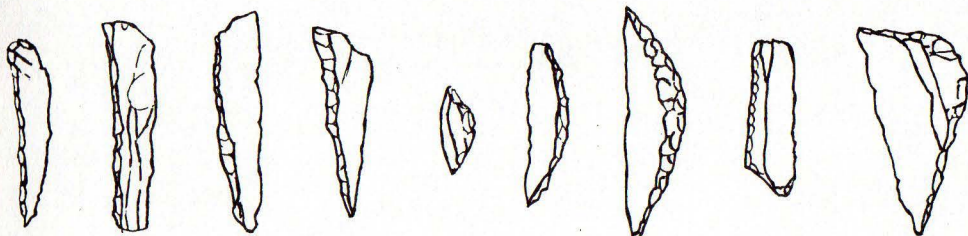


The Stone Ages in Ayrshire



Alex. Morrison & Isobel Hughes



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In labelling the early prehistoric period 'Stone Ages', we are perhaps over-emphasising one element of the artifact inventory of these early hunter-gatherers and farmers, but it is that element, the lithic, which survives when all else has disappeared. In regions, particularly the 'wetlands' of marshes and lake shores, where the destructive effect of oxygen on organic materials has been to some extent inhibited, the wider range of Mesolithic and Neolithic craftsmanship can be traced in the survival of objects of bone, wood and leather, in basketry, netting and textiles. However, apart from single finds such as the barbed point of red deer antler from Shewalton, Irvine (Fig. 3/46) and a few pottery sherds, these periods must be represented in our region by artifacts and structures of stone.

The Firth of Clyde must have served as an important routeway for the first movements of man into the south-west of Scotland. The boundaries of modern counties, regions or districts can never be successfully equated with areas of early human activity, and in the study of this activity it is necessary to view the evidence from sites in present-day Ayrshire in terms of similar material from locations in Dumfries and Galloway, in the middle and upper Clyde valley and possibly on the island of Arran. It should also be remembered that widely separated occupation sites in different environments could represent the activities of the same hunter-gatherer communities at different seasons of the year.

In seeking a direction from which the first hunter-gatherer groups might have come it is natural to think of north or north-west England, but at the moment there are no sites in that area showing direct cultural or chronological links with south-west Scotland. North-east Ireland could represent one possible source, the site of Mount Sandel at the mouth of the River Bann (Woodman 1985) having a number of radiocarbon dates showing occupation by 7000 bc¹. However, although some artifacts in its lithic assemblage were common to other sites in Britain, there were other elements at Mount Sandel, particularly the heavy equipment of core and flake axes, which are not represented at all at Scottish sites. It is also probable that many coastal sites which might have yielded more definite evidence of the origins of these early colonists were destroyed by the higher sea levels of the main Postglacial marine transgression.

1. The convention of small bc has been used here to denote radiocarbon dates, and capital BC would have been used to indicate calendar dates, since radiocarbon years are not quite the same as calendar or solar years. In more recent centuries the difference is not great, but in earlier prehistoric times the gap increases and a date of 3000 radiocarbon years bc could be calibrated to about 3700 calendar years BC. The use of bp indicates radiocarbon years before present, the 'present' being internationally agreed as AD 1950.

The Changing Environment

Over the past few decades, research into the processes of glaciation and deglaciation, sea-level changes and coastal development, and into the evolution of soils and vegetation cover, has considerably expanded our knowledge of the Late-glacial and early Post-glacial periods in Scotland and the environmental background to its earliest occupation by man. There is as yet no definite evidence for human occupation before the end of the last Ice Age, 10,000 years ago, although there are faunal and other remains to suggest that forms of life existed in some areas even during conditions of extreme cold. Deposits at Kilmaurs contained teeth and tusks of woolly mammoth, reindeer antlers, beetles, molluscs and plant remains indicating arctic or sub-arctic temperatures. Radiocarbon determination on the reindeer antler produced only an indefinite date of greater than 40,000 years ago.

Studies of the Scottish Late-glacial and early Post-glacial environment have emphasised the totally destructive effects of the last glaciation. 'The ice sheet destroyed all animal and plant life, removed all soil and had a profound effect on relative sea levels' (Price 1982, 66). By 12,000 bc much of Lowland Scotland was ice-free and most of the Highlands by 11,000 bc. The mammoth and woolly rhinoceros, which had been in Scotland before the maximum glaciation, did not re-appear. Relative sea level was probably 20 to 40m above present sea level during the Late-glacial period and the waters of the Firth of Clyde may have penetrated through to the Glasgow Basin along the low-lying channel of the Lochwinnoch Gap, but land and sea-level changes were extremely complex. During a brief climatic deterioration, the Loch Lomond Stadial, starting about 9000 bc, glacial conditions developed again, but limited in extent and lasting only a few hundred years, so that temperatures were rising again by 8000 bc. The earliest positive evidence of man's presence in south-west Scotland dates to this Post-glacial era of hunter-gatherer activity known as the Mesolithic period.

In the Post-glacial period after 8000 bc increasingly temperate conditions led to the development of a mainly forested landscape. Sea-level fluctuations, for which an increasing amount of evidence is now available, caused major landscape changes along the coasts of south-west Scotland. In some areas attempts have been made to associate Mesolithic sites or scatters of Mesolithic flints with raised beach deposits, fossil shorelines or other evidence for former sea levels, and thereby construct a tentative chronological framework for human presence and activity (Jardine & Morrison 1976).

Sea levels were low in the early Post-glacial period between about 8000 and 7000 bc but, in the later 7th millennium bc, relative sea level began to rise rapidly. Vast quantities of marine sediments and Carse Clays were deposited along the coasts, estuaries and river valleys of

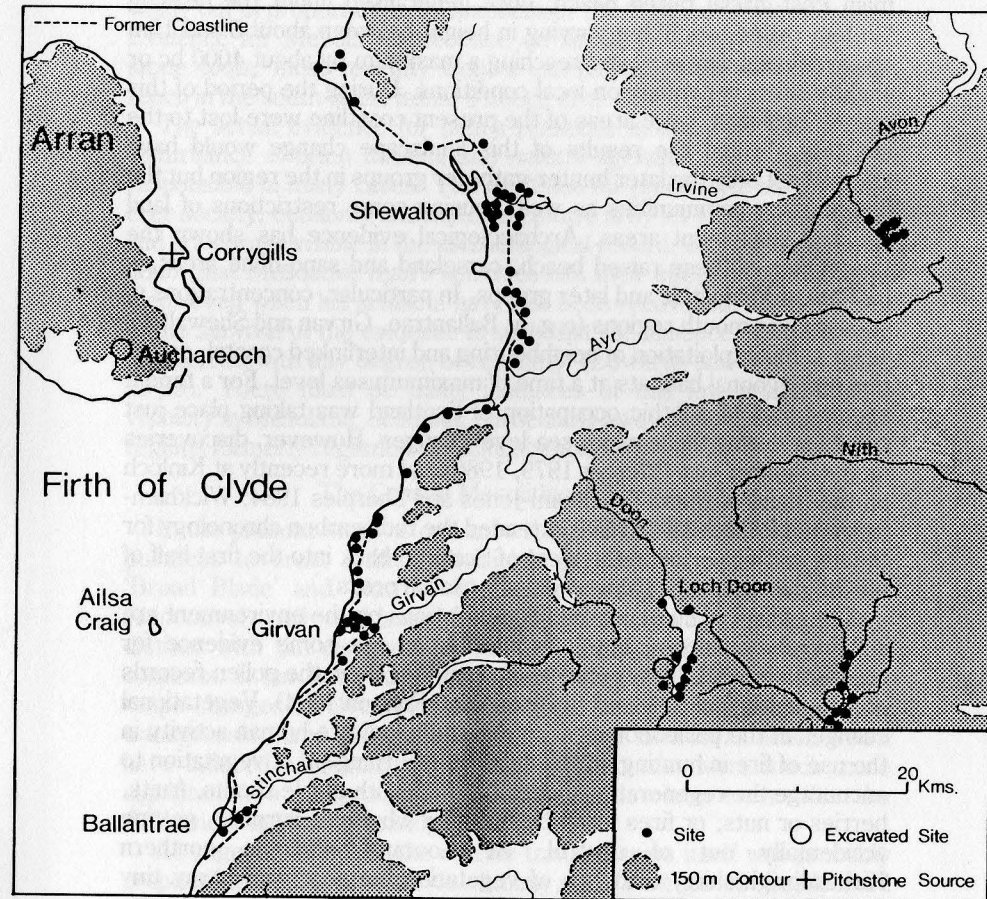


Figure 1: Distribution of finds of Mesolithic flints in South-west Scotland. The broken line indicates the probable extent of marine penetration at the time of highest sea-level.

the south-west of Scotland by marine incursion. Dates for the beginning of this transgression in Ayrshire range between about 6600 and 6000 radiocarbon years bc, but there were considerable differences in the rate of advance and retreat of sea level. Local land-form features such as cliffs and coastal spits and bars modified the general pattern of inundation and regression. A chronology has been provided from sites where organic material dateable by the radiocarbon process has been recovered from locations just below the earliest marine sediments of the transgression. In Ayrshire, this evidence shows that the transgression was beginning between 6650 and 6250 bc at Girvan, between 6620 and 6320 bc at Turnberry, between 6185 and 5945 bc at Troon and between 6184 and 6054 bc at Shewalton (Morrison 1981; Jardine 1975). The extent of the rise in sea level is indicated by the

main Post-glacial raised beach, once generalised under the heading '25-foot raised beach' but varying in height between about 5 and 15m above present sea level and reaching a maximum by about 4000 bc or slightly later, depending on local conditions. During the period of this marine incursion, large areas of the present coastline were lost to the sea (Fig. 1) and the results of this landscape change would have affected not only the later hunter-gatherer groups in the region but the first farming communities as well, causing some restrictions of land use and settlement areas. Archaeological evidence has shown the importance of these raised beach, carseland and sand-dune areas as habitats of Mesolithic and later groups. In particular, concentrations of sites in river mouth regions (e.g. at Ballantrae, Girvan and Shewalton) suggest the exploitation of neighbouring and interlinked coastal, estuarine and lagoonal habitats at a time of maximum sea level. For a time it seemed that Mesolithic occupation of Scotland was taking place just before or during these major sea-level changes. However, discoveries on the island of Jura (Mercer 1979, 1980) and more recently at Kinloch on the island of Rhum (Wickham-Jones and Sharples 1984; Wickham-Jones and Pollock 1985) have extended the radiocarbon chronology for the Mesolithic period in the west of Scotland back into the first half of the 7th millennium bc (Morrison & Bonsall in press).

The effects of hunter-gatherer populations on the environment are still largely unknown, but it is possible to see some evidence for interference with the vegetation on a small scale in the pollen records of several sites in Scotland (Edwards and Ralston 1984). Vegetational changes in the palaeobotanical record could indicate human activity in the use of fire in hunting; in the deliberate burning-off of vegetation to encourage the regeneration of fresh growth with edible shoots, fruits, berries or nuts; or fires made by man, for whatever purpose, getting accidentally out of control. At Cooran Lane, in northern Kirkcudbrightshire, evidence of vegetation burning, with many tiny fragments of charcoal, was obtained from bog deposits which also contained pollen evidence for a decline in birch, an expansion of pine and the first appearance of ivy (Birks 1975). The burning period was dated to between 5700 and 5400 bc. Although no artifacts or indications of human activity were recovered, there is evidence for the presence of Mesolithic groups on the southern shores of Loch Doon, only 8 km to the north. On Machrie Moor on Arran, evidence for vegetation disturbance, the occurrence of charcoal and the expansion of heather pollen have been dated from about 6715 bc sporadically, and more continuously from about 5900 bc onwards (Robinson 1983a, b). Again there is no human material present and the fires might have been natural, but Robinson (1983a, 5) doubts that natural fires could have occurred so regularly or continuously: 'It is more plausible that the charcoal was formed in fires of human origin ... A Mesolithic population, even present at a very low density or on a seasonal basis, could, through the agency of fire, have an effect on the environment

vastly out of proportion to its numbers or the duration of its presence'. Evidence for Mesolithic presence on Arran is known from finds of stone tools, most recently from a carefully-sampled site at Auchareoch in the south of the island (Affleck et al. 1985).

The actual evidence for man's presence in areas of vegetational disturbance is often missing and natural agencies might have been responsible in many cases. The evidence for prehistoric hunter-gatherer society, economy and material culture is by its very nature flimsy and not always visible in the archaeological record, but there can be no doubt that Mesolithic man's activities had their effect on the environment even when his artifacts have not been recovered: '...the nature of the survival of the evidence is such that the absence of man cannot be inferred with any degree of certainty' (Edwards and Ralston 1984, 18-19). There must be many instances of this low archaeological visibility in Mesolithic Scotland, particularly away from the coast and in regions formerly regarded as 'uninhabitable'.

The Coastal Mesolithic in Ayrshire

In the present state of our knowledge of the Mesolithic, it seems pointless to erect artificial divisions, particularly since the idea of 'Broad Blade' and 'Narrow Blade' flint industries as indicators of respectively early and later Mesolithic groups has become much less distinct with the discovery of Narrow Blade artifacts in very early contexts. It has been suggested (Morrison 1980, 132) that the landscape changes involved in the course of the main Postglacial marine transgression, and especially the loss of large land areas which would have induced economic and cultural adjustments, were much more significant as a background against which to view later events than the differences in lithic technology.

As suggested above, the marine transgression itself was probably responsible for the destruction of many early Post-glacial sites located close to the contemporary coastline. A hearth at Redkirk Point, near Greta in Dumfriesshire, was dated to between 6100 and 5800 bc, probably just before the local onset of the marine transgression. A Mesolithic site just above the raised beach at Barsalloch on Luce Bay was dated to between 4160 and 3940 bc, about the time of local maximum sea level.

In general, the evidence for Mesolithic activity in Ayrshire consists of assemblages of flint artifacts and flint-working debitage or waste. Very little excavation has been carried out on sites of this period in the region and most of the evidence comes from material collected from the surface, sometimes casually, occasionally very carefully, with every visible fragment of flint included and with observations on location, stratification and immediate environment. Many sites have been recorded in the past 20-30 years thanks to the work of Malcolm McNeill and other field workers (references in *Discovery and Excavation in Scotland* for the 1960s).

A study of Mesolithic flint artifacts from excavated sites in Britain has suggested that microliths, scrapers and burins formed the 'essential tool inventory' (Mellars 1976). Microliths, the finely worked and sometimes very tiny bladelets, often of geometric form, were utilised as arrowheads and other projectile points (Fig. 3/6-10, 17-45). A group of microlithic flint blades and rods discovered in Luce Sands at the head of Luce Bay in the early years of this century were described as: '...narrow pointed tools as small as ordinary steel pins, at times found in pairs, in threes and in fours, *as if parts of a composite object*' (Mann 1911, 831). A report of a find on the Yorkshire Moors of a linear group of microliths described them as being: '...spaced 1½ to 2cm apart, constituting the barbs on a wooden shaft that had rotted away' (Petch 1924). These descriptions support the idea of microliths as barbs or armatures for wooden- or bone-hafted spears or other missiles. It should be stressed, however, that there were forms of Mesolithic subsistence alternative to, and often more important than, hunting, and these must be taken into account when attempting to analyse the functions of tools of hunter-gatherer societies. Apart from hunting weapons, microliths could have been used as parts of composite tools such as reaping knives, employed in the harvesting or gathering of plant foods – a use to which they were certainly put in later settled farming communities – testified by many ethnographic parallels among modern and recent hunting societies. Scrapers (Fig. 3/1-3, 13), made on the ends of blades or flakes or worked into round scrapers which might be as small as thumbnail size, were mainly used in the working of skins and hides for clothing and coverings for tents and other shelters. The burin, a stubby chisel-pointed tool (Fig. 3/4), was used in the working of bone and antler – shaping bone points or cutting the barbs into antler harpoons.

In the study of the 'essential tool inventory' already mentioned, some sites had what were termed 'balanced assemblages', that is having less than 85% microliths and up to 50% scrapers. These assemblages were strongly represented at coastal sites. Low Clone and Barsalloch, two excavated Mesolithic sites on Luce Bay, Wigtownshire, produced 'balanced assemblages' – Low Clone had 46% microliths, 32% scrapers and 22% burins; Barsalloch had 42% microliths, 47% scrapers and 11% burins (Mellars 1976). Sites of surface collections along the Ayrshire coast have shown, in some of the assemblages at least, a bias towards microlithic forms and scrapers (Morrison 1981). Winter occupation has been suggested for some of these sites, with the coasts providing winter feeding areas for deer and other animals. The proportion of scrapers is thought to reinforce the idea of a winter season with a greater emphasis on the working of skins for clothing and for covering for shelters. A high frequency of burins, suggesting autumn/winter working of bone or red deer antler, occurs only at Low Clone on Luce Bay. But fine distinctions are not possible; where other, non-lithic, evidence is available it does not

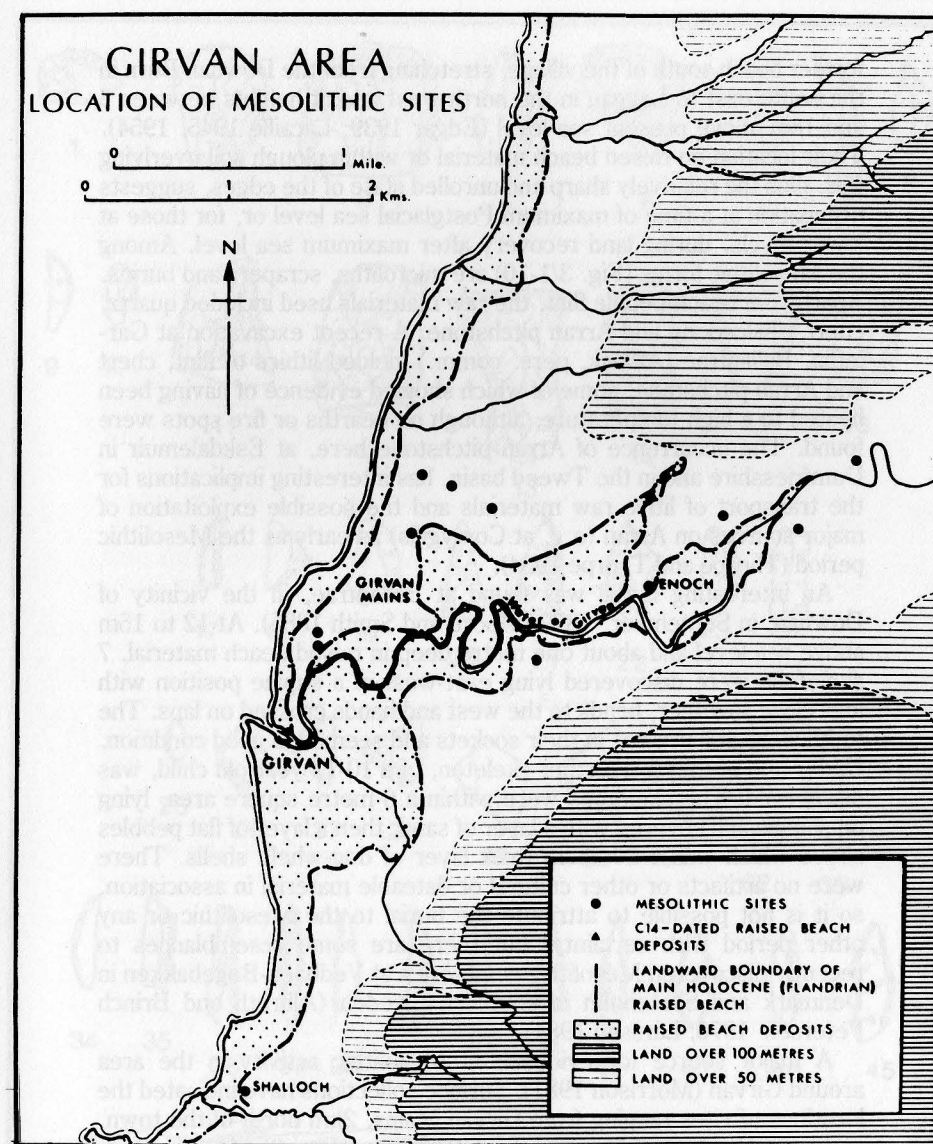


Figure 2: Sites of probable Mesolithic activity in the Girvan region. The dotted areas indicate the probable extent of marine penetration at the time of highest sea level.

always support assumptions based on the lithic equipment. The evidence is still scarce and concentrated on a very few sites, so this attempt at analysis of assemblage variation can give only indications, rather than true interpretations, of the functions of the sites and their artifacts.

At Ballantrae, flint implements have been collected from an area of

former beach south of the village, stretching from the Downan Burn in the south-east to Laggan in the north-west and at heights between 5 and 18m above present sea level (Edgar 1939; Lacaille 1945, 1954). Their location on raised beach material or within plough soil overlying this, plus the relatively sharp and unrolled state of the edges, suggests occupation at a time of maximum Postglacial sea level or, for those at lower levels, during land recovery after maximum sea level. Among the Mesolithic forms (Fig. 3/1-10) are microliths, scrapers and burins. Apart from beach-pebble flint, the raw materials used included quartz, chert, chalcedony and Arran pitchstone. A recent excavation at Garleffin, Ballantrae (Affleck, pers. comm.) yielded lithics of flint, chert and Arran pitchstone, some of which showed evidence of having been heated to a high temperature, although no hearths or fire spots were found. The occurrence of Arran pitchstone here, at Eskdalemuir in Dumfriesshire and in the Tweed basin, has interesting implications for the transport of lithic raw materials and the possible exploitation of major sources on Arran (e.g. at Corrygills) as early as the Mesolithic period (Thorpe and Thorpe 1984).

An interesting burial was found at Ballantrae, in the vicinity of Downan, in September, 1879 (Moore and Smith 1885). At 12 to 15m above sea level and about one metre deep in raised beach material, 7 skeletons were discovered lying east-west in a supine position with legs close together, heads to the west and hands crossed on laps. The teeth were still in place in their sockets and seemed in good condition. Under one of these, a further skeleton, of a 10-12 year old child, was discovered. The skeletons were within a 6-metre square area, lying on shingle and covered with a layer of sand, then a layer of flat pebbles above which was a 20-25cm thick layer of dog-whelk shells. There were no artifacts or other cultural or dateable material in association, so it is not possible to attribute the burial to the Mesolithic or any other period with certainty, but there are some resemblances to recently discovered Mesolithic cemeteries at Vedbaek-Bogebakken in Denmark and Skateholm in southern Sweden (Albreth and Brinch Petersen 1976; Larsson 1984).

A major source for evidence of Mesolithic activity is the area around Girvan (Morrison 1981). Surface collections have indicated the locations of sites ranging from Girvan Mains, 2km north of the town, to Shalloch, about 2.5km south of the town (Fig. 2). At maximum transgression, the sea must have occupied quite a large embayment to the east and north-east of the present town of Girvan, penetrating to a distance of almost 4km up the valley of the Water of Girvan (Jardine 1962, 1971, 1975). The deposits of the large inland embayment between Girvan Mains and Enoch Farm suggest a lagoon-like body of water, perhaps separated intermittently from the contemporaneous sea by a sand or gravel bar. The Postglacial history of the Girvan area is that of the interplay of estuarine, marsh and marine conditions as the sands and gravels accumulating at the mouth of the Water of

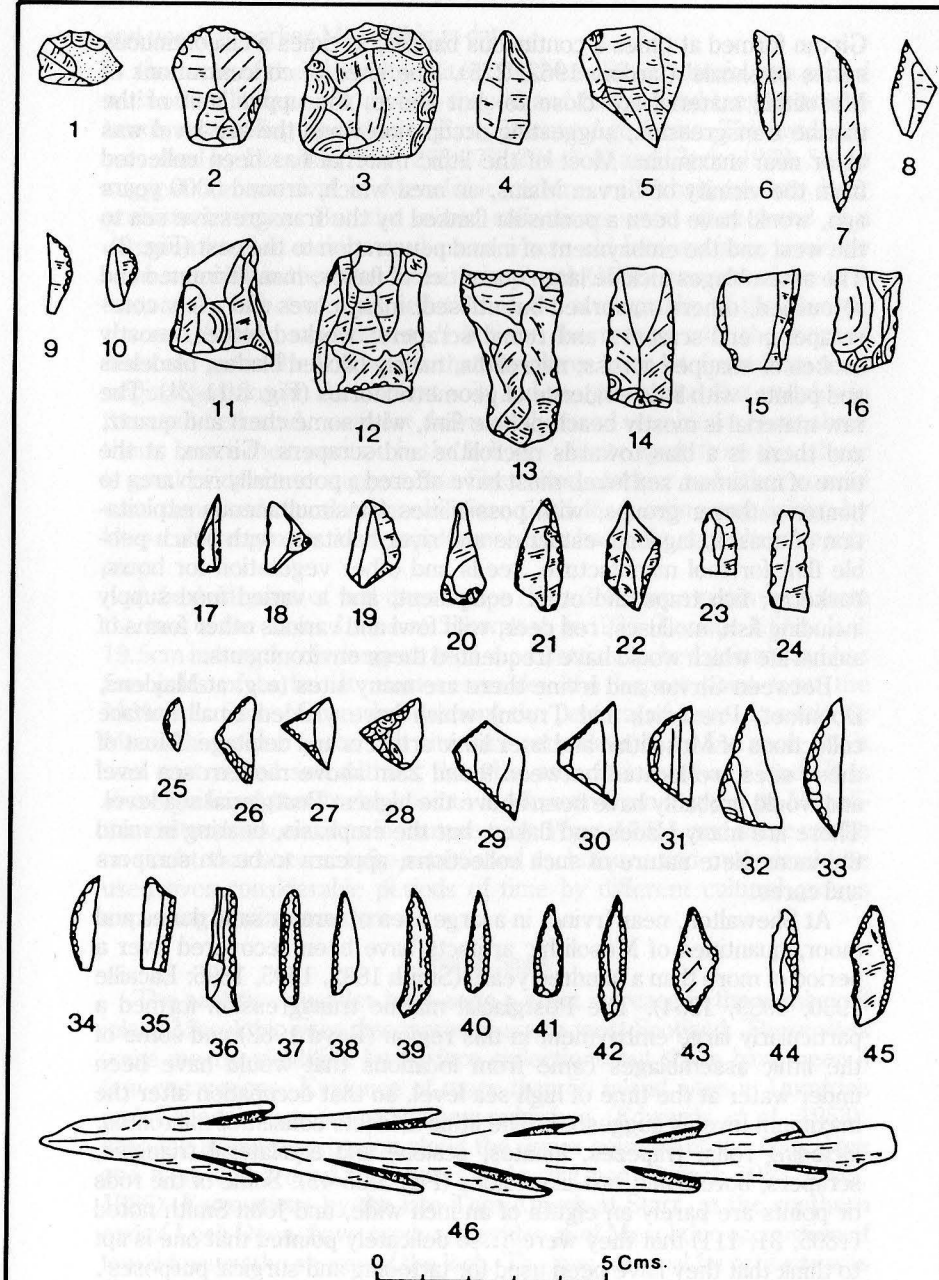


Figure 3: Some Mesolithic flint artifacts from Ayrshire. 1-10 Ballantrae; 11-24 Girvan; 25-45 Shewalton, Irvine; 46 barbed point of red deer antler from the River Irvine at Shewalton. (After Morrison 1982).

Girvan formed at times a continuous barrier, at times a discontinuous series of shoals' (Jardine 1962, 275). The sites of concentrations of Mesolithic material are close to, but above, the upper limit of the marine transgression, suggesting occupation when the sea level was at or near maximum. Most of the lithic material has been collected from the vicinity of Girvan Mains, an area which, around 6000 years ago, would have been a peninsula flanked by the transgressive sea to the west and the embayment of inland penetration to the east (Fig. 2). The assemblages include large quantities of flakes, many trimmed and retouched, others unworked but utilised; many cores and a few core-scrapers; end-scrapers and round scrapers; worked blades, mostly broken or snapped across; microliths, mainly backed blades, bladelets and points, with little evidence of geometric forms (Fig. 3/11-24). The raw material is mostly beach-pebble flint, with some chert and quartz, and there is a bias towards microliths and scrapers. Girvan, at the time of maximum sea level, must have offered a potentially rich area to hunter-gatherer groups, with possibilities for simultaneous exploitation of coastal, lagoonal-estuarine and river habitats, with beach-pebble flint for tool manufacture, reeds and other vegetation for bows, basketry, fish traps and other equipment, and a varied food supply including fish, molluscs, red deer, wild fowl and various other forms of animal life which would have frequented these environments.

Between Girvan and Irvine there are many sites (e.g. at Maidens, Doonfoot, Prestwick and Troon) which have yielded small surface collections of Mesolithic and later lithic artifacts and debitage. Most of these sites are located between 9 and 23m above modern sea level and would probably have been above the highest Postglacial sea level. There are many blades and flakes, but the emphasis, bearing in mind the incomplete nature of such collections, appears to be on scrapers and cores.

At Shewalton, near Irvine, in a large area of former sand dunes and moor, quantities of Mesolithic artifacts have been recovered over a period of more than a hundred years (Smith 1882, 1895, 1896; Lacaille 1930, 1939, 1954). The Postglacial marine transgression formed a particularly large embayment in this region (Boyd 1982) and some of the lithic assemblages came from locations that would have been under water at the time of high sea level, so that occupation after the maximum level is suggested. The lithic artifacts consist of microliths, including rods, trapezes, lunates, scalene and equilateral triangles, scrapers, borers and saw-like blades (Fig. 3/25-45). Some of the rods or points are barely an eighth of an inch wide, and John Smith noted (1895, 31, 111) that they were '...so delicately pointed that one is apt to think that they have been used for tattooing and surgical purposes'. These implements are mostly made on narrow blades and, with the large number of geometric forms, would normally be regarded as later Mesolithic in date; but there are some trapezes and triangles among them large and heavy enough to be regarded as 'broad blade' types

and possibly earlier Mesolithic in date.

On some of the Shewalton sites, the Mesolithic material was mixed with other lithics such as leaf-shaped and barbed-and-tanged arrowheads resembling Neolithic or Early Bronze Age forms. This evidence was used by Lacaille (1954, 275-277, 284-288) and Clark (1932, 51) to suggest the survival of Mesolithic culture or techniques into later prehistoric times. But the mixed collections were often found at a common level in mainly sand areas where old land surfaces could be seen in profile in the dune faces. John Smith (1882) was one of the first to note the effect of wind deflation on the stratigraphy of the Shewalton and Ardeer sand dunes: 'I believe the reason why the worked flints are got in the hollows, is that they have been let down from their original position on the ancient soil, and the gravel and flint nodules in the stratified sand, were let down as the sand was blown from about them; hence their position in the hollows'. Quite apart from this, there is good evidence to suggest that Shewalton, Ardeer and other coastal sand dune and moorland areas were used for hunting and fishing by later culture groups as a supplement to a basically agricultural economy.

A barbed point of red deer antler (Fig. 3/46) was recovered from the bed of the River Irvine at Shewalton in 1938 (Lacaille 1939). It is 19.5cm in length, the longest of all the Scottish barbed points, and has five pairs of barbs. It most resembles the largest point from the McArthur Cave, Oban, but without the perforated base. It could be Mesolithic, some of the flint sites are very close to its find spot, but it was unstratified and without dateable associations of any kind. It is also significant that barbed points are known from many post-Mesolithic cultural associations in Europe (e.g. Wyss 1981), and there can be no doubt that successfully-established techniques and tools would be used over considerable periods of time by different cultural groups exploiting similar resources.

Inland Sites

The past two decades have seen a great increase in the number of inland Mesolithic sites discovered in south-west Scotland. These sites were mostly identified by surface collections but there have been a few excavations. Evidence of more than 50 inland sites in Dumfries and Galloway has recently been published (Edwards *et al.* 1983), showing inland penetration along the upper courses of the Nith, Dee and Ken, and around the shores of Loch Doon (Affleck 1983, 1985, 1986). Excavations by the late Tom Affleck at Starr, at the southern end of Loch Doon, have produced evidence of Mesolithic occupation of low ridges on the shores of the loch. The raw material for artifacts was flint and chert and the assemblages included many snapped blades and flakes, with a few microliths, including triangular forms. These were probably small hunting camps, exploiting the loch and nearby forest areas.

Many of the inland sites in northern Dumfries and Galloway are in headwater valleys with routeways into the easier terrain of southern Ayrshire and the Upper Clyde valley. Somewhat similar sites have been identified by Hugh McFadzean's intensive fieldwork along the Ayrshire-Lanarkshire boundary between Muirkirk and Strathaven, in Avondale, in the river terraces of the Avon, Glengavel Water and their tributary streams (McFadzean 1984a,b and pers comm.). Artifacts from these sites make use of a wide variety of raw materials, and the order of preference, or availability in some assemblages is: quartzite, radiolarian chert, flint and vein quartz, with smaller quantities of quartzose veinstone, pitchstone, mudstone, jasper and agate. Apart from the usual large quantities of flakes and blades, implements include geometric microliths, burins, scrapers and core tools. The locations imply possible contacts with the middle Clyde Valley as well as westwards towards the Ayrshire coastal plain.

The Mesolithic data base for our region is not yet comprehensive enough to allow the construction of elaborate models. The scattered surface collections, lack of extensive excavation and absence of artifacts made of less durable materials reveal only disconnected segments of various annual cycles of hunting, fishing, collecting and the procurement of raw materials.

Mesolithic to Neolithic: Continuity and Change

The number of combined coastal/estuary/river sites, such as Ballantrae, Girvan or Shewalton, with concentrations of lithic artifacts, suggests the importance of these regions with differing but closely linked habitats for the hunting-fishing-gathering groups of the Mesolithic period. These areas could have provided the opportunity to exploit the maximum number of ecosystems necessary to support a particular size of group during the year with a minimum of seasonal movement. Later Mesolithic communities were becoming progressively more sedentary in similar coastal locations in many parts of western Europe, and one feature of this more permanent association with a particular area or territory appears to have been the development of more formal burial places or cemeteries, as recorded at sites in Sweden, Denmark, Brittany and western Ireland. With longer term settlement, these late hunter-gatherer groups might have become gradually more receptive to new economic ideas and techniques associated with domesticated crops and animals. Traces of cereal pollen from pre-elm decline levels in some parts of Britain and Ireland (as early as about 3425 bc for barley pollen from Machrie Moor on Arran) probably indicate early 'proto-Neolithic' stages of cultivation (Edwards and Hiron 1984), or perhaps local Mesolithic communities in transition – gradually acquiring some of the elements of food production while still maintaining the basic features of a hunter-gatherer economy.

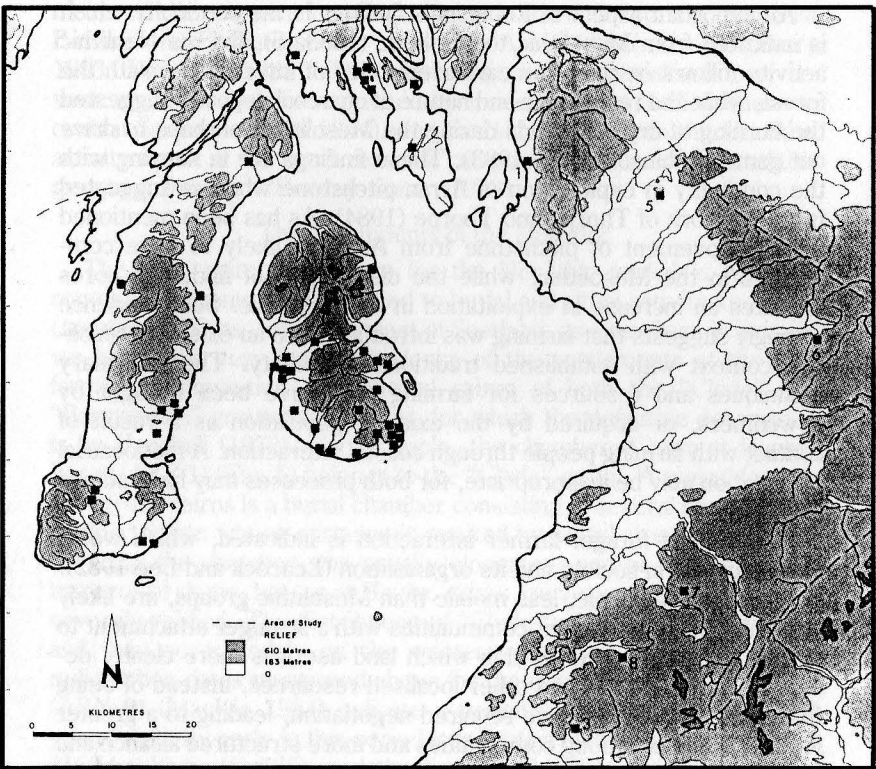


Figure 4: Distribution of Neolithic chambered cairns around the Firth of Clyde. The Ayrshire sites are numbered: 1 Haylie, Largs; 3 Balmalloch, Barr; 5 Cuff Hill, Beith; 6 Loanfoot, Darvel; 7 Baing Loch, Straiton; 8 Barr Hill, Barr. Two further Ayrshire cairns are 2 Arieleoch, Ballantrae and 4 Cave Cairn, Ballantrae both just south of the study area. The Ayrshire cairns (1-6) are numbered after Henshall (1972); numbers 7 and 8 are after RCAHMS 1983.

A slow transition to farming in the Firth of Clyde such as is envisaged for coastal areas of Atlantic Europe by Zvelebil and Rowley-Conwy (1986) is supported by the palaeobotanical evidence from Machrie Moor (Robinson 1981, 1983). The first indications of pollarding or coppicing of trees in connection with pastoral activity were as early as c.3800 bc (5750 bp), well ahead of the elm decline, and the evidence suggests the continuation and expansion of pastoral activity from that time throughout the earlier Neolithic, for most of the third millennium bc. The emphasis seems to have been on pastoral farming. The episode of early cereal cultivation, possibly involving the use of small arable plots (Robinson 1981, 133), came at the beginning of a period of 500-600 years during which clearance for pastoral activity progressed. The earlier of two radiocarbon dates for the Neolithic chambered cairn at Monamore (ARN 9) of 3160± 110 bc (Q 675) (Mackie 1964) suggests that the cairn was in use during this period.

An important aspect of Robinson's findings is the continuity which is indicated from Mesolithic to Neolithic (1983a,5), for the Neolithic activity follows on from the earlier episodes of interference with the forest, while the recurrence and nature of charcoal deposits suggested the burning of dry reed beds during the Mesolithic, perhaps to drive out game (Robinson 1981, 1983). These findings are in keeping with the continuity in exploitation of Arran pitchstone which is suggested from the work of Thorpe and Thorpe (1984). As has been mentioned above, movement of pitchstone from Arran is likely to have commenced in the Mesolithic, while the distribution of finds and cores indicates an increase in exploitation in the Neolithic. Such evidence strongly suggests that farming was introduced into an existing Mesolithic context with established traditions of activity. The necessary techniques and resources for farming may have been brought by newcomers, or acquired by the existing population as a result of contact with farming people through coastal interaction. A monocausal explanation may be inappropriate, for both processes may have played a part.

A period of forager-farmer interaction is indicated, which would bring changes in society and its organisation (Leacock and Lee 1982). Settled farming people, less mobile than Mesolithic groups, are likely to have formed closer-knit communities with a stronger attachment to smaller territorial units, within which land use was more clearly defined. Access to lithic and other localised resources, instead of being free and flexible, may have required negotiation, leading to a greater interdependence among communities and more structured alliance and exchange networks. As leadership became more important through these changes, awareness of lineage as power may have developed, while inequalities developing within society may have encouraged the emergence of social elites.

Another change at this time may have been expansion of settlement. This is suggested from the palaeobotanical evidence from Machrie Moor which indicates that the appearance of farming marks the beginning of continuous use of the island of Arran. Colonisation in the Firth of Clyde may have begun with the larger islands, a process similar to that suggested for the eastern Mediterranean (Cherry 1981), and followed a period in which temporary visits to the islands had been made from the mainland to exploit pitchstone and other resources. Colonisation would be encouraged if there was a rise in population (Binford 1968, Renfrew 1976), but for the Firth of Clyde this remains uncertain. It may be that the islands and the Kintyre peninsula seemed less risky and more attractive for settlement once farming could supplement hunter-gatherer exploitation, and could have been encouraged by some loss of coastal resources in Ayrshire at this time through land recovery. A varied economy is likely to have continued, as was indicated at Quanterness, Orkney (Renfrew 1979). This is supported by detailed examination of the prehistoric environ-

ment and the potential for early farming of the areas surrounding East Bannan and Sliderry Water cairns on Arran (ARN 17, 14) (Perry 1983, Davidson 1983). The continuing use of specialised local resources in this way is suggested by evidence from shell middens in central Scotland (Sloan 1984), and has similarities with the Neolithic activity noted at the small seasonal camps of the Ertebølle Mesolithic groups in Denmark (Rowley-Conwy 1983).

The Monuments of the Neolithic

The main cultural evidence for the Neolithic period in Ayrshire comes from monuments devoted to burial and ritual activity known as chambered cairns, for in the west of Scotland, as elsewhere in Britain, we have only very limited evidence of the settlements of the first farming communities. Chambered cairns of both the "Clyde" and "Bargrennan" groups are known, for which the definitive description is by Henshall (1972). For example, the chambered cairn at Haylie, Largs (AYR 1) (Fig. 5) belongs to the "Clyde" group. A typical feature of "Clyde" cairns is a burial chamber consisting of several segments or compartments whose entrance is marked by portal stones. The cairn covering the chamber was usually elongated, and of rectangular or trapezoidal shape, but, as at Haylie, cairns are very often destroyed or severely robbed. The distribution of "Clyde" cairns is largely coastal, and they occur widely on the western seaboard of Scotland. The radiocarbon dates mentioned above for the cairn at Monamore, Arran (ARN 9) (MacKie 1964) indicate a period of use lasting about 100 years. Activity early in this period is indicated by the determination of 3160 ± 110 bc (Q 675), and the time at which the tomb was finally closed is likely to have been around 2240 ± 110 bc (Q 676). Features of some Ayrshire cairns, for example the cairn at Barr, Balmulloch (AYR 3), which had a round or oval cairn with separate chambers probably entered by passages, suggest affinities with the small group of cairns classed by Henshall as the "Bargrennan" group. These are located inland, mainly in a restricted area of Wigtownshire and Kirkcudbrightshire. However the monuments are often much destroyed so that details of construction remain less well known, and the coherency of the "Bargrennan" group is less certain.

It has generally been assumed that the spatial distribution of chambered cairns will indicate areas of human occupation, in keeping with a function as communal tombs. Thus Childe (1934) suggested that colonist farmers arriving in the Firth of Clyde by the western seaways avoided the heavy soils and thick forests of mainland areas such as Ayrshire, preferring to settle in the vicinity of pockets of easily worked soils developed on raised beach deposits on the islands of the Firth and in Kintyre (cf. Davies 1946). This for Childe explained the marked variation in the occurrence of chambered cairns in the Firth of Clyde region which may be seen in figure 4. The very small number of cairns in Ayrshire is in marked contrast with their more frequent

occurrence on the islands of Arran and Bute and in the Kintyre peninsula. Childe's view that cairns located inland and in more upland locations were related to extension of settlement through time was supported by Scott (1969a, 1970), who proposed a typological development through time for "Clyde" cairns from simple to complex monuments (cf. Henshall 1972).

A study by Renfrew (1973) of the chambered cairns of Arran made a key contribution to his proposition that chambered cairns served as territorial markers for egalitarian societies, the 'small communities, each autonomous and independent of its neighbours' (Renfrew et al. 1976, 201), which Renfrew envisaged for early farming people. The fairly regular spacing of the chambered cairns in relation to the better land of the southern half of the island which is used for agriculture at the present time suggested to Renfrew that each cairn marked a farming territory, and hypothetical territories were defined using Thiessen polygons.

Developing his post-diffusionist approach to the appearance of megaliths along the Atlantic facade of Europe, Renfrew (1976) viewed the building of the monuments as the expression of territorial behaviour engendered as farming reached the limits of expansion in areas used by Mesolithic groups practising coastal exploitation. A subsequent analysis of the location of the Arran cairns in relation to a range of environmental factors (Perry 1984, Perry and Davidson 1987) also suggested the importance of proximity to present agricultural land.

Renfrew's study was of Arran as a closed system. Analysis of the frequency, distribution and location of chambered cairns in a less circumscribed area of the Firth of Clyde, which included mainland areas of Ayrshire and Renfrewshire (Hughes 1987), has however suggested difficulties in applying Renfrew's interpretation at the regional level. Throughout this regional study Ayrshire has been seen to play an important part in highlighting problems and providing evidence which elucidates some of the questions which were raised. In the discussion which follows the Neolithic of Ayrshire is therefore viewed within the wider context of the area which was studied by Hughes (1987) (Figs. 4 and 6).

Renfrew (1976) stressed the importance of the interface between Mesolithic and Neolithic, and this is in keeping with much recent and current research (e.g. Clark 1980, Chapman 1981, Zvelebil 1986). However, if as Renfrew suggested, chambered cairns were built in response to territorial pressure as Neolithic farmers reached areas occupied by Mesolithic communities, it is surprising that so few chambered cairns are known in Ayrshire. As we have seen, there is evidence of quite intensive Mesolithic activity in Ayrshire, especially on the coast, where the major resource spaces described above could have been focal to a 'complex foraging' pattern of exploitation (Zvelebil 1986, 91), likely to have included the use of inland areas and the

HAYLIE, LARGS, CHAMBERED CAIRN

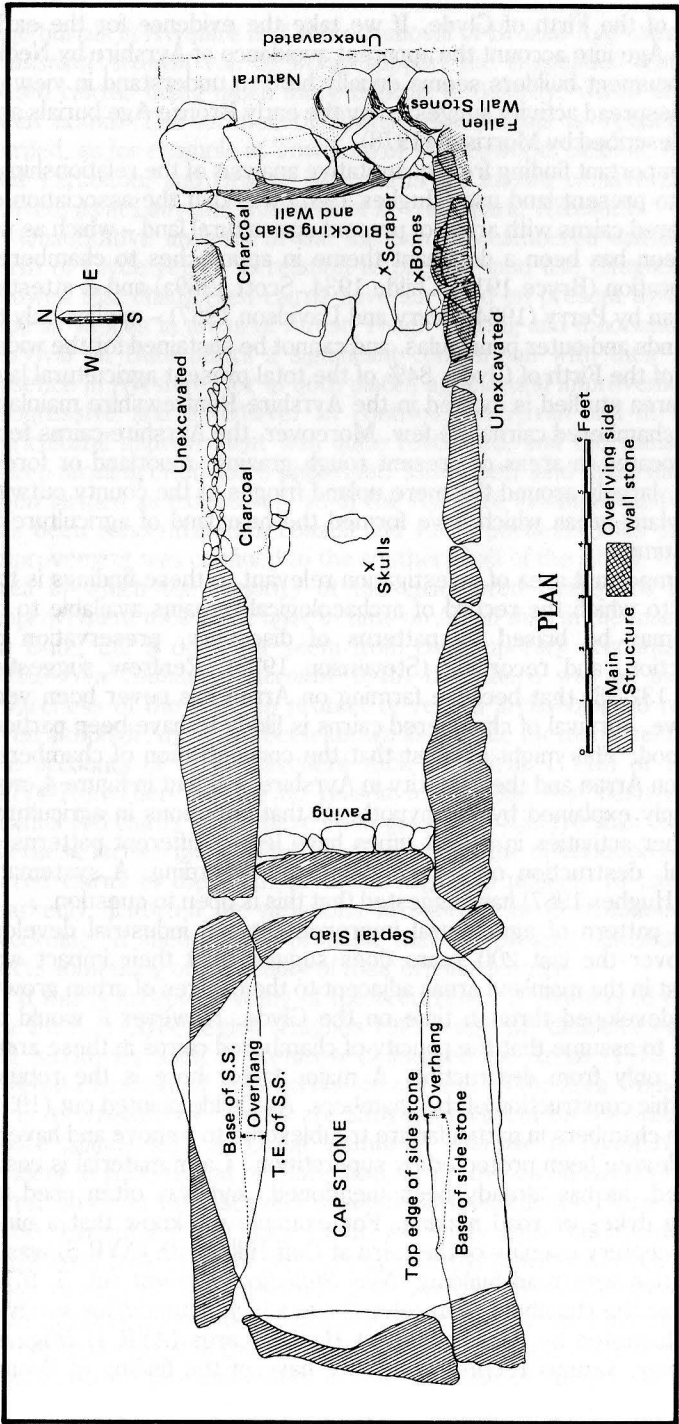


Figure 5: Plan of the Neolithic chamber at Haylie, Largs (AYR 1). (After Aitken & Marshall 1957).

islands of the Firth of Clyde. If we take the evidence for the early Bronze Age into account the apparent avoidance of Ayrshire by Neolithic monument builders seems equally hard to understand in view of the widespread activity suggested by the early Bronze Age burials and finds, described by Morrison (1978).

An important finding from quantitative analysis of the relationship of cairns to present land use (Hughes 1987) was that the association of chambered cairns with areas of present agricultural land – which as we have seen has been a dominant theme in approaches to chambered cairn location (Bryce 1910, Childe 1934, Scott 1969a) and is attested for Arran by Perry (1984, Perry and Davidson 1987) – applies only to the islands and outer peninsulas, and cannot be sustained for the wider region of the Firth of Clyde. 84% of the total present agricultural land in the area studied is located in the Ayrshire-Renfrewshire mainland where chambered cairns are few. Moreover, the Ayrshire cairns tend to be located in areas of present rough grazing, moorland or forest (Fig. 4), largely around the more upland fringes of the county outwith the lowland areas which have formed the heartland of agriculture in recent times.

An important area of investigation relevant to these findings is the extent to which the record of archaeological remains available to us today may be biased by patterns of discovery, preservation or destruction, and recording (Stevenson 1975). Renfrew suggested (1973, 132-33) that because farming on Arran has never been very intensive, survival of chambered cairns is likely to have been particularly good. This might suggest that the concentration of chambered cairns on Arran and their paucity in Ayrshire, evident in figure 4, may be simply explained by the hypothesis that variations in agricultural and other activities in recent times have led to different patterns of survival, destruction or preservation, and recording. A systematic study (Hughes 1987) has suggested that this is open to question.

The pattern of agricultural improvement and industrial development over the last 200 years does suggest that their impact was greatest in the mainland areas adjacent to the centres of urban growth which developed through time on the Clyde. However it would be unwise to assume that the paucity of chambered cairns in these areas results only from destruction. A major factor here is the robust, megalithic construction of the chambers. As Childe pointed out (1935, 53) 'the chambers in particular are troublesome to remove and have to some degree been protected by superstition'. Cairn material is easily removed, as has already been mentioned, and was often used for building dykes or road making. For example we know that a nineteenth century opening of the cairn at Cuff Hill, Beith (AYR 5) was in connection with road building (*New Statistical Account* vol. 5, 578). However the chambers themselves have a high potential for survival, as is illustrated by the chamber at Haylie, Largs (AYR 1) (Fig. 5). Moreover, various records which we have of the finding of Bronze

Age burials in Ayrshire and of the removal of Bronze Age cairns (*New Statistical Account* vol. 5) would support the suggestion that chambered cairns, being much more difficult to destroy, would also have been noted. The location of Bronze Age burials is frequently recorded, as for example at Townend of Threepwood, Seamill, Barassie and Tarbolton, and Bronze Age cairns are known to have been removed, as at Ladyland, Kilbirnie or at Waterpark, Kilmaurs.

Quantitative analysis of the location of chambered cairns in the Firth of Clyde region in relation to present land use (Hughes 1987) showed that chambered cairns have survived on present agricultural land as well as in areas of forest, rough grazing and moorland. Their survival on Bute offers a significant comparison with their relative absence in Ayrshire, for in both places agricultural improvement was progressive and extensive. In contrast, on Arran and in Kintyre agricultural improvement was quite restricted, and the transition to sheep farming often more important. Moreover, land there has never been farmed as extensively as in the Ayrshire lowlands, and activity has been concentrated in coastal and valley pockets. Thus on Arran improvement was confined to the southern half of the island, the same area in which the majority of the chambered cairns are located. Improvement took place later in time on Arran than in the mainland or on Bute, but it does not seem from contemporary accounts (Aiton 1816, *New Statistical Account* 1845) that there was an increased awareness of the need to protect or record archaeological remains, even although Arran had been known as a 'place for monuments' since the accounts of early travellers such as Martin (1716) or Pennant (1774-76). There seems no reason to suppose that destruction of chambered cairns would have been greater in Kintyre than on Arran. All these factors taken together suggest that the distribution of chambered cairns in the Firth of Clyde region is unlikely to have been markedly distorted by variations in survival or destruction and in recording. It seems more probable that the present distribution reflects something of the reality of their original pattern.

If this is accepted, study of the occurrence of chambered cairns in the Firth of Clyde region (Hughes 1987) suggests difficulties in defining territories such as Renfrew delineated for Arran (1973, 1976). Overall a keynote of the distribution of cairns in the area studied (Fig. 4) is its irregularity. Cairns are altogether absent on the smaller offshore islands such as Great Cumbrae, sporadic in Ayrshire, more evident in Kintyre and on Bute, and most obvious on Arran. Even on Arran however the discovery of additional monuments (Pierpoint et al. 1980, Fairhurst 1981) since Renfrew's study make his hypothesis of territories less credible and strengthen the impression that monuments may occur in localised clusters. From a regional perspective the major cluster of chambered cairns suggest that Arran is different from rather than typical of the region as a whole, and hence unlikely to be a microcosm of monumentality in the Neolithic of Atlantic Europe as

Renfrew implied. That Arran is different from the rest of the region is also suggested from study of cairn morphology and elaboration. The chambered cairns on Arran include monuments with distinctive features such as those with chambers having as many as four or five compartments, or those with deep forecourts of semi-circular shape defining the area for ritual or ceremony in front of the cairn. Finds from the cairns on Arran are also distinguished by a range of artifacts of the later Neolithic. These include the large, elaborately worked flint knives of plano-convex type described by Henshall (1972, 108-9).

Polished Stone Axeheads

As we have seen, chambered cairns are associated with the deposition of human remains and appear to have been places of ritual and ceremony connected with the dead. The possibility that their distribution may not, as has generally been assumed, reveal the full extent of the activity of the living in the Neolithic was suggested from comparison, again at regional level, of the distribution of chambered cairns with that of polished stone axeheads (Hughes 1987). A particularly important factor is the evidence from Ayrshire.

Polished stone axeheads (Fig. 7) have traditionally been considered to be tools used in agriculture or wood-working. Recent studies have emphasised that some may have had roles as prized possessions or as items of gift exchange. In either case they are artifacts, typical of the Neolithic period, which are likely to have been associated with the living rather than the dead. Thus their find spots are likely to represent areas of settlement, life and work. This is supported by the observation that axeheads were very rarely deposited in chambered cairns. Moreover, they form an important element in the archaeological record, for they become visible through discovery and are resistant to destruction. They are therefore valuable as an index of Neolithic activity which is independent of the monument record, a point emphasised by Kinnes (1985) in a recent discussion of study of the Neolithic in Scotland.

A listing of polished stone axeheads within the study area in the Firth of Clyde was compiled (Hughes 1987) using a variety of sources. These included previous lists by Frame (1978), Livens (1959), Scott (1969b) and Mearns (1982), as well as Ordnance Survey index cards held by the National Monuments Record and museum records. The distribution of those axeheads whose provenance is known was then examined (Fig. 6). It was found that finds are well distributed throughout the Firth of Clyde region, but tend everywhere to be associated with land now designated as suited to arable agriculture and with areas which are built-up at the present time, likely areas for discovering small finds (Stevenson 1975). The distribution of axeheads may thus be seen to reflect the widespread agricultural improvement and development which has taken place in Ayrshire in recent times and the

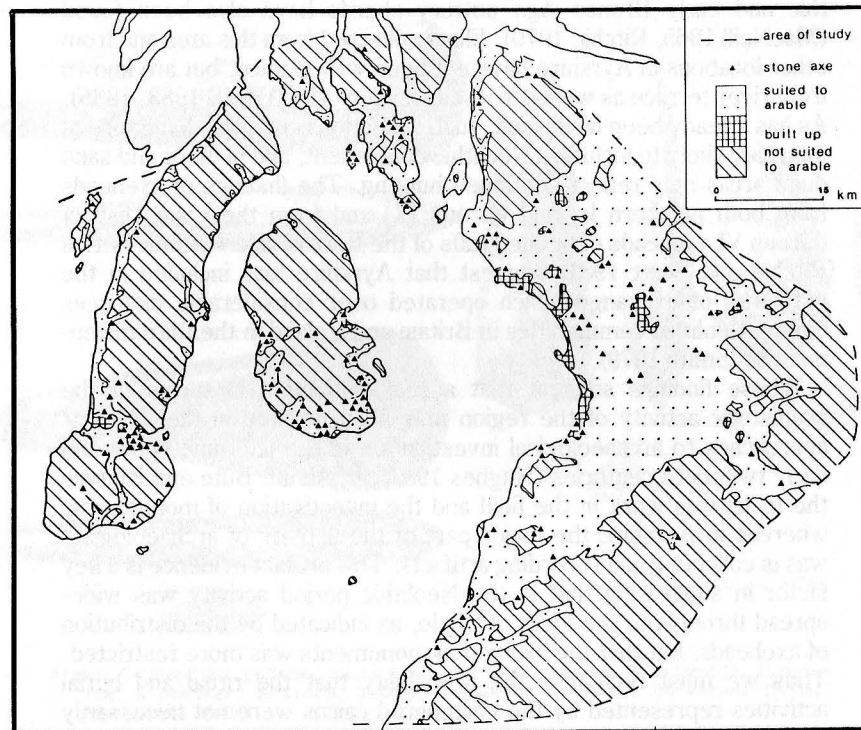


Figure 6: Finds of Neolithic polished stone axeheads around the Firth of Clyde in relation to land suited to present-day arable agriculture (Classes 2, 3, 4) and to areas now built up. (Land use based on Soil Survey of Scotland, Land Capability for Agriculture, Sheet 6, South West Scotland, Macaulay Institute for Soil Research, Aberdeen).

more restricted improvement and development of the islands. It is possible that a wider distribution may remain undetected, especially where peaty soils are prevalent today. This may be indicated by occasional finds during recent re-forestation in Kintyre (Scott 1973) and Arran (Fairhurst pers. comm.). However the quite substantial number of polished stone axeheads found in Ayrshire is a strong indication that there was Neolithic activity in an area in which chambered cairns are few.

Other evidence may be noted which suggests a Neolithic presence in the Ayrshire-Renfrewshire mainland. Two axeheads come from the vicinity of a probable occupation area near Gryfe Reservoir in the Renfrewshire hills (Newall 1966, 1974; Ritchie 1970). Activity in the later Neolithic and early Bronze Age is suggested from the flints and pottery sherds which were recovered. In the Shewalton area of Ayrshire axes of Group IX have been found. These are of porcellanite and come from sources in northern Ireland where quarries are known at Tievebulliagh, Antrim and Rathlin Island. At Shewalton later Neoli-

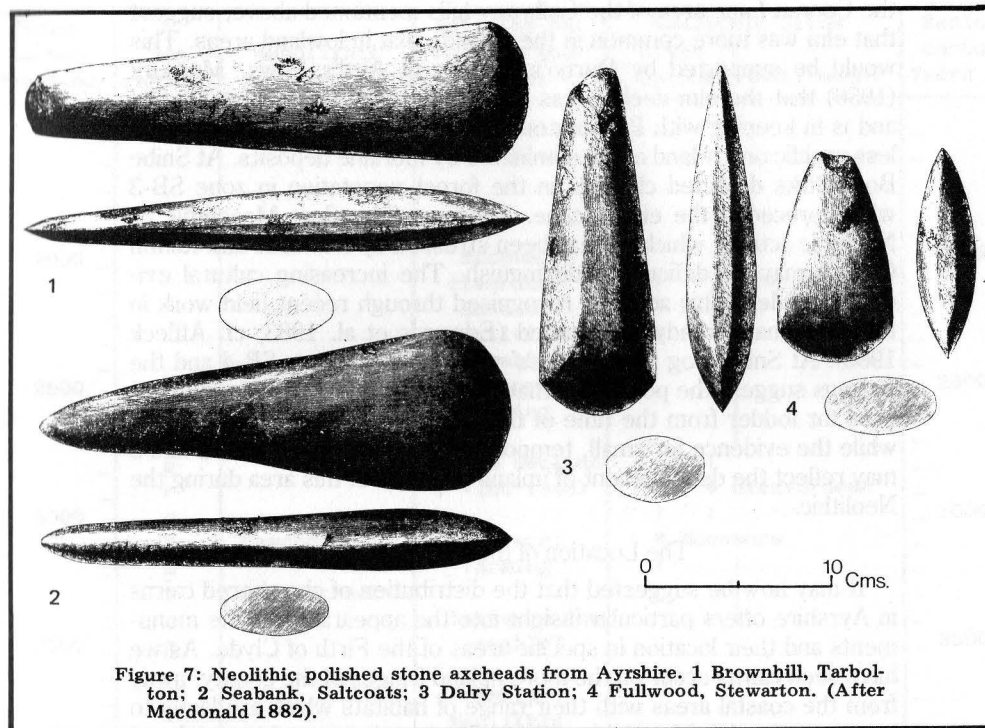
thic and early Bronze Age pottery sherds have also been found (MacNeill 1965, Ritchie 1970). Flints collected from this area and from other locations in Ayrshire have not been well studied, but are known from river terrace as well as coastal locations (RCAHMS 1983, 1985). As has already been discussed, such collections comprise a mixture of material, likely to include a Neolithic component, and in moor and sand dune areas may reflect continued hunting. The findings of axeheads from both northern Ireland (Group IX) and from the Lake District (Group VI axeheads of bedded tuffs of the Borrowdale Volcanic Series (Ritchie and Scott 1981)) suggest that Ayrshire was included in the networks of exchange which operated over considerable distances among Neolithic communities in Britain and Ireland in the third millennium bc (Smith 1979).

These findings suggest that a real distinction in terms of the prehistoric activity of the region may be illustrated in the different approaches to archaeological investigation in the late nineteenth and early twentieth centuries (Hughes 1987). In Arran, Bute and Kintyre the focus was work in the field and the investigation of monuments, whereas in Ayrshire the major part of the activity of archaeologists was in collecting and recording artifacts. This artifact evidence is a key factor in suggesting that in the Neolithic period activity was widespread throughout the Firth of Clyde, as indicated by the distribution of axeheads, but that the location of monuments was more restricted. Thus we must recognise the probability that the ritual and burial activities represented by the chambered cairns were not necessarily coincident with the total extent of settlement and farming, but rather took place at occasional foci in the landscape which were located mainly on the islands and outlying peninsulas or in more upland areas of the mainland. A recent comparison of the distributions of chambered cairns and stone axeheads in Galloway (Ritchie 1987) illustrates a similar spatial division, with clustering of monuments. Chambered cairns are located mainly in the upper reaches of the valleys while stone axeheads have been found mainly in lowland areas.

Environmental Evidence

It is less easy to gauge the extent of Neolithic settlement or the nature of the economy in the wider region of the Firth of Clyde from environmental evidence, for outside Arran palaeobotanical investigations to date have been limited. Moreover there are particular difficulties of interpretation which affect the reliability of the evidence currently available for Ayrshire as a guide to the introduction and development of farming, especially in the more lowland areas.

A careful investigation was carried out by Turner (1965, 1970, 1975) at several points at different distances from the edge of an area of raised bog at Bloak Moss near Kilwinning. Little indication was found of breaking of the forest canopy in the Atlantic period, the only recorded herbaceous plants being from within the bog. Several sub-



zones were detected from the time of the elm decline around the beginning of the third millennium bc. Only slight lightening of the canopy was detected in sub-zone 1 to indicate the activity of Neolithic people (1970, 100). In sub-zone 2 there was evidence for a number of small clearances which were followed by forest regeneration, suggesting some intensification of activity in the Bronze Age (1970, 109). The extent to which this represents a true picture is however uncertain. One problem which has been recognised (e.g. Whittington 1980, 30) is that the very low altitude of the site may make the findings atypical. More serious perhaps are the problems of interpretation outlined by Edwards (1982, 9-12), which stress the difficulties of assessing the scale of clearance and detecting cereal cultivation from profiles taken from bogs likely to have been surrounded by forest, such as Bloak Moss. Some of these difficulties may also apply to the interpretation of investigations at Kippelmoss, another lowland site in Ayrshire, where Durno (1956, 1976) reported a high level of tree pollen throughout. Thus there is reason to suppose that the Neolithic activity in the Ayrshire lowlands, which is indicated from the finding of polished stone axeheads, may not be fully registered in the palaeobotanical record as known at the present time.

Investigations by Birks (1972) at Snibe Bog and Loch Dungeon, in

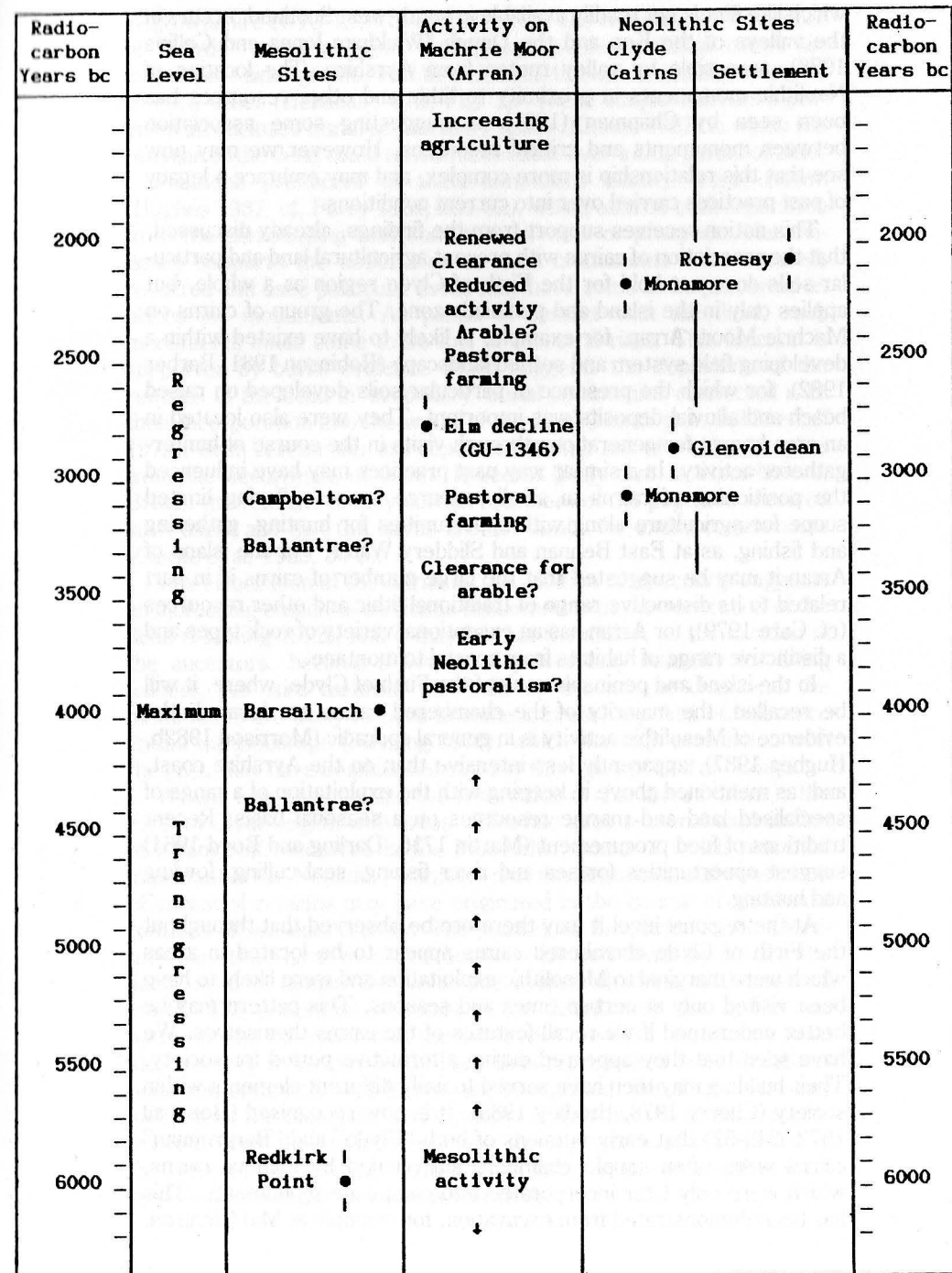
the Cooran Lane area of the Galloway hills mentioned above, suggest that elm was more common in the uplands than in lowland areas. This would be supported by Durno's findings at Aird's Moss, Muirkirk (1956) that the elm decline was more apparent than at Kipplemoss, and is in keeping with Pennington's view (1970, 63-67) that elm was less prolific on lowland areas dominated by moraine deposits. At Snibe Bog, Birks detected changes in the forest vegetation in zone SB-3 which preceded the elm decline. These could reflect Mesolithic or Neolithic activity which, as has been stressed by Edwards and Ralton (1984), may be difficult to distinguish. The increasing cultural evidence of Mesolithic activity, recognised through recent field work in this area, has already been noted (Edwards et al. 1983, cf. Affleck 1986). At Snibe Bog four 'zonules' were noted in zone SB-4 and the findings suggest the possibility that elm leaves were selectively gathered for fodder from the time of the primary elm decline (zonule 1), while the evidence for small, temporary clearances in zonules 2 and 3 may reflect the development of upland pastures in this area during the Neolithic.

The Location of the Monuments

It may now be suggested that the distribution of chambered cairns in Ayrshire offers particular insight into the appearance of the monuments and their location in specific areas of the Firth of Clyde. As we have seen cairns occur on the more upland fringes of the county, away from the coastal areas with their range of habitats which are likely to have been focal to Mesolithic activity. These cairns are also peripheral to the widespread agricultural land of the Ayrshire lowlands, where Neolithic activity is attested by the finding of polished stone axeheads. Often the locations suggest the use of valley routes, as at Cuff Hill (AYR 5) near Beith or Loanfoot (AYR 6) near Darvel (cf. Scott 1951). In the hills of south Ayrshire cairns, located in areas which often remain sparsely settled to the present day, may reflect continuing activity on hills which had shown evidence of Mesolithic activity. The evidence from pollen analysis at Snibe Bog was, as we have seen, compatible with the development of upland pasture in the Neolithic. If, as was suggested, elm for fodder was more readily available in upland than in lowland areas, movement into the hills may have continued as part of the agricultural cycle. Other resources may have been collected in the course of such routine activities. For example, chert,

Figure 8: Mesolithic and Neolithic chronology. The Mesolithic sites are dated by radiocarbon (Barsalloch, Luce Bay (GaK-1601); Redkirk Point, Greta (UB-2445 & UB-2470)) or tentatively by broad raised comparison with raised beach deposits (Campbeltown and Ballantrae). The activity on Machrie Moor, Arran is based on the pollen analyses and radiocarbon dating of Robinson (1983 a,b). The chambered cairn radiocarbon dates are for the sites of Monamore, Lam-lash, Arran (Q-675 & Q-676) and Glenvoidean, Bute (I-5974), the settlement site is Townhead, Rothesay (GaK-1714). Radiocarbon laboratory numbers are given in brackets.

The radio carbon date-range is shown by the symbol



which like flint is not readily available in south-west Scotland, occurs in the valleys of the Ken and the Deugh (Wickham-Jones and Collins 1978), accessible by valley routes from Ayrshire. The location of Neolithic monuments in proximity to lithic and other resources has been seen by Chapman (1981) as suggesting some association between monuments and critical resources. However we may now see that this relationship is more complex, and may embrace a legacy of past practices carried over into current conditions.

This notion receives support from the findings, already discussed, that the association of cairns with present agricultural land and particular soils does not hold for the Firth of Clyde region as a whole, but applies only in the island and peninsula zone. The group of cairns on Machrie Moor, Arran, for example, is likely to have existed within a developing field system and settled landscape (Robinson 1981, Barber 1982), for which the presence of particular soils developed on raised beach and alluvial deposits was important. They were also located in an area known for generations through visits in the course of hunter-gatherer activity. In a similar way past practices may have influenced the positioning of cairns in small resource spaces offering limited scope for agriculture along with opportunities for hunting, gathering and fishing, as at East Bannan and Sliderry Water. For the island of Arran it may be suggested that the large number of cairns is in part related to its distinctive range of traditional lithic and other resources (cf. Care 1979), for Arran has an exceptional variety of rock types and a distinctive range of habitats from coastal to montane.

In the island and peninsula zone of the Firth of Clyde, where, it will be recalled, the majority of the chambered cairns are located, the evidence of Mesolithic activity is in general sporadic (Morrison 1982b, Hughes 1987), apparently less intensive than on the Ayrshire coast, and, as mentioned above in keeping with the exploitation of a range of specialised land and marine resources on a seasonal basis. Recent traditions of food procurement (Martin 1716, Darling and Boyd 1964) suggest opportunities for sea and river fishing, seal culling, fowling and hunting.

At the regional level it may therefore be observed that throughout the Firth of Clyde chambered cairns appear to be located in areas which were marginal to Mesolithic exploitation and were likely to have been visited only at certain times and seasons. This pattern may be better understood if we recall features of the cairns themselves. We have seen that they appeared during a formative period for society. Their building may then have served to unify different elements within society (Cherry 1978, Bradley 1985). It is now recognised (Henshall 1972, 249-52) that early versions of both "Clyde" and "Bargrennan" cairns were often simple chambers surrounded by minimal cairns, which were only later incorporated into composite monuments. This has been demonstrated from excavation, for example at Mid Gleniron,

Wigtownshire (WIG 1,2) (Corcoran 1969) and site plans for a number of "Clyde" cairns suggest that many covered minimal cairns set in groups – side by side, end to end, back to back or radially at angles to each other (Henshall 1972, Fig. 2). These simple chambers provided an enclosed burial or mortuary space (Kinnes 1981) in which the remains of the dead could remain accessible over a long period of time.

Positions prominent in their immediate locality were chosen (Hughes 1987, cf. Perry 1984, 231-32), which offered both separation from the surrounding land and an open view or prospect. The evidence supports the notion that as such monuments were created, revisited and used particular areas may have come to be perceived as places for monuments. As points of contact with the dead, such monuments could come to be foci of ancestral rites. This function is supported by burial evidence which suggests the deposition of the remains of the dead in 'secondary' burial ceremonies connected with their incorporation into the world of the dead (Huntington and Metcalf 1979). Such ceremonies are separated in time and often also in space from the occurrence of death. It seems likely that as elsewhere in Britain the remains of only certain members of the populace received such burial and that the cairns are not tombs for entire communities (Clarke et al. 1985, 26-8).

The elaboration of the cairns by the addition of forecourts suggests an increasing emphasis on rituals concerned with the veneration of the dead (Fleming 1972), and it may be that the cairns, as the location of the ancestors, became a source of power and authority for living leaders. As cairn material was built up around the chambers the monuments are likely to have become impressive points of reference within the landscape (Fleming 1973), which, through association with the past, may have emphasised stability through a period of change.

We can now observe that the association of chambered cairns in the Firth of Clyde region with areas which had seen seasonal exploitation of a range of resources in the Mesolithic, some of which remained important in the Neolithic, suggests that the deposition and veneration of ancestral remains may have originated in the course of traditional routines of seasonal activity. The journey to the places of the ancestors may then have mediated between life and death by setting the linear span of human life within the cyclical rhythms of the natural world. The peripheral locations of the cairns may also reflect the nature of the relationship of the living with the dead. Ancestors were kin, but they were also dead. They thus represented not only fatherhood and authority, well known and recognised, but also uncertainty and fear of the unfamiliar and uncanny. It may thus have been appropriate to place their monuments near the edges of familiar territory, in the remoter areas which, visited more rarely in the past, called forth remembrance of the untamed wilderness.

As was suggested at the beginning of this paper it has been important to consider the Mesolithic and Neolithic periods in the modern county of Ayrshire in the wider context of the Firth of Clyde and south-west Scotland. A notable conclusion which has emerged is that the evidence for the Neolithic in Ayrshire, often somewhat neglected in previous studies of the Clyde region, is of paramount importance to our overall understanding of the Neolithic in this area of Scotland. Equally significant has been the value of a study through time which transcends the traditional Mesolithic-Neolithic period boundaries, and thus allows us to examine and clarify the ways in which the legacy of the past was maintained and was influential in forming the basis of later development.

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