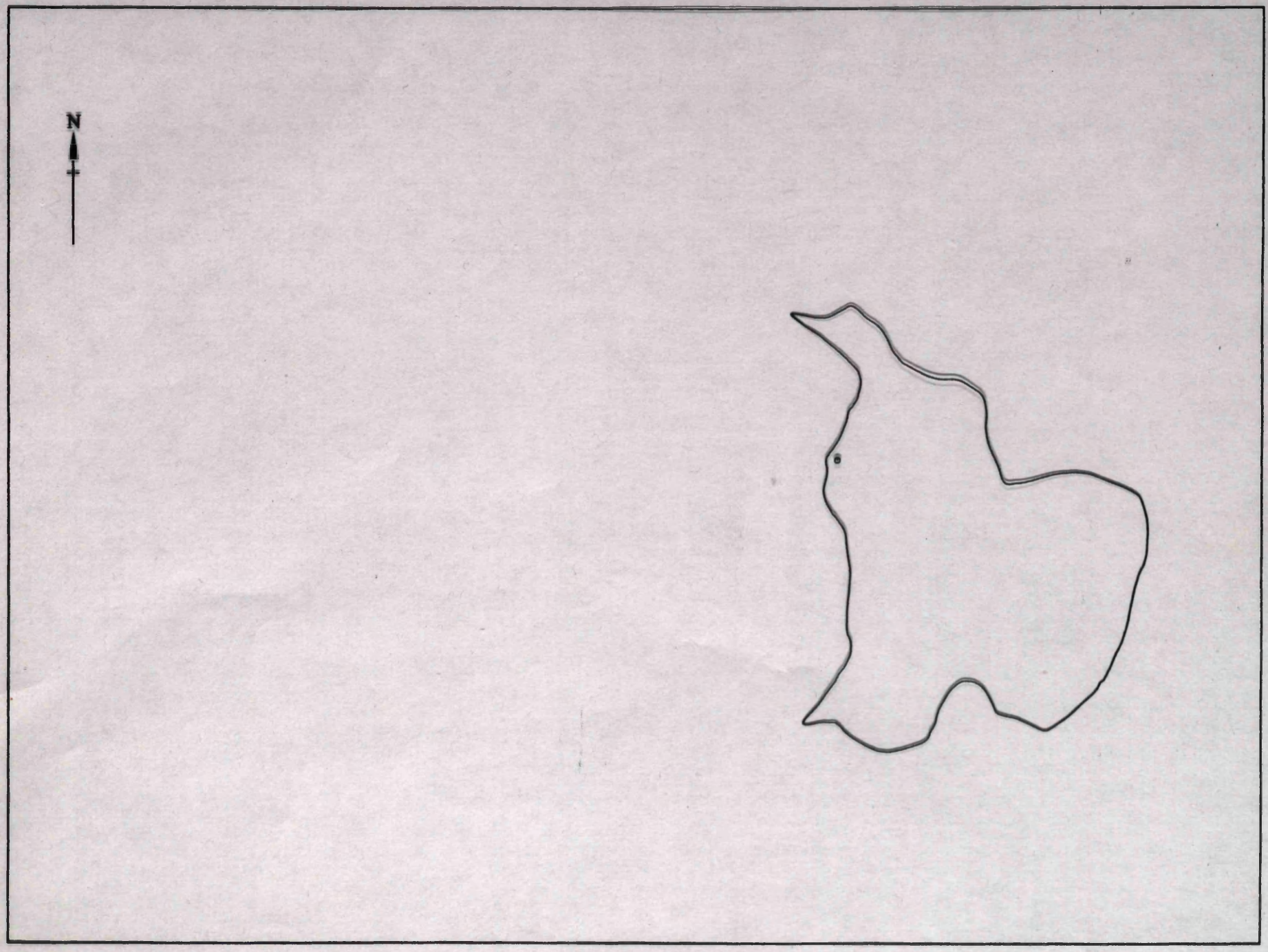


Figure 53: Visual field B3

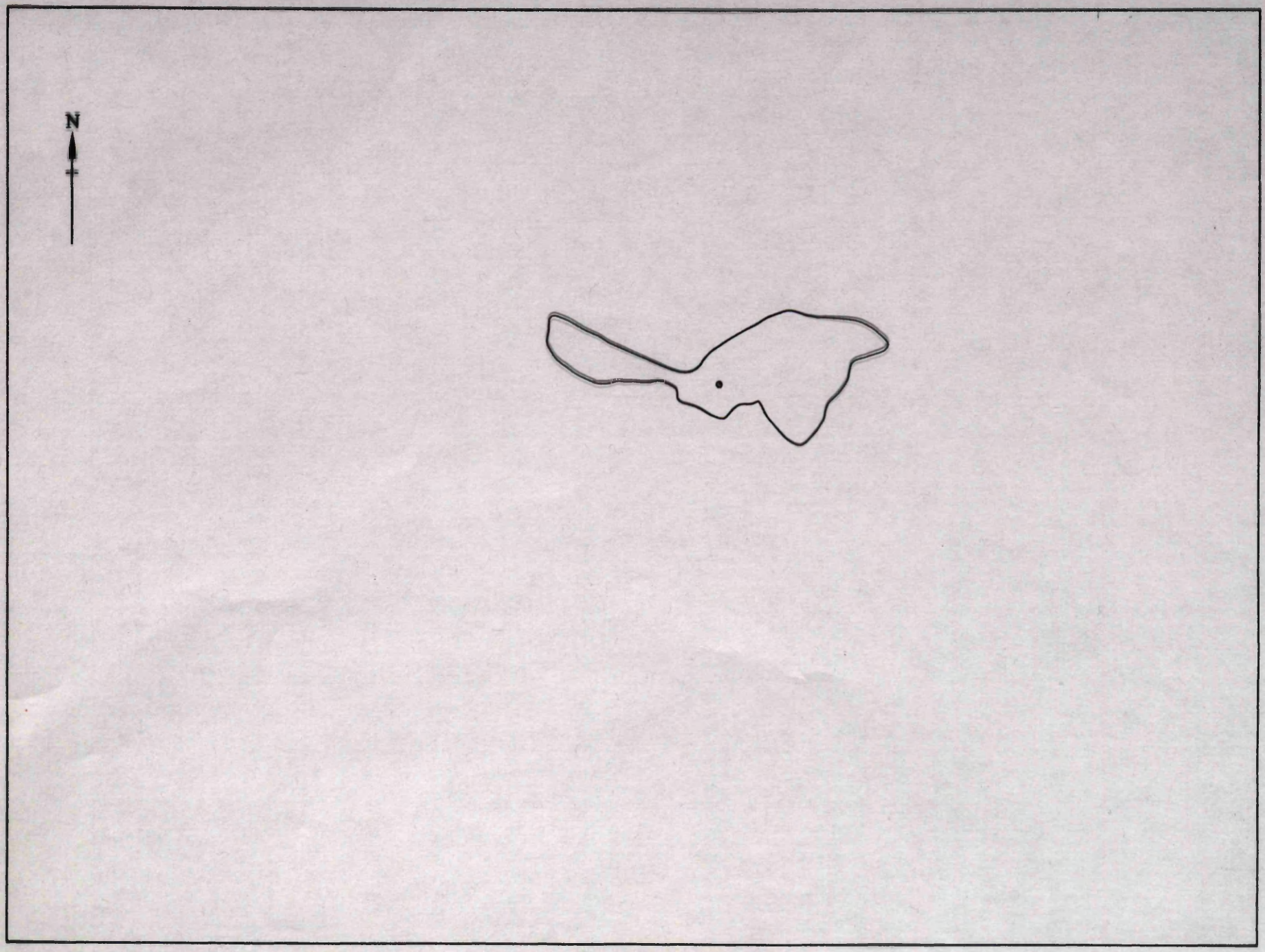


Figure 54: Visual field B4

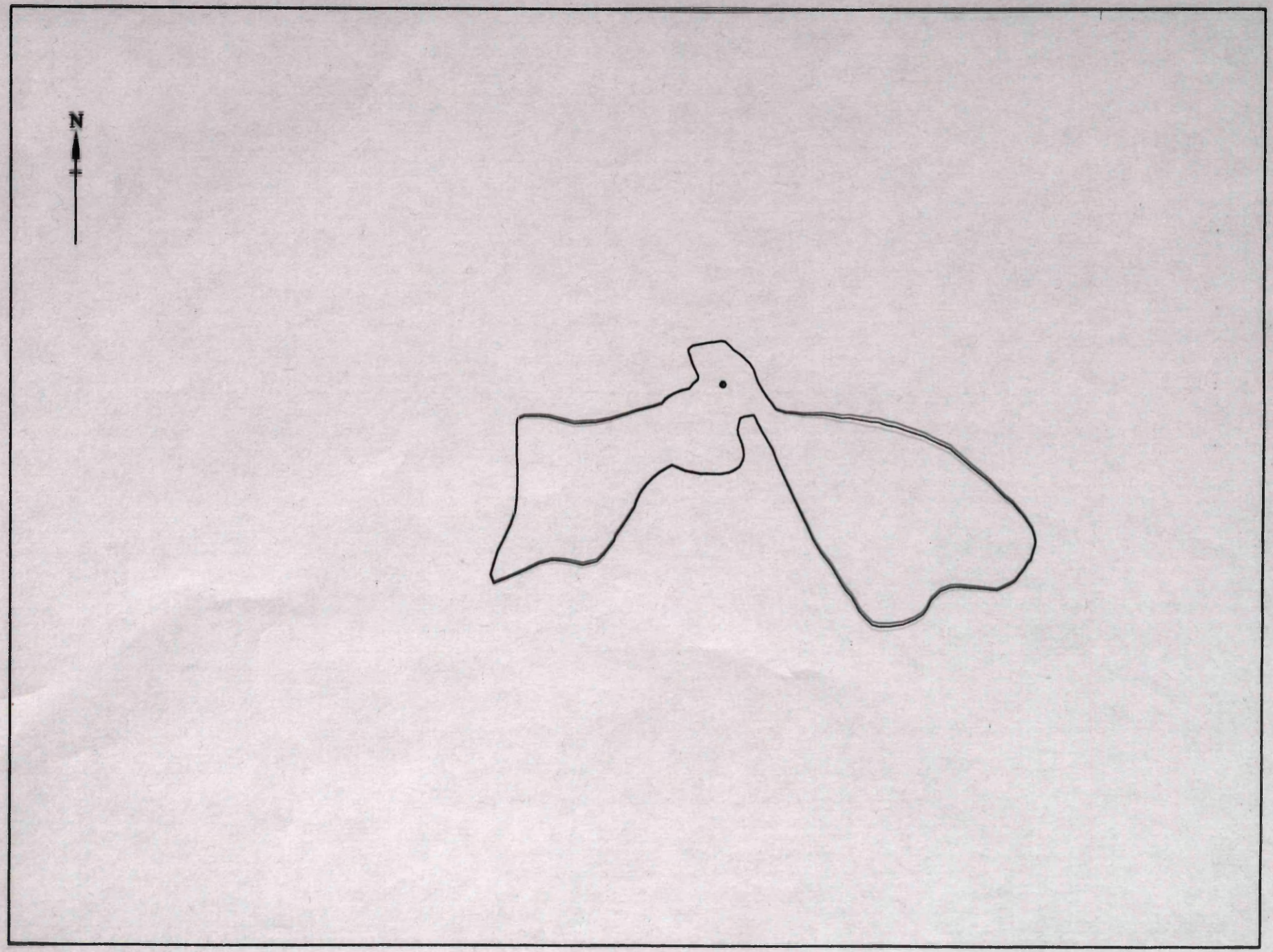


Figure 55: Visual field B5

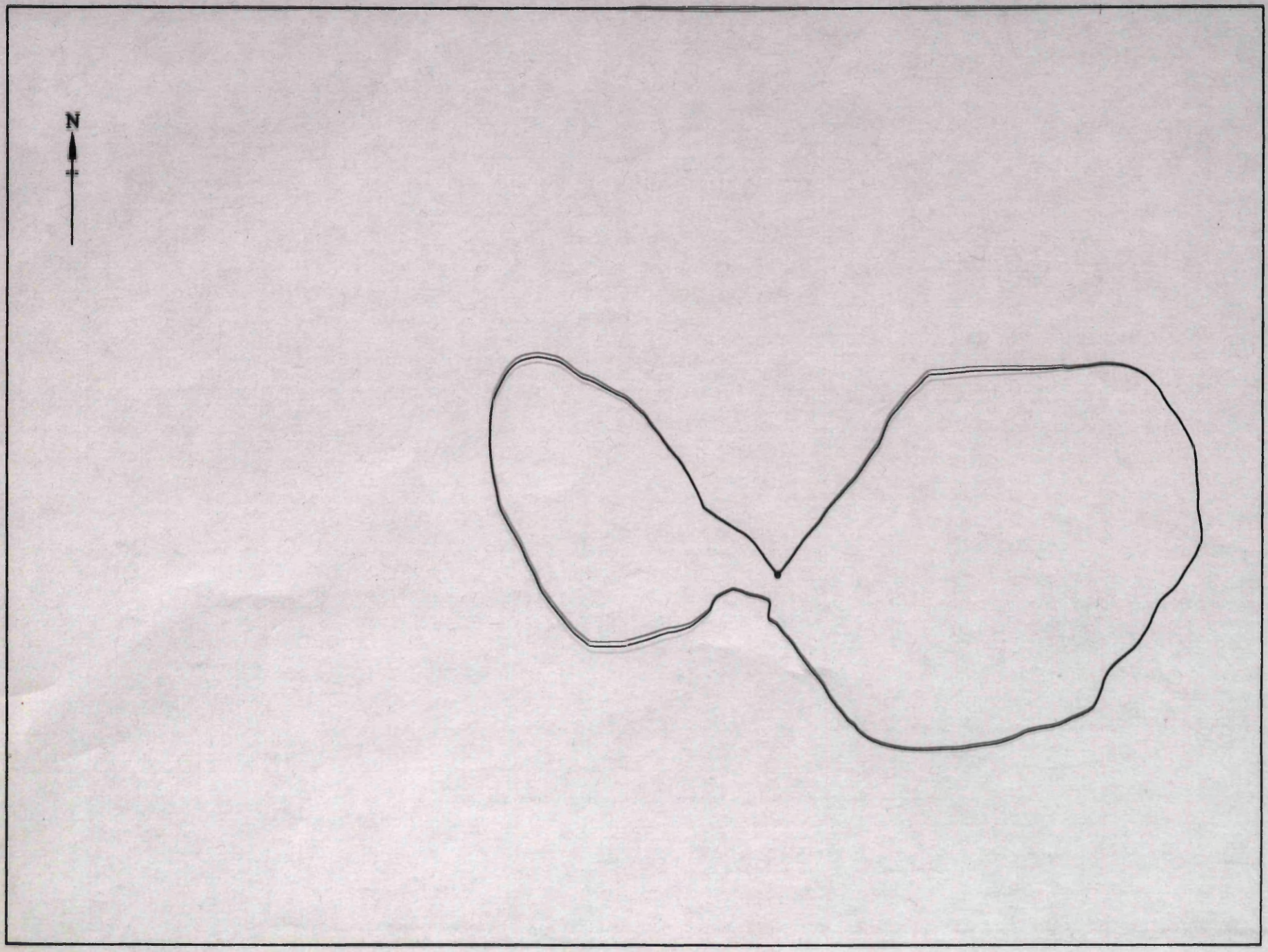


Figure 56: Visual field B6

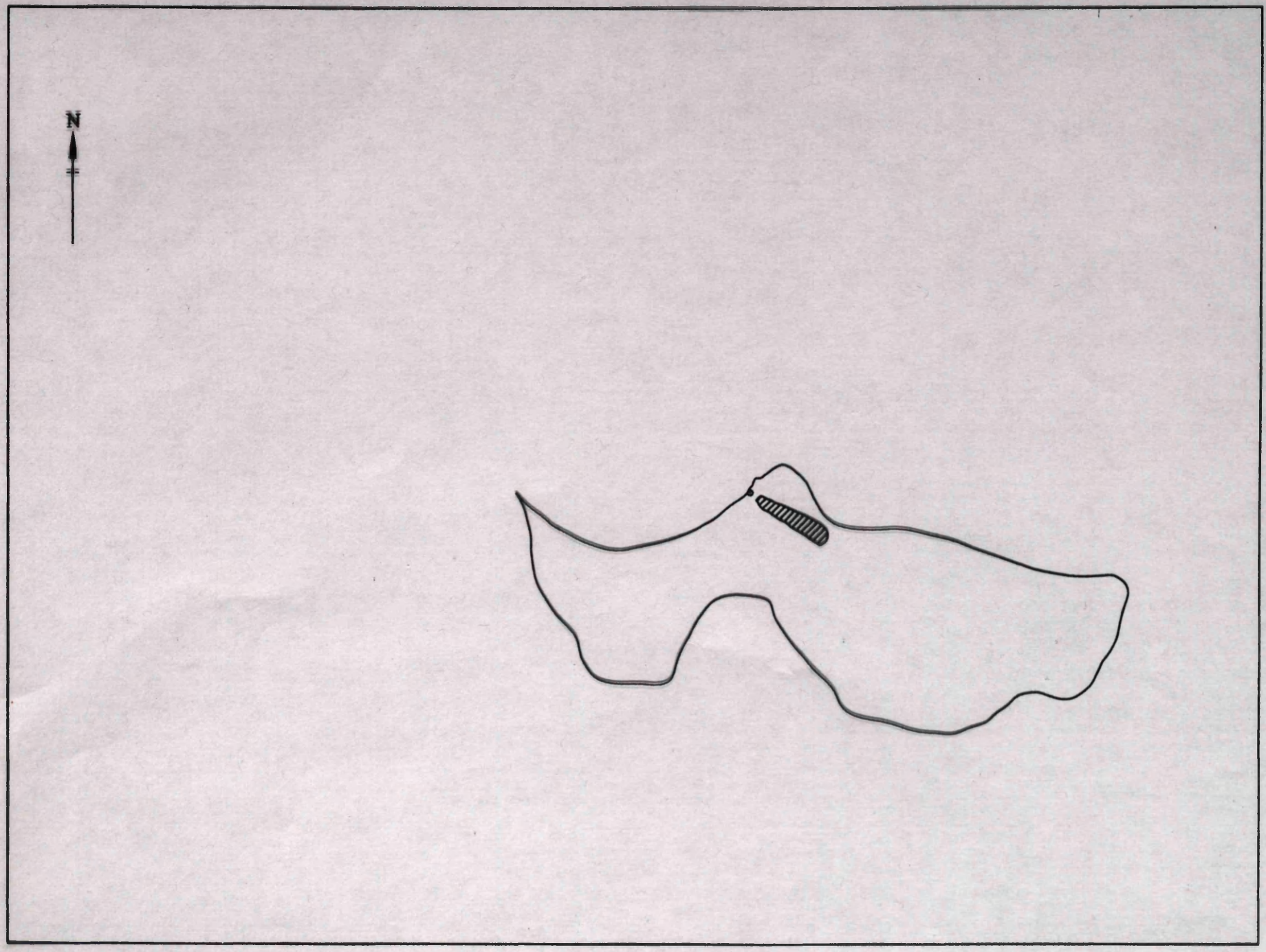


Figure 57: Visual field B7

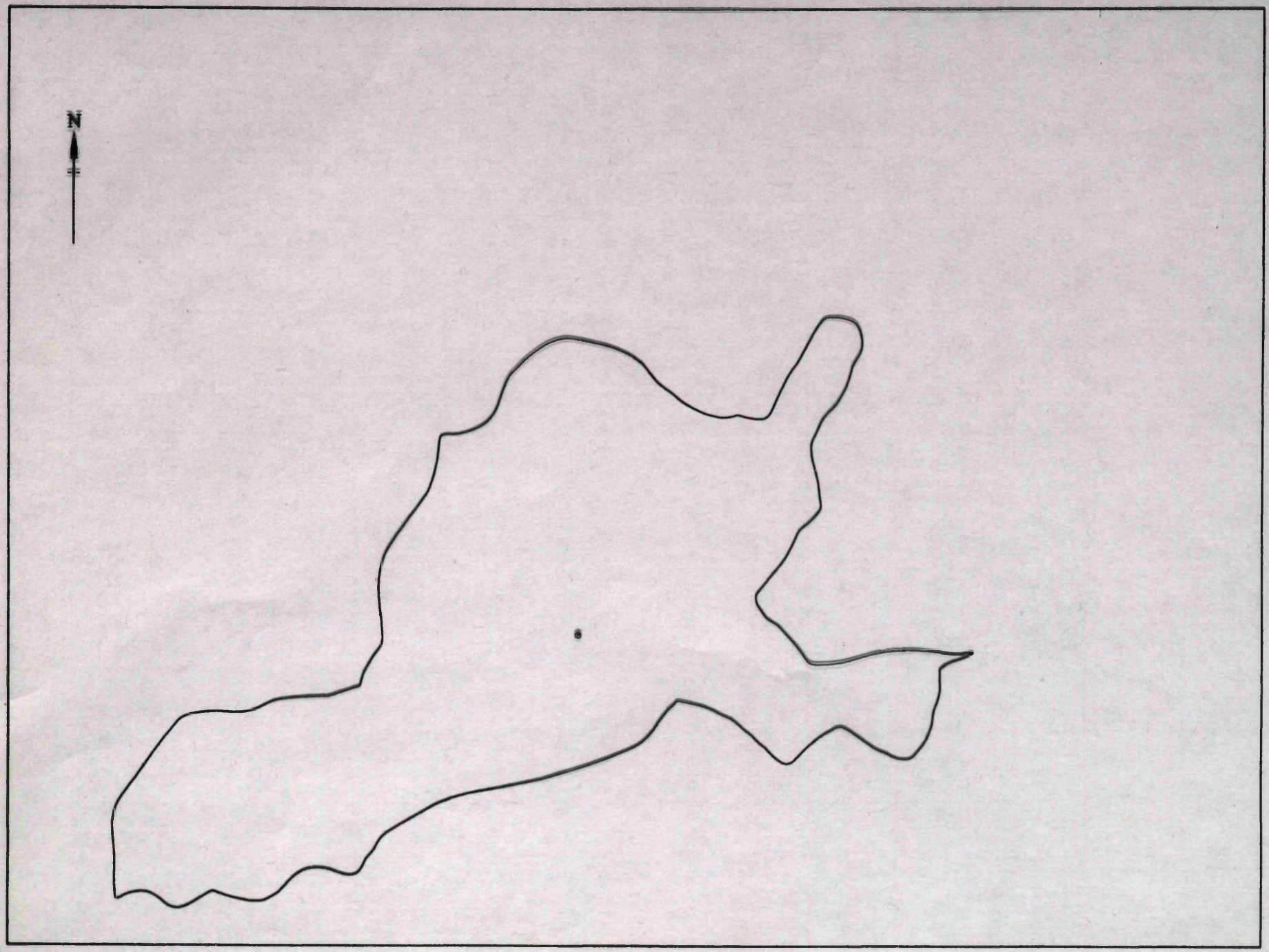


Figure 58: Visual field B8

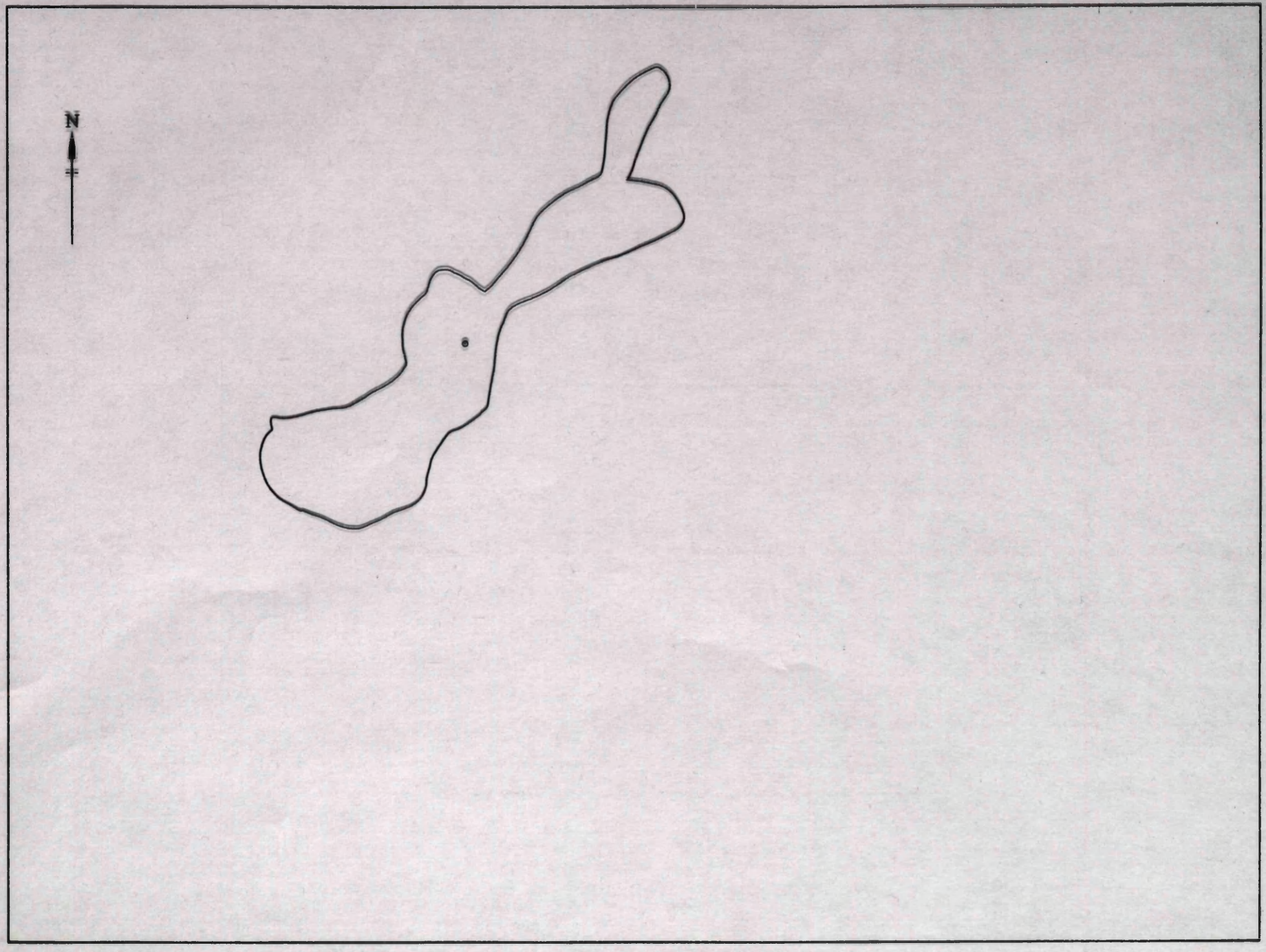
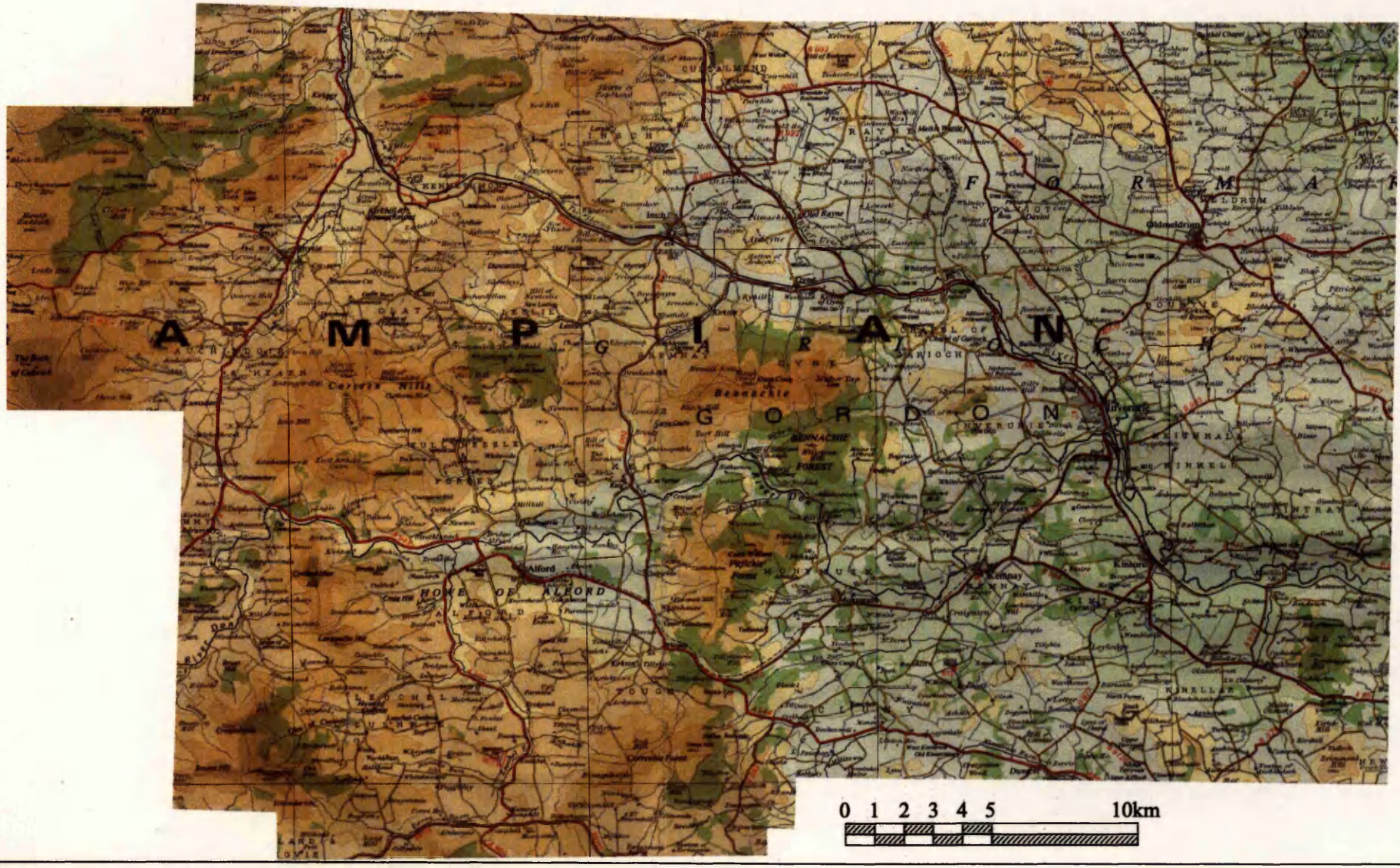


Figure 59: Visual field B9



Figures 60 & 66: Visual fields Alford & Garioch base map

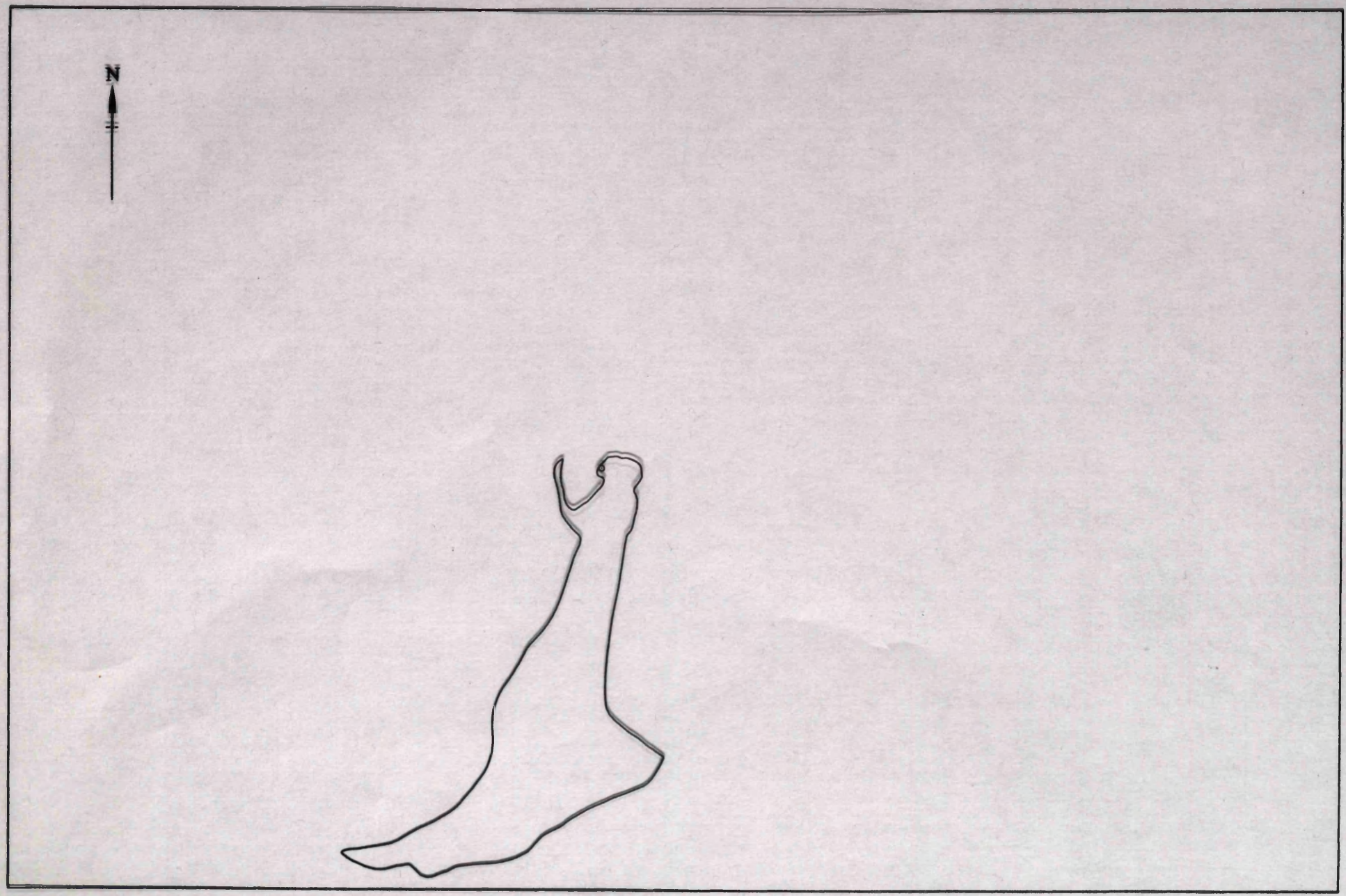


Figure 61: Visual field A1

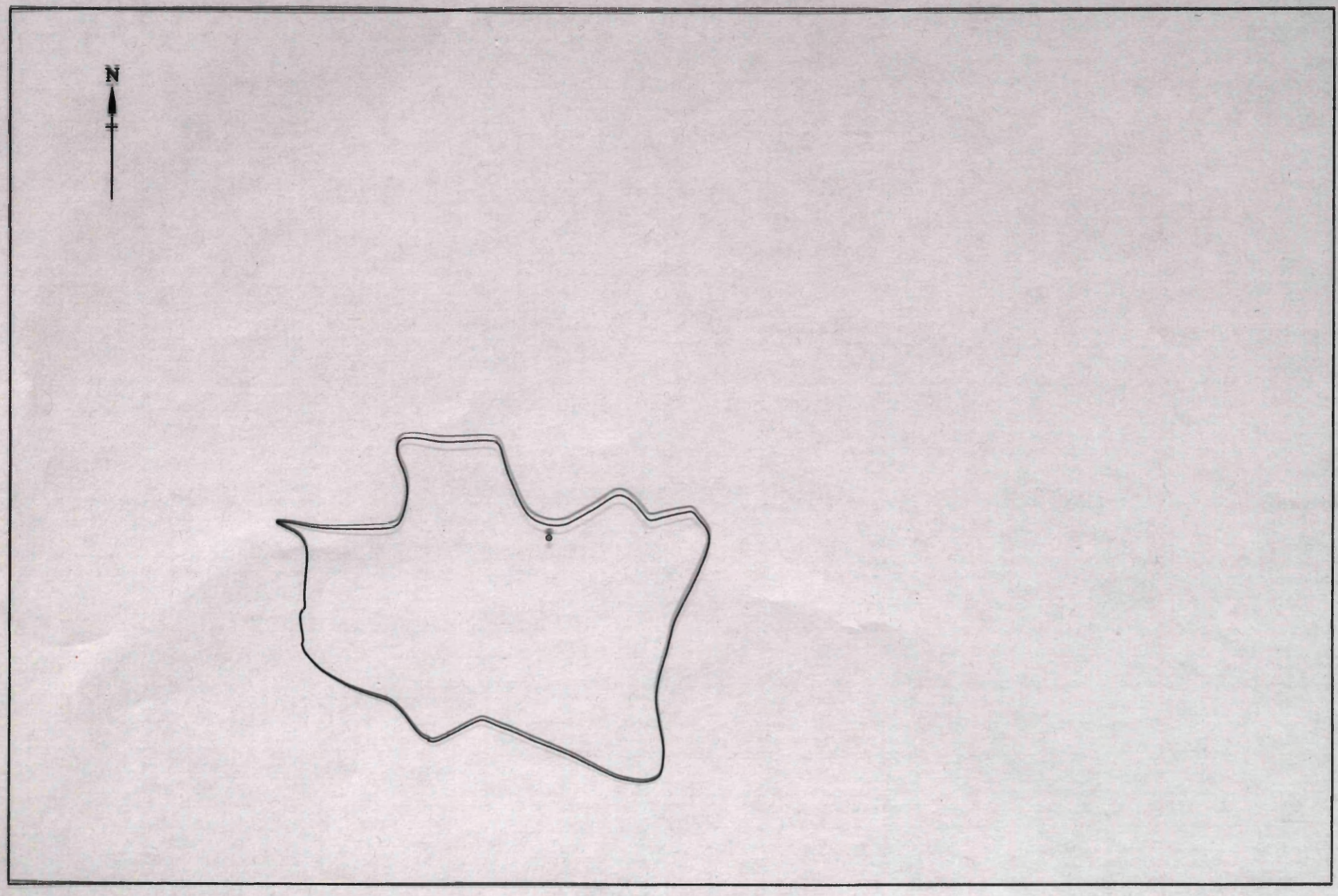


Figure 62: Visual field A2

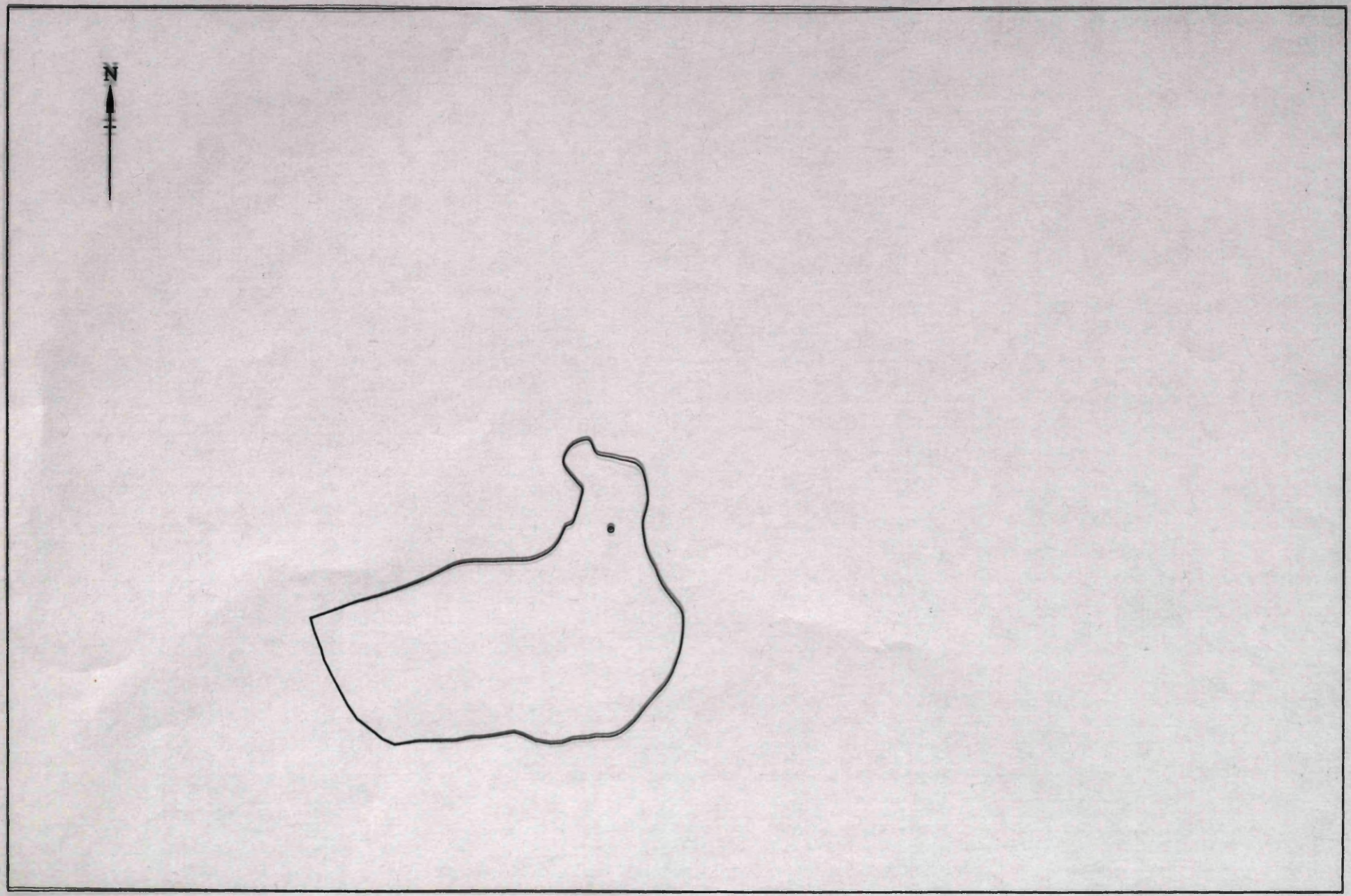


Figure 63: Visual field A3

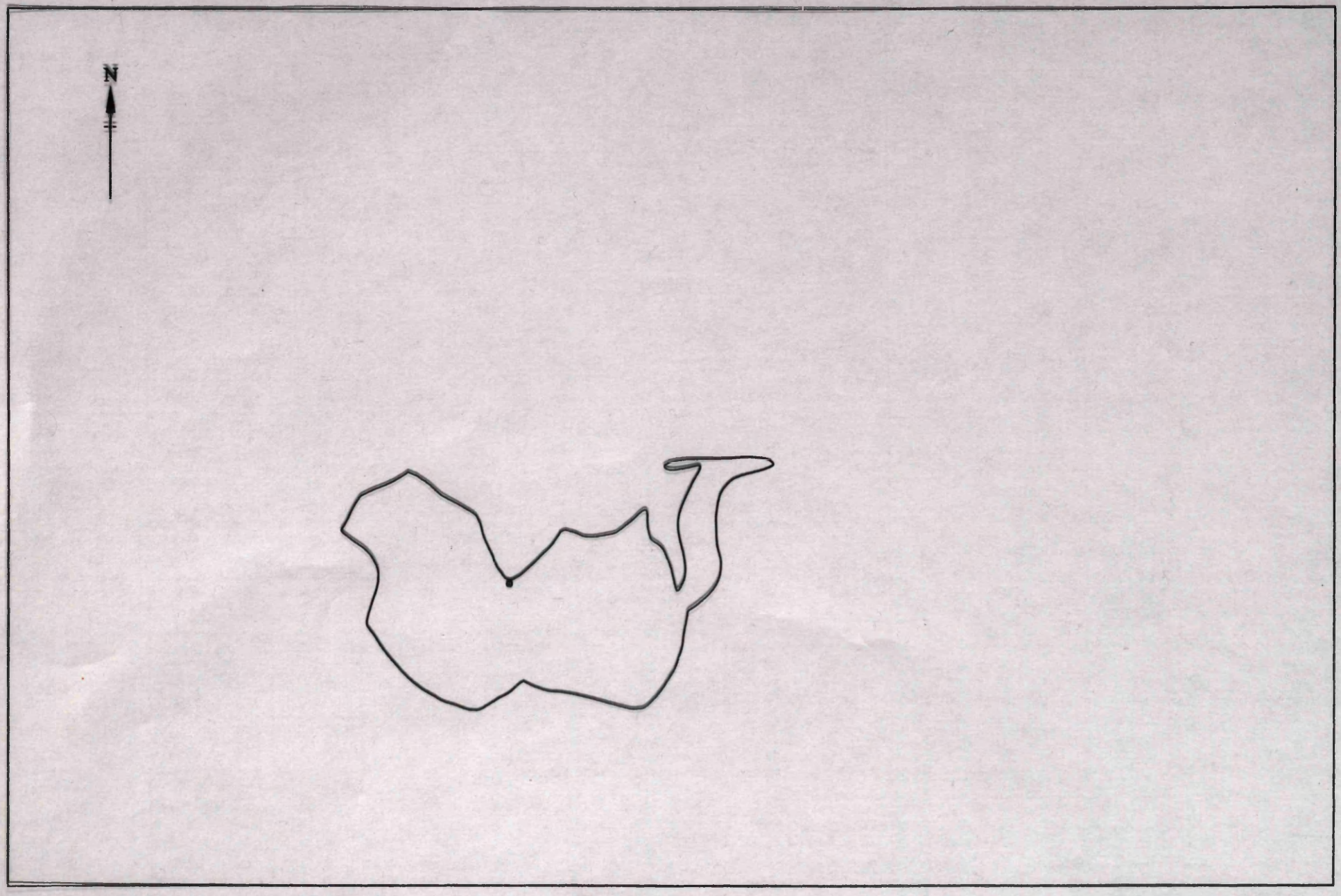


Figure 64: Visual field A4

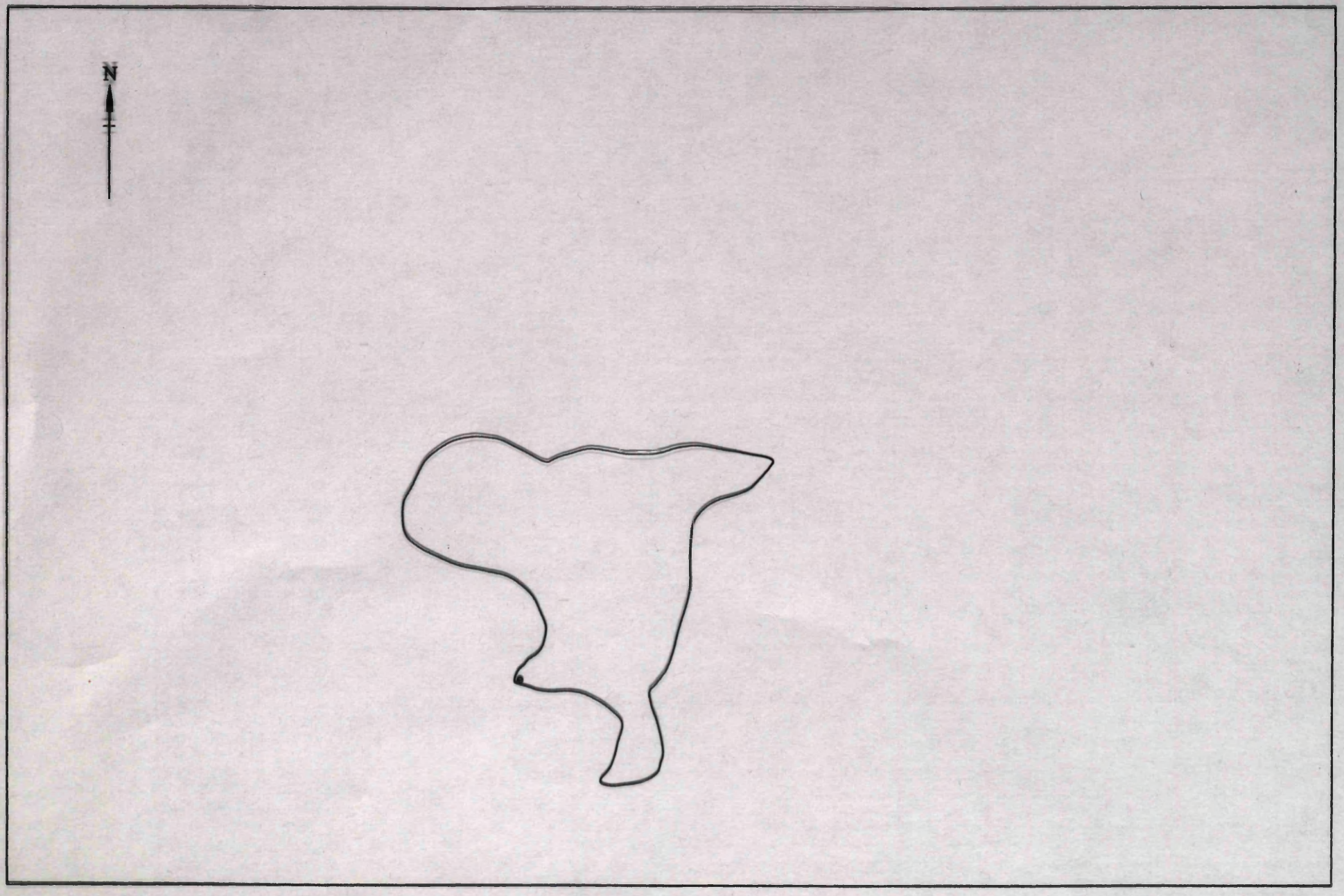


Figure 65: Visual field A5

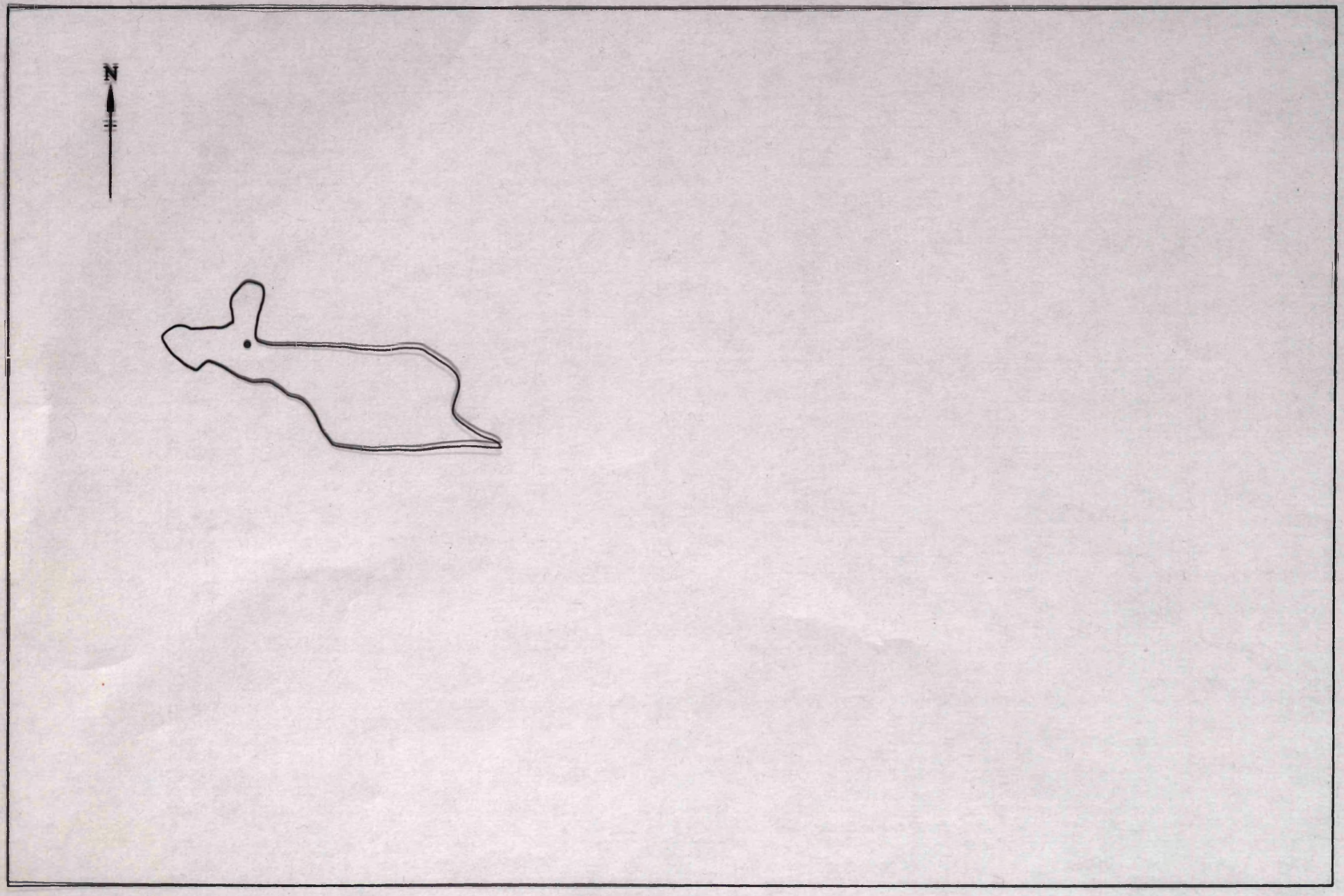


Figure 67: Visual field G1

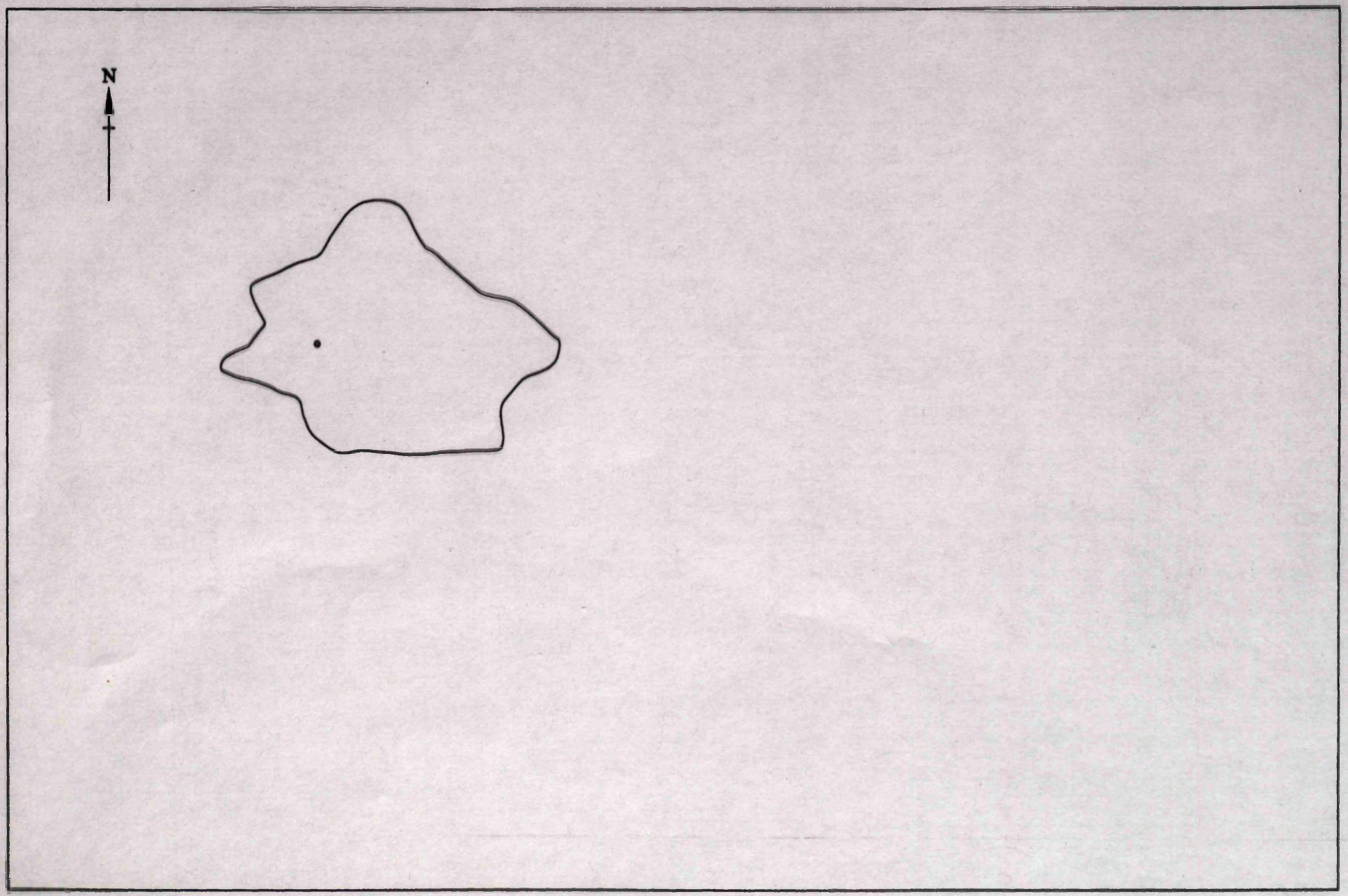


Figure 68: Visual field G2

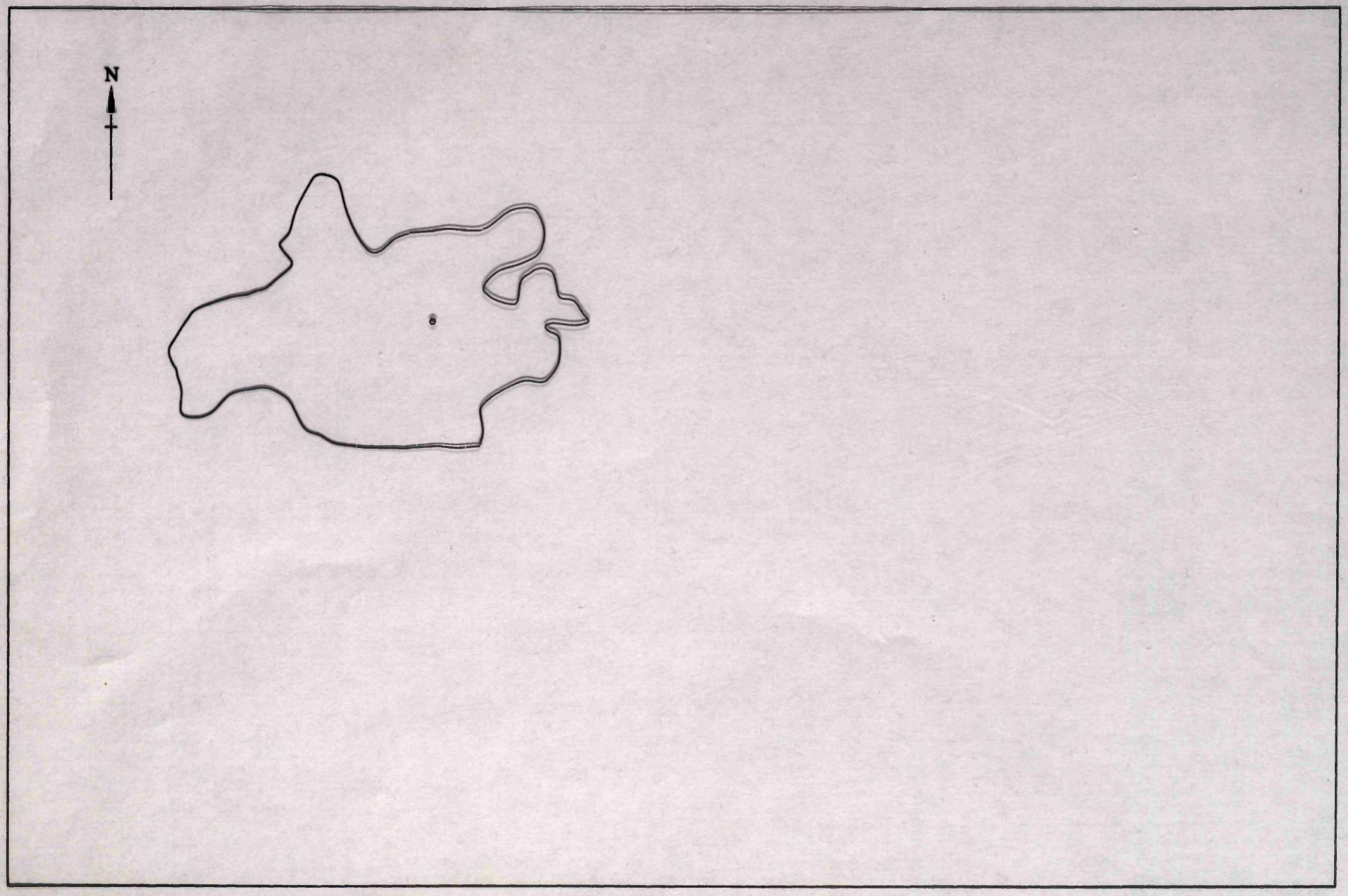


Figure 69: Visual field G3

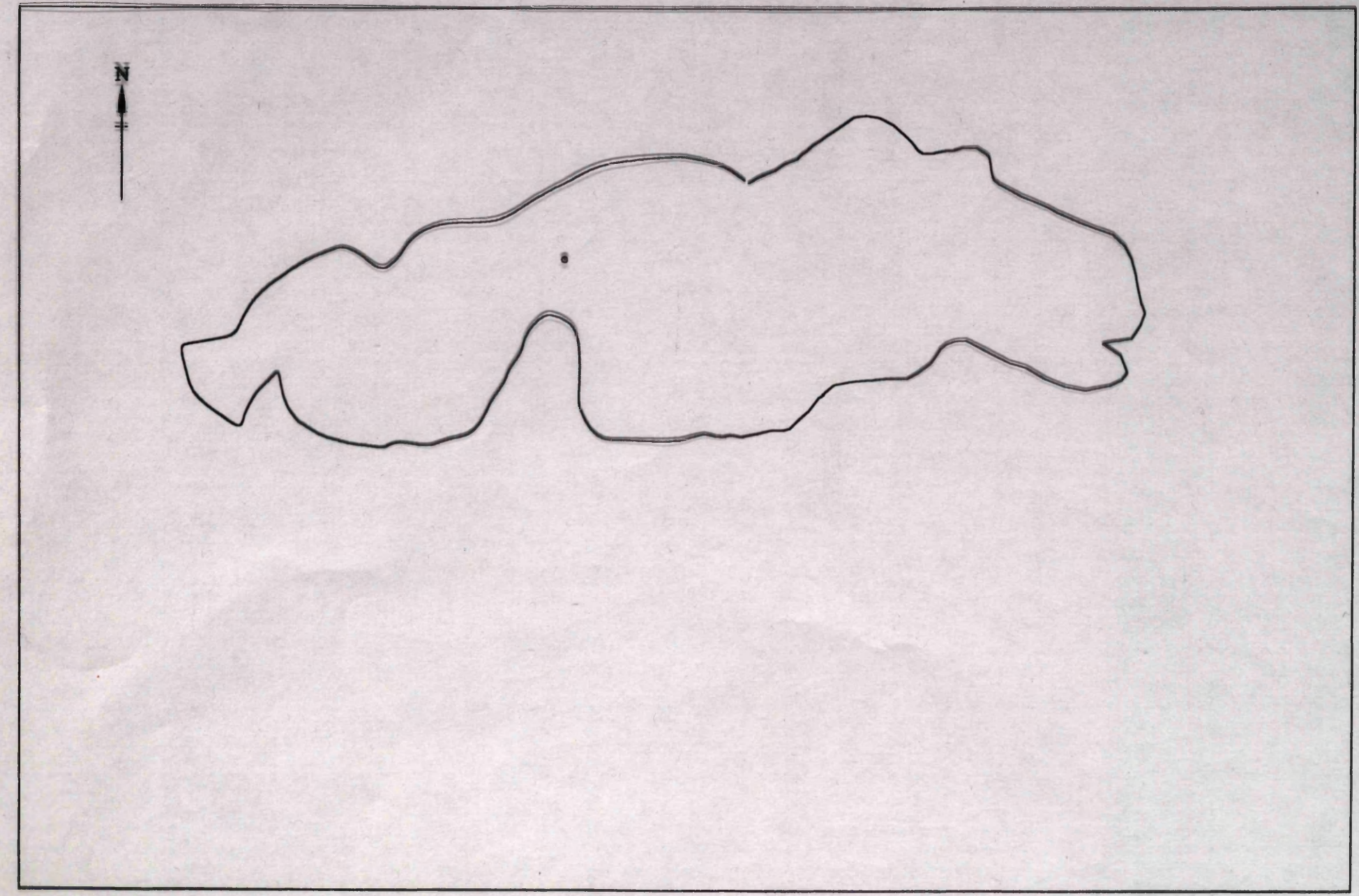


Figure 70: Visual field G4

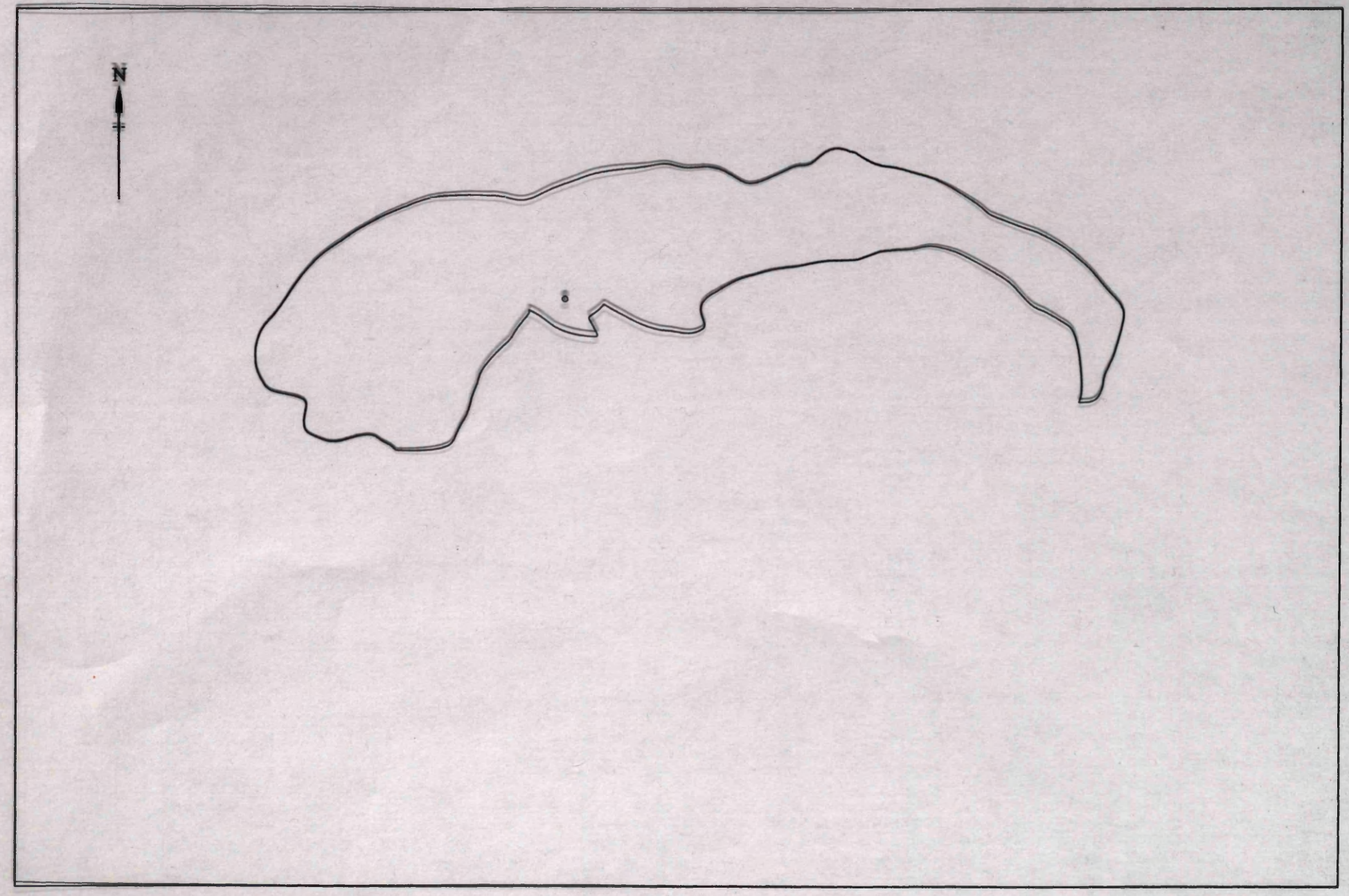


Figure 71: Visual field G5

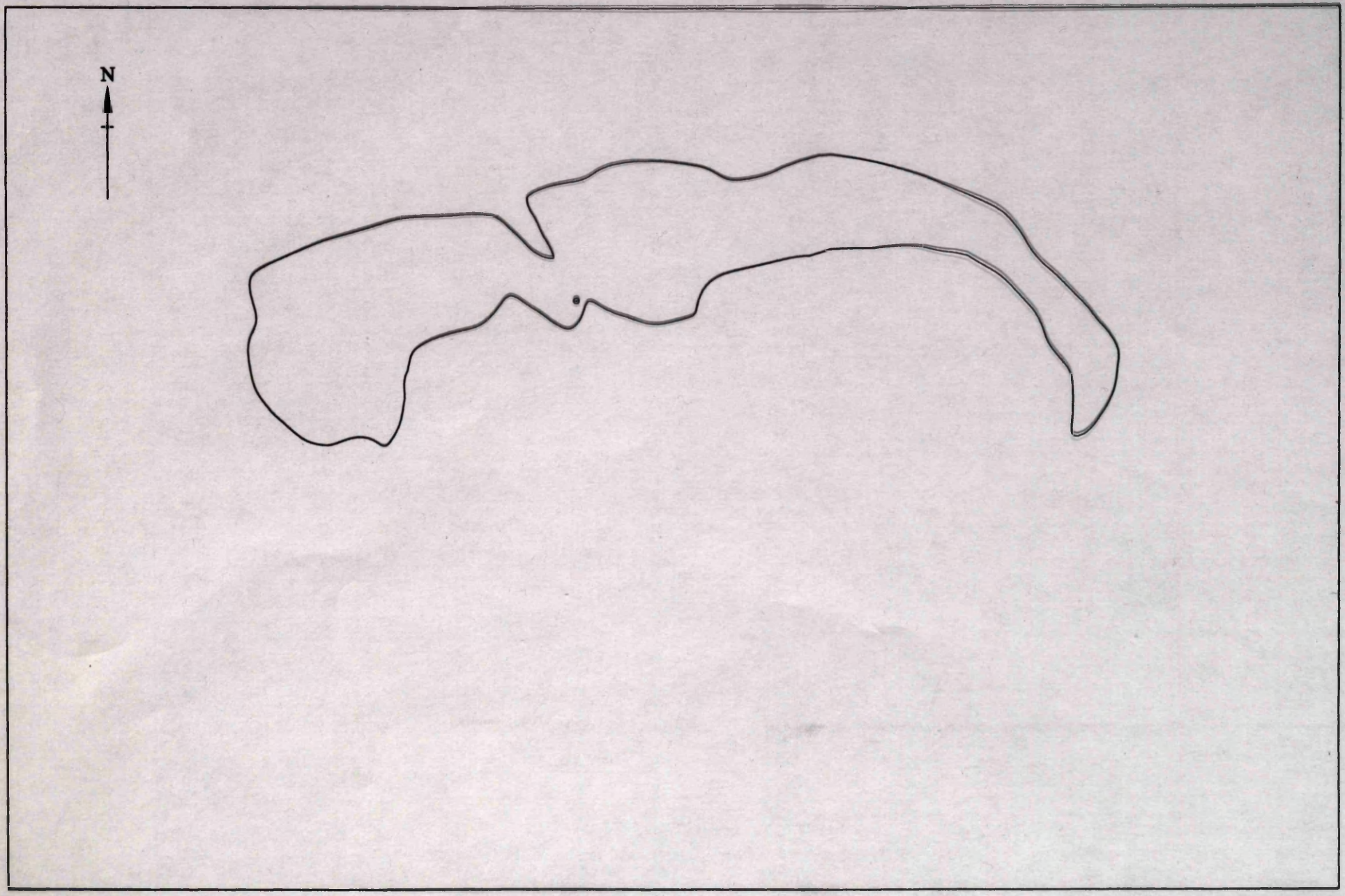


Figure 72: Visual field G6

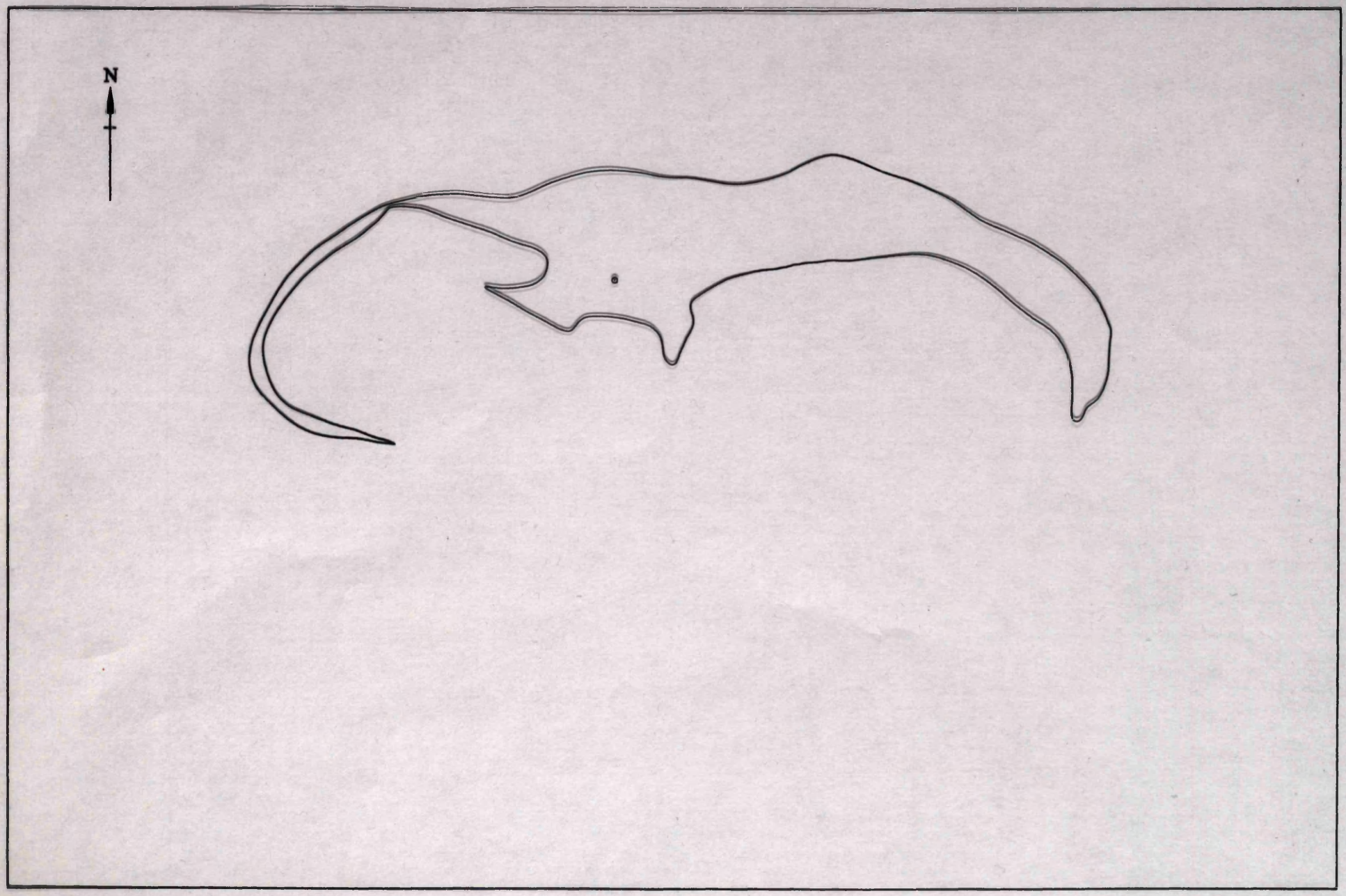


Figure 73: Visual field G7

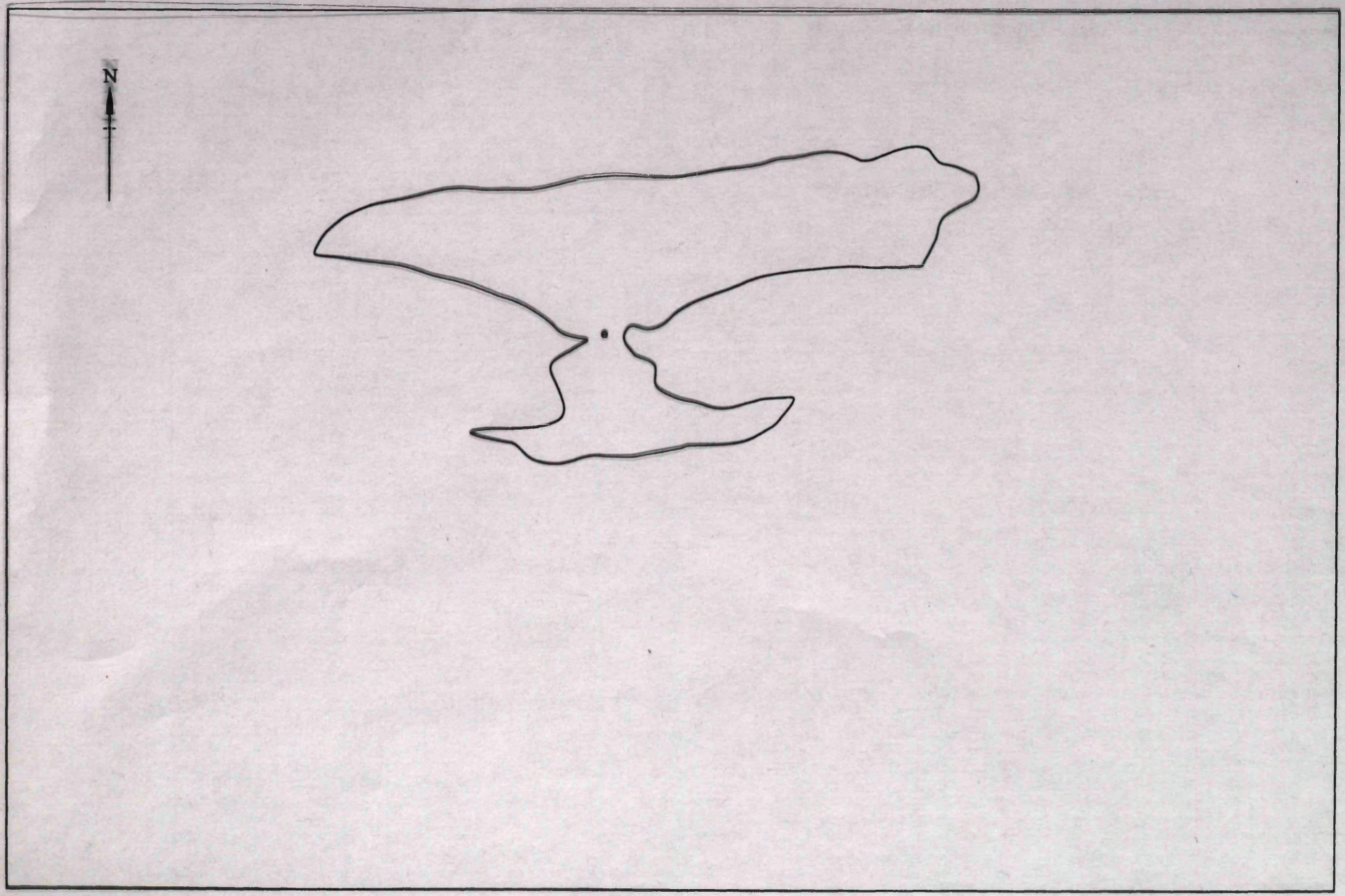


Figure 74: Visual field G8

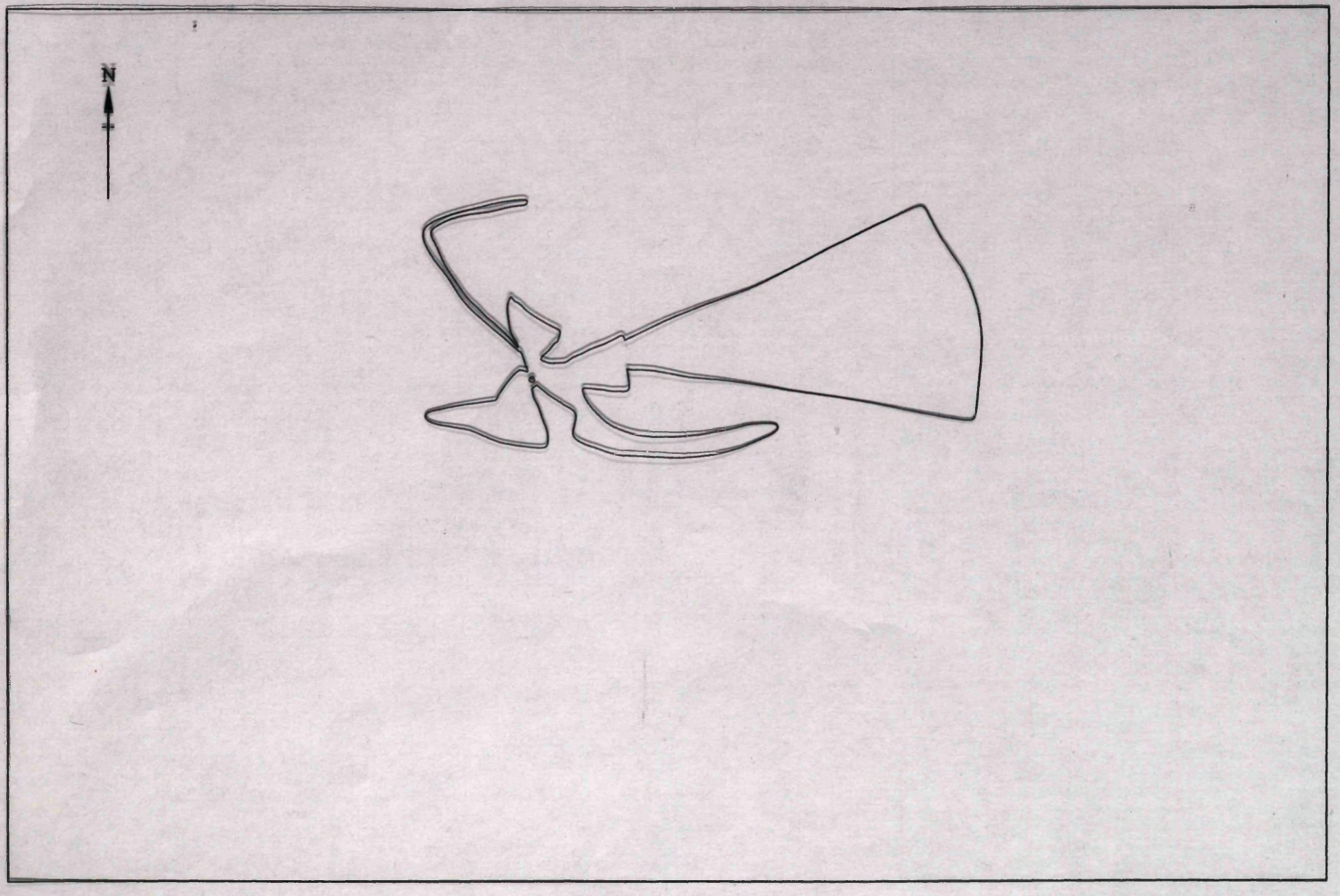


Figure 75: Visual field G9

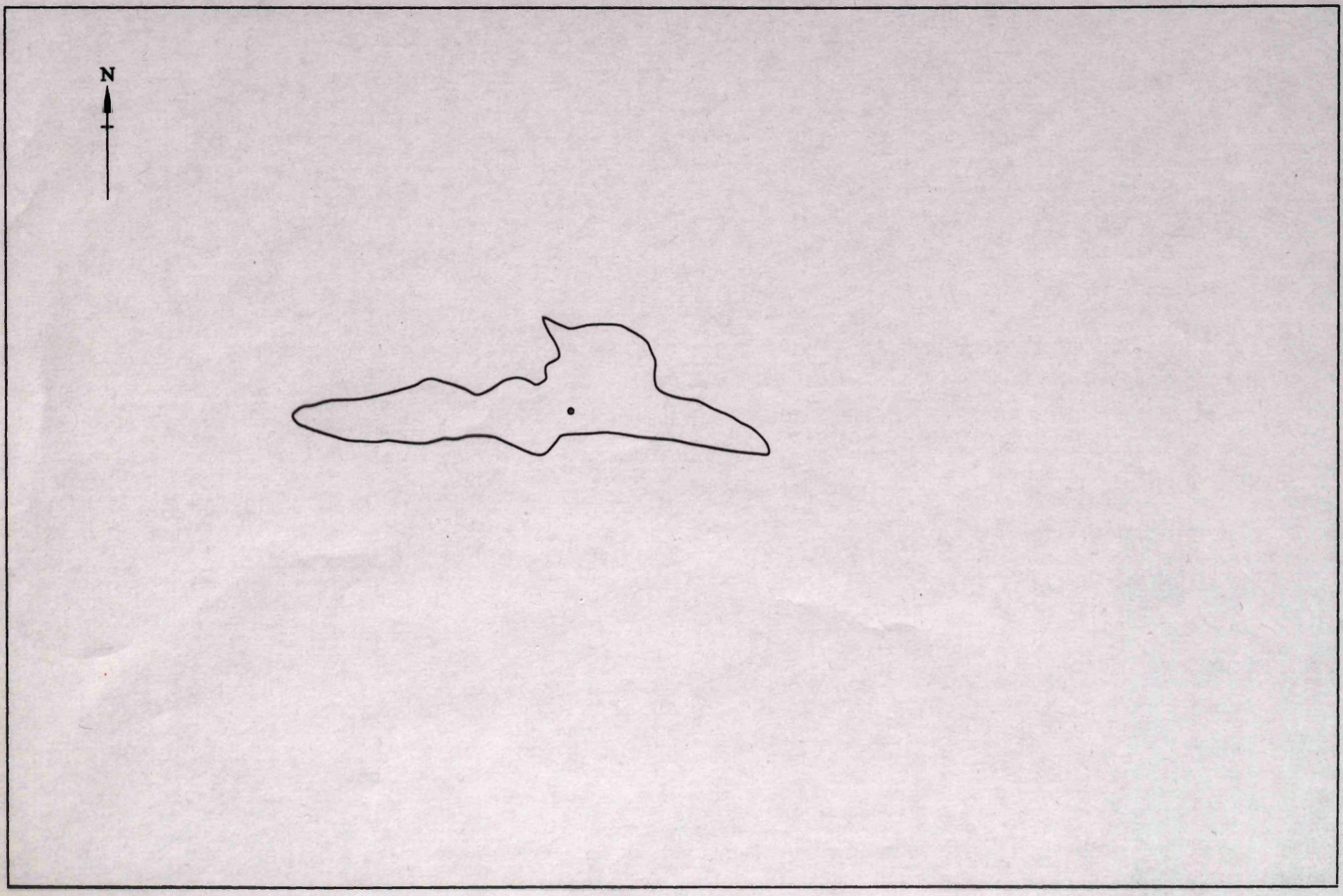


Figure 76: Visual field G10

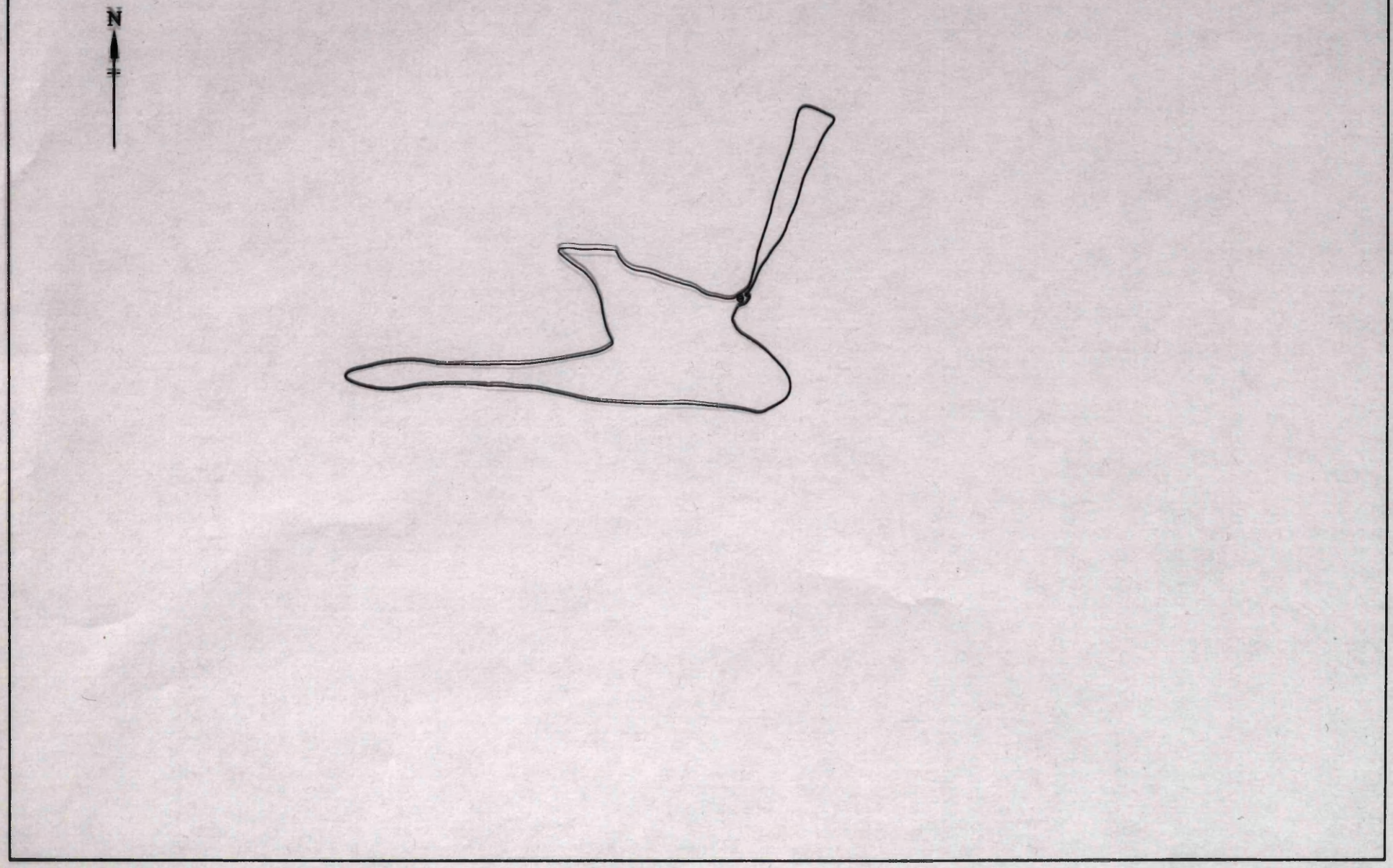


Figure 77: Visual field G11

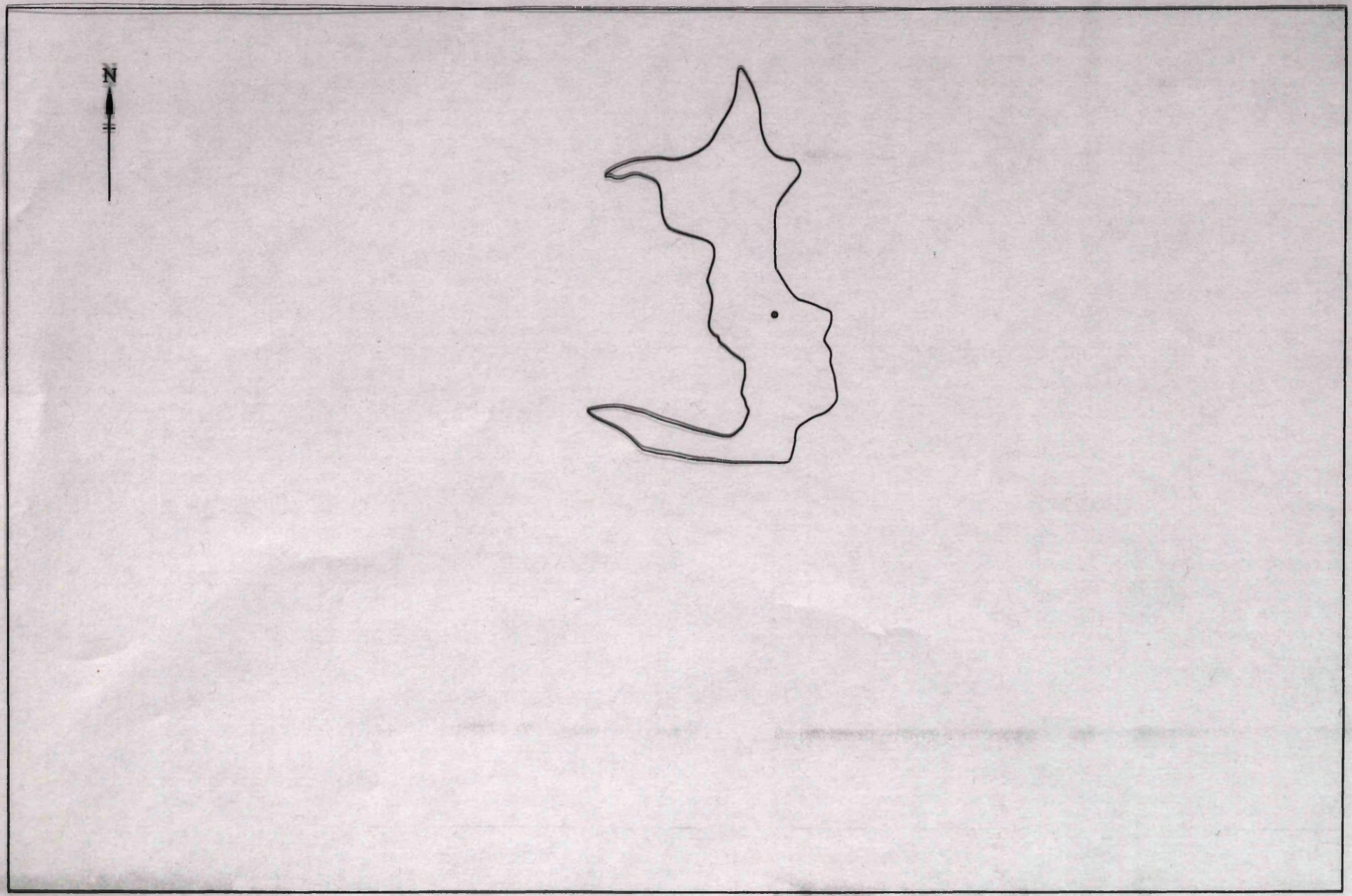


Figure 78: Visual field G12

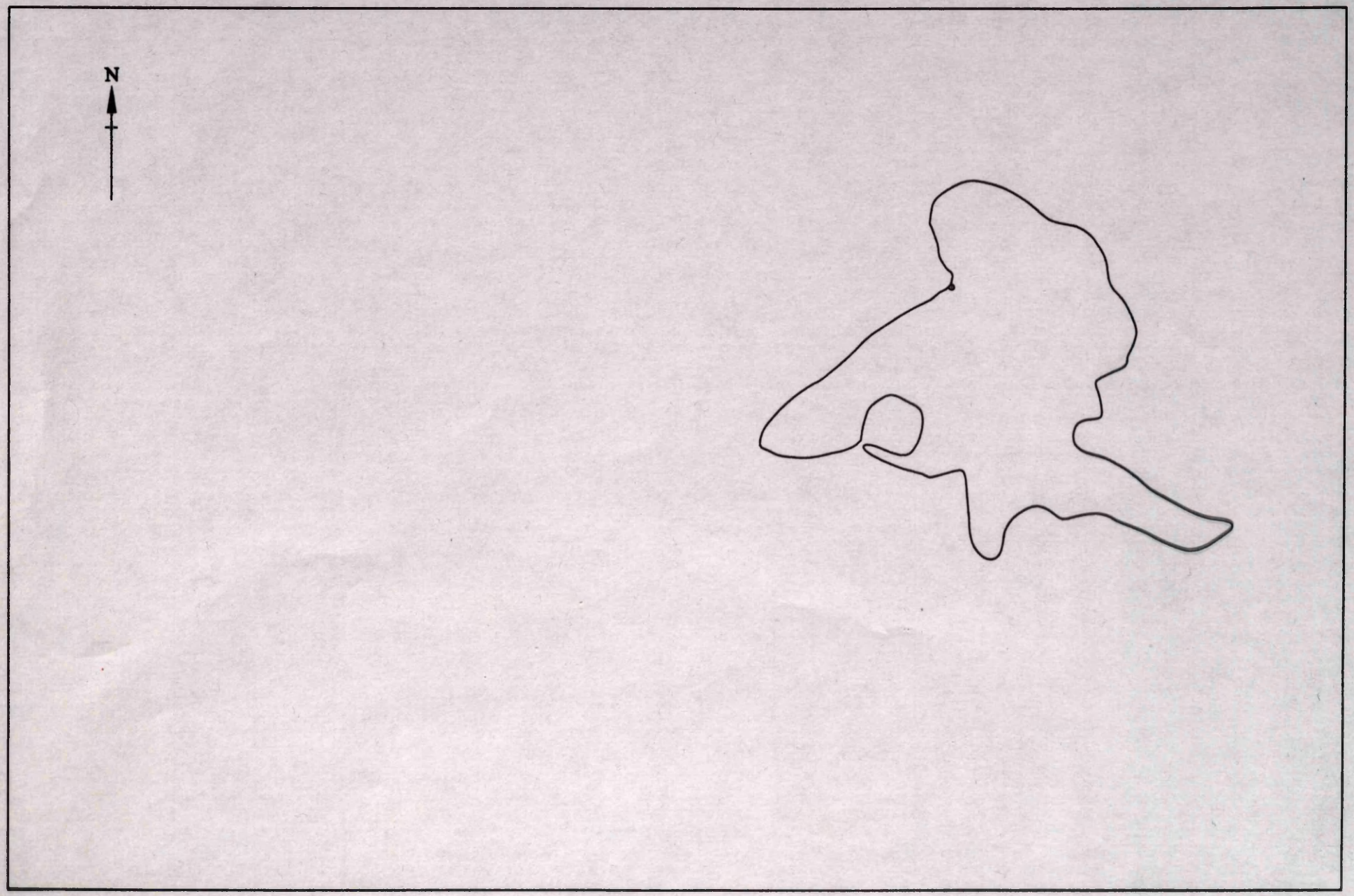


Figure 79: Visual field G13

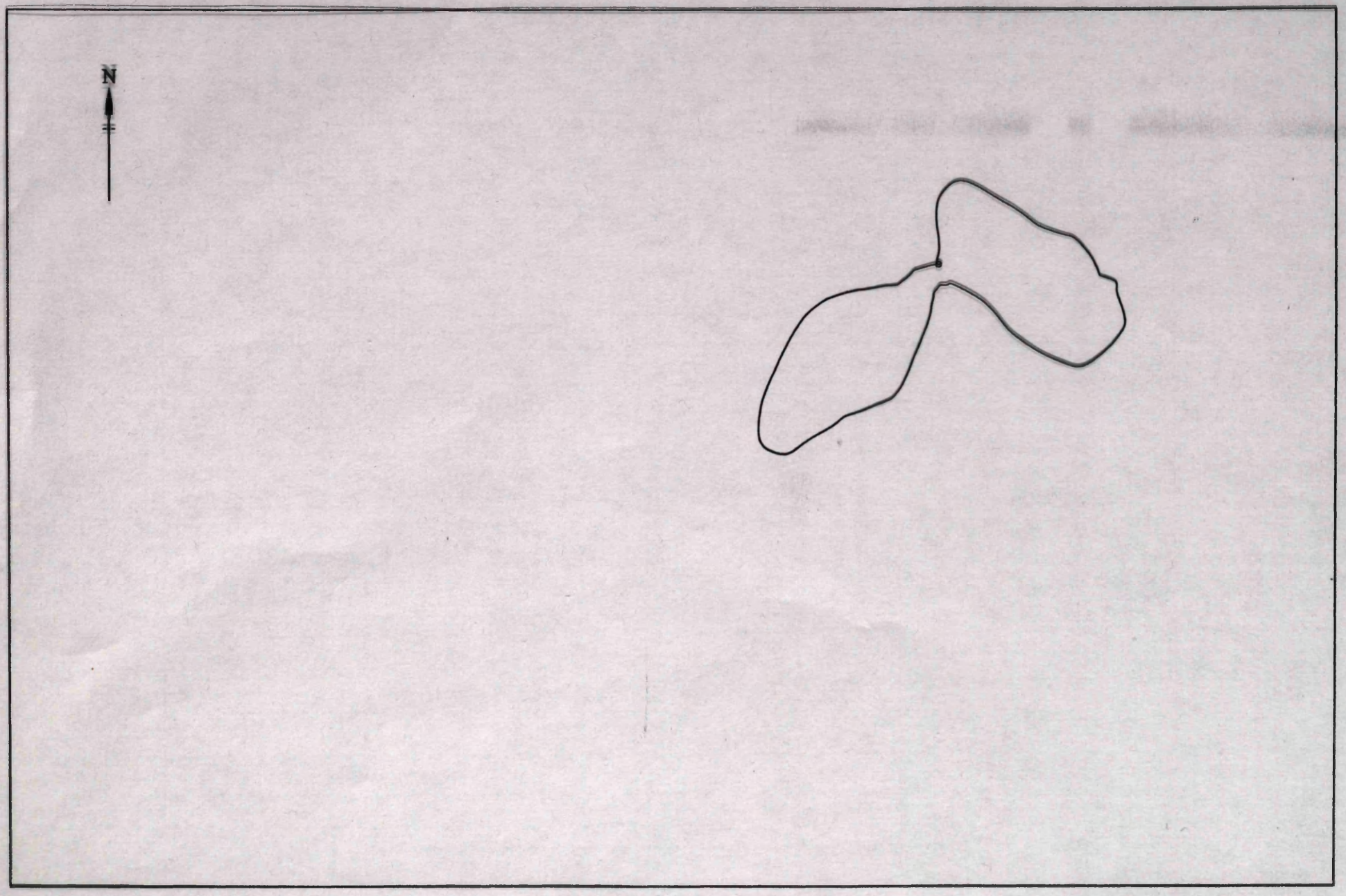


Figure 80: Visual field G14

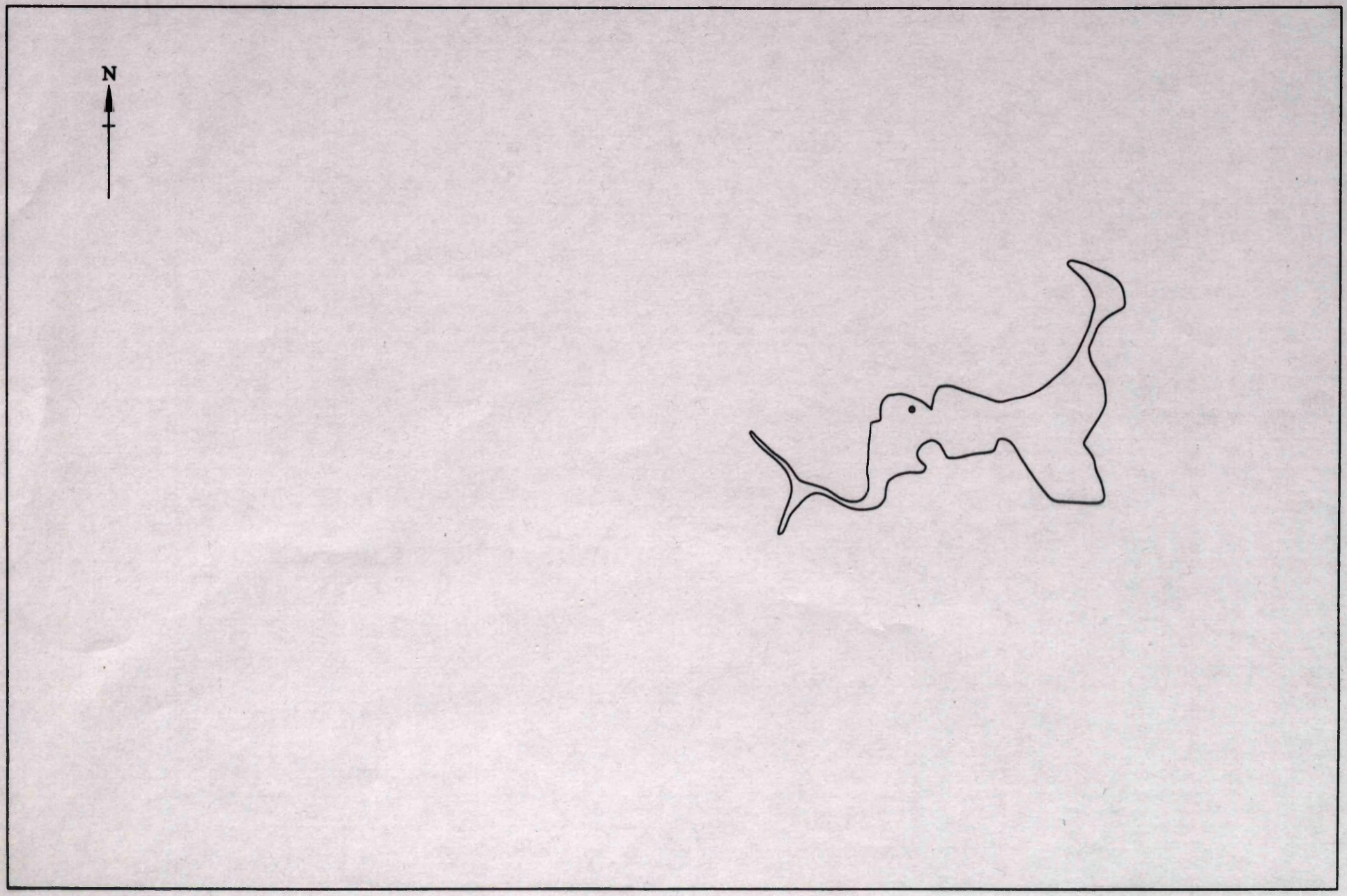


Figure 81: Visual field G15

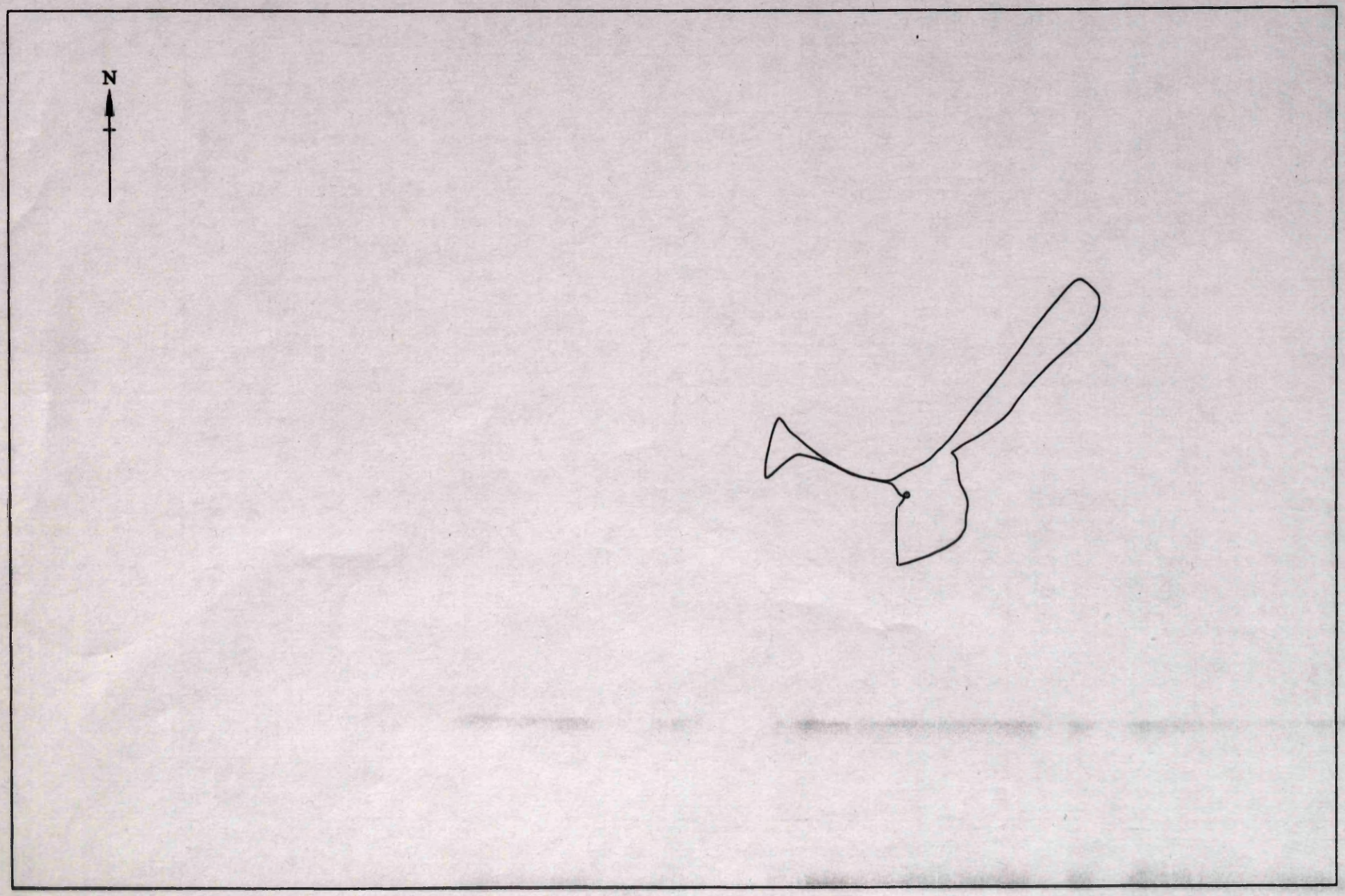


Figure 82: Visual field G16

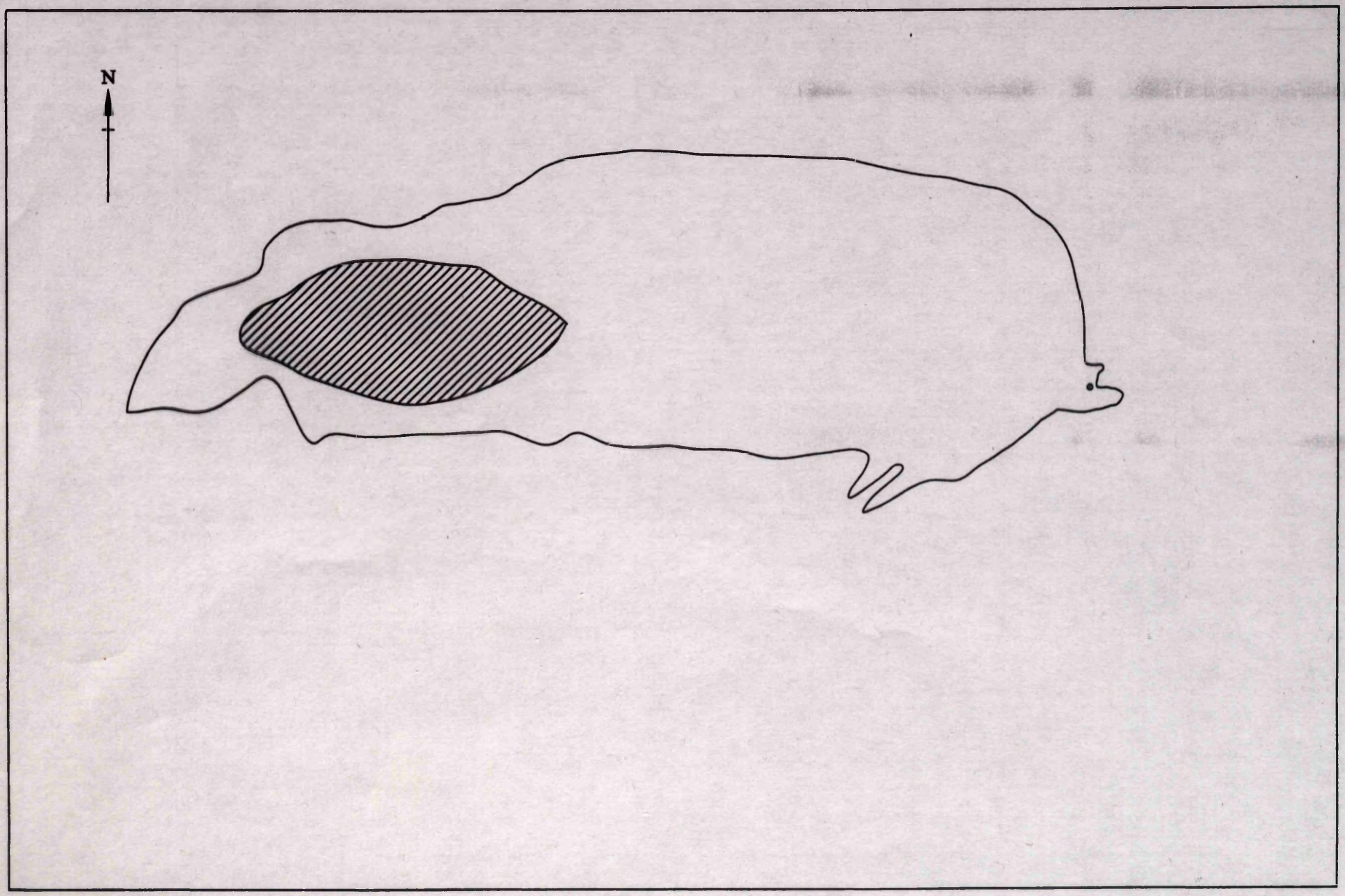


Figure 83: Visual field G17