

Coastline and Upland in the Cumbrian Neolithic

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At first sight, the Neolithic period in Cumbria is clearly established. The vegetational history of the region is relatively well known and has produced several examples of pre-Elm Decline clearance episodes. The axe factory sites of the central Lake District have been extensively researched and surveyed. Stone circles and henge monuments have been carefully studied for many years. However, the location and extent of Neolithic occupation has remained unclear.

Over the past 35 years, we have been able to conduct two extensive area surveys in Cumbria, recording evidence of prehistoric activity in the form of lithic scatters. The first of these was of the south west Cumbrian coastal plain between St Bees and Haverigg. The second was of the limestone uplands of eastern Cumbria, between Shap and Kirkby Stephen (fig. 1). The former has produced 158 sites ranging (in terms of flintworking technology) from Late Mesolithic to Early Bronze Age. The latter has produced 149 sites with a similar range.

The south west Cumbrian coastal plain is composed of Triassic sandstones mantled with Devensian till, forming a narrow strip of land between the Lake District mountains and the Irish sea, rarely more than 10 kilometres wide. The terrain is hummocky, with kames and drumlins, and is pockmarked with kettleholes and small tarns.

Sites of Late Mesolithic appearance form two clusters, at St Bees (Cherry 1973, 1983) and Eskmeals (Cherry 1969, 1986) with a smaller group of sites at Nethertown (Cherry 1984a). They are generally close to the 8 metre contour which corresponds to the maximum post-glacial marine transgression. The Eskmeals sites are concentrated in locations where resource-rich estuarine conditions were prevalent during the 5th and 4th millennia bc (Bonsall 1981, Bonsall *et al* 1989). The raw material used for toolmaking was predominantly beach pebble flint, but there was some use of volcanic tuff pebbles, which were used to make a range of tool forms analogous to flint.

Bronze Age sites are more widely distributed. They are mostly small, with the exception of the extensive flint chipping sites in the Drigg (Cherry 1965) and Eskmeals (Cherry 1963) sand dunes. Beach pebble flint

remained the predominant raw material used for toolmaking, normally with characteristic bipolar flaking techniques and the assemblages are dominated by small scrapers. A small percentage - less than 2% - of the raw material used appears to be a pale grey chalk flint, which resembles flints obtainable in the boulder clays of eastern Yorkshire.

In identifying specifically Neolithic sites, however, the position is less straightforward. To begin with, arrowheads of all kinds are extremely rare in the coastal assemblages. Out of over 80,000 artefacts collected, only 48 arrowheads and fragments of arrowheads were found. Leaf arrowheads - the simplest diagnostic artefact of the Neolithic - number only 11, of which 6 were found in the Drigg sand dunes associated with Bronze Age material. If we define an Early Neolithic assemblage as one based on a blade technology with leaf arrowheads and polished stone implements, excluding earlier or later tool forms, then none of the 158 sites in our coastal survey can safely be assigned to the Early Neolithic.

Pottery finds have been minimal and cannot assist in the identification of Early Neolithic material. Apart from the pottery from Ehenside Tarn (Darbishire 1873, Fell 1972) there are only a few sherds from Williamson's Moss, Eskmeals and these are considered to be of Middle Neolithic type (Longworth in Bonsall *et al* 1989). Pottery on the other sites is likely to have been destroyed by intensive modern ploughing.

This shortage of ostensibly Early Neolithic finds gives rise to a number of alternative hypotheses:-

1. That the area was effectively unoccupied during the Early Neolithic. It seems intuitively unlikely that an area so attractive to Late Mesolithic settlement should cease to be attractive in the Early Neolithic. Moreover, the palynological evidence shows, with early clearance episodes at Ehenside Tarn, Williamson's Moss and Barfield Tarn, that the Neolithic in this region was positively precocious.

2. That Early Neolithic sites exist but are to be found outside the areas we were able to survey. We were constrained in our searches by the pattern of modern

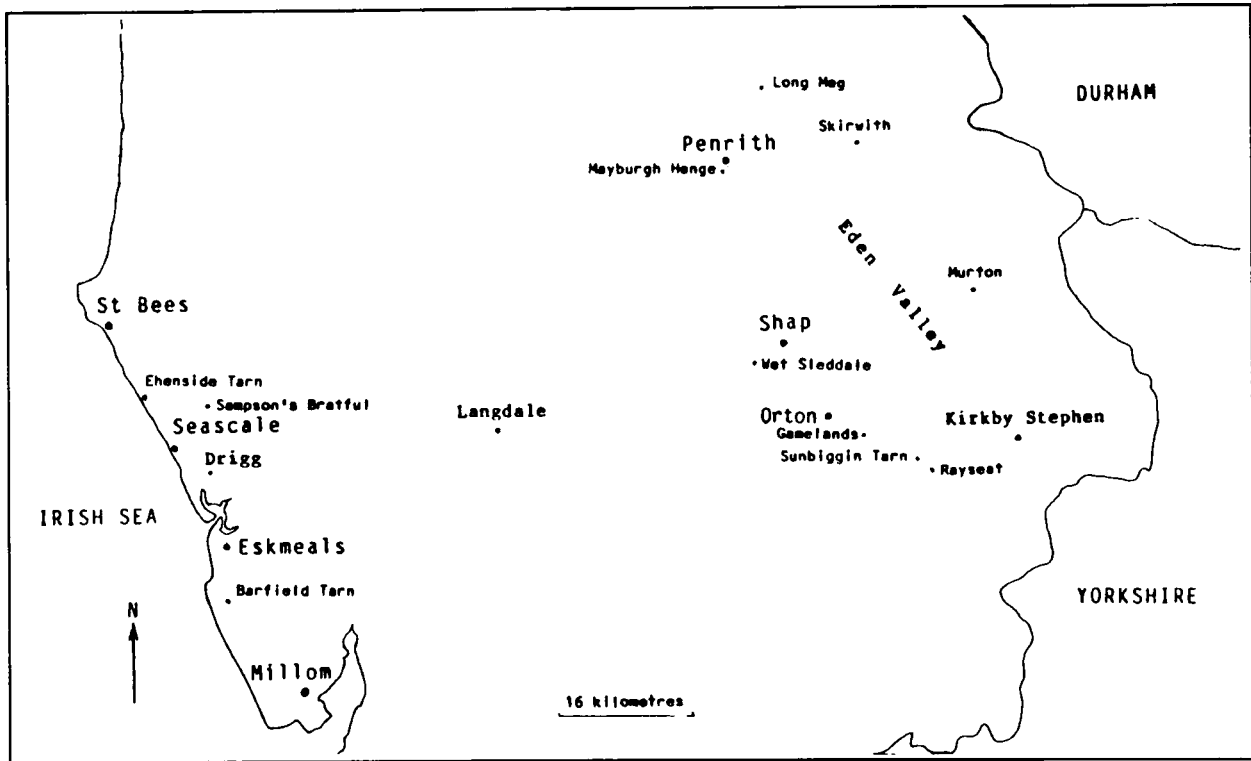


Fig. 1. Sketch map of the coastal and upland areas of Cumbria included in the survey.

ploughing, which was concentrated close to the coast. The distribution of stone axe finds extends somewhat further inland, particularly round Waberthwaite and Gosforth, above which lies the long cairn of Sampson's Bratful (Masters 1984). However, our survey of such ground as was ploughed in these areas tended to show sites becoming smaller and less frequent away from the coast. Some probably Late Neolithic material has been found away from the coast, eg Gosforth 1 (Cherry 1984a) and Waberthwaite 5 (Cherry 1985). Having said that, the evidence for early clearance comes from coastal locations well within the area of our survey.

3. That Early Neolithic sites exist within the area we surveyed but left such ephemeral traces that they have not been identified. It is worth bearing in mind that the report of excavations at Ehenside Tarn makes no mention of flint artefacts among the finds (Darbishire 1873) and our surveys of most of the adjoining fields have produced virtually no evidence of Neolithic flintwork (Cherry 1984a, 1987c). Also, the limited excavations of the crop mark enclosure at Plasketlands near Maryport have produced Early Neolithic dates, but no associated artefacts at all (Bewley 1993).

4. That Early Neolithic sites cannot be recognised by applying conventional typologies because they still retain Late Mesolithic characteristics. There is a virtual overlapping of radiocarbon dates in the 4th millennium bc between sites conventionally considered Neolithic, such as Ehenside Tarn and Plasketlands, and sites of Late Mesolithic type such as Williamson's Moss, Eskmeals (Bonsall *et al* 1989). The coincidence of the late survival of Late Mesolithic technologies and the early appearance

of 'Neolithic' clearance may be of significance here. A number of sites in our survey tends to support this last hypothesis. At St Bees, Rottington 5 (Cherry 1973, 1983) has produced a large Late Mesolithic assemblage. Towards the seaward end of the flint scatter, we found that the flint artefacts tended to be less heavily patinated. The industry was still dominated by blades, but they were larger than those found a short distance further inland. Microliths tended to be fewer, larger and less neatly geometric. Finally, finds included a leaf arrowhead.

At St Bees 8 (Cherry 1983), adjacent to a boggy hollow which may have preserved environmental evidence, we found a blade industry with a fine series of end scrapers on short, ridged blades together with a large isosceles triangular microlith and a chisel arrowhead. The flints were only slightly patinated, in contrast with a conventional Late Mesolithic site elsewhere in the same field. Unusually, the raw material utilised was a grey chalk flint with large creamy inclusions. Although this flint probably originated in eastern Yorkshire, the possibility of an Antrim origin cannot be excluded. We found more chalk flint around St Bees than elsewhere on the coastal plain, and this is not the most obvious distribution to expect if flint was coming from the east. Seaborne links - at least in the Late Neolithic - are shown by the discovery of a Ronaldsway Neolithic stone axe at Seascale (Cherry 1967).

The sites on the gravel ridge to the west of Williamson's Moss, Eskmeals, also show similar features (Cherry 1969, 1986). This gravel ridge formed relatively recently, certainly after 6,000 BP (Bonsall *et al* 1989). Occupation of this ridge can reasonably be expected to postdate the occupation of the site east of Williamson's Moss, excavated by Bonsall (1989), which has produced

a series of radiocarbon dates in the mid-fourth millennium bc. Nevertheless, we found unequivocally on the ridge, a conventional Late Mesolithic site. Overlapping this to the south was a substantial scatter of flints with larger, less patinated blades, with a smaller number of larger microliths and with two leaf arrowheads. A small sherd of undiagnostic plain heavily grit-tempered pot also came from this area.

We should mention that another microlithic site at Eskmeals, Monk Moors 2, has produced a large chalk flint blade and a fragment of volcanic tuff with its flake scars partially ground out over a convex surface. However, the flint industry from this site was, in other respects, entirely Late Mesolithic in character.

The remaining location to produce evidence of pre-Elm Decline clearance is Barfield Tarn to the south of Eskmeals. No ploughing took place in the vicinity of the tarn during our survey and we have therefore had no opportunity to look for artefacts and see whether a similar pattern might emerge. The sites found south of Eskmeals recorded in our survey all appear to be of Bronze Age type (Cherry 1987a).

Sites of Late Neolithic affinities are somewhat easier to identify, but still relatively uncommon. Very little Late Neolithic material has been found north of Seascale. At Seascale itself, Seascale 1 has produced a substantial assemblage including a leaf arrowhead (Cherry 1984a). The finding of a Ronaldsway Neolithic axe at Seascale 3 has been mentioned above. Seascale 7 (Cherry 1967, 1984a) is a small assemblage but one in which the flint artefacts are of chalk flint and there was a large flake of volcanic tuff. Sites in the Seascale area have produced a number of well made blade knives, often on chalk flint.

South of Seascale, the Drigg sand dunes have produced a series of leaf, chisel and oblique arrowheads (Cherry 1965). At Drigg, leaf and chisel arrowheads are found mainly on the low boulder clay ridge in the northern part of the dunes. Arrowheads found on the gravel beds of the coastal foreland in the southern part of the dunes are mainly of oblique or barbed and tanged type. At the northern end of the dunes, the remains of a possible wooden structure, and of a substantial hearth dated to around 2000 bc were found in a peat bed exposed by coastal erosion (Cherry 1982).

Neither leaf nor chisel arrowheads have been found in the Eskmeals sand dunes, which overlies a series of gravel ridges, the formation of which has been dated to between 4400 and 3600 BP (Bonsall *et al* 1989). It is possible that the gravel beds at Drigg were forming at the same time. In a disappointing contrast to sites at Glenluce and Walney Island, the sand dune sites at Drigg and Eskmeals have produced no prehistoric pottery. The only finds suggestive of settled occupation are saddle querns (Cherry 1963, 1988) which may well be of later prehistoric date. During the Neolithic and Early Bronze Age, activity seems to have been focussed on the exploitation of the extensive gravel beds as a source of flint pebbles for toolmaking.

Inland, the sites of Gosforth 1 and Waberthwaite 5 have been mentioned as possible Late Neolithic sites.

Further sites can be found on the gravel ridge to the west of Williamson's Moss, Eskmeals. Finds there include a large unfinished chisel arrowhead in pale grey chalk flint and a hollow-based arrowhead, together with a small undiagnostic plain sherd of heavily grit-tempered pottery. South of Eskmeals, there is little that can be considered Late Neolithic in character.

Our tentative conclusion from our coastal survey is that there was a considerable degree of continuity between the Late Mesolithic and Early Neolithic in south west Cumbria. It is possible that a microlithic technology continued in use until the end of the 4th millennium bc, if not beyond. A conventional division between the Mesolithic and Neolithic periods is very difficult to apply to the lithic scatters we have found. A resolution of this question must await the establishment of a better chronology for the coastal sites, and a more comprehensive range of associated pottery finds.

Some 80 kilometres to the east, the limestone uplands of eastern Cumbria offer a marked contrast in terrain. They consist of a long plateau at heights ranging between 250 and 400 metres O.D., with patchy till cover. There are substantial areas of exposed limestone pavement, interspersed with areas of good pasture, and of moorland with coarse grasses and blanket peat. Below about 275 metres O.D., the land tends to be enclosed pasture, with only occasional ploughing. The area includes a number of probably Neolithic monuments, including Shap stone avenue (Clare 1978), large stone circles at Shap South and Gamelands (Burl 1976), a timber circle at Oddendale (Turnbull 1991) and long or oval cairns at Rayseat Pike (Greenwell 1877; Clare 1979) and Crosby Garrett 174 (Greenwell 1877). Our survey has produced over 12,000 artefacts of flint, chert and volcanic tuff, from molehills, rabbit scrapes, erosion scars and ploughed fields (Cherry 1987, 1995).

The upland sites appear to be concentrated along the northern side of the limestone plateau, particularly round the heads of the rivers Lowther and Lyvennet, and also in the vicinity of Gamelands stone circle and Rayseat Pike long cairn. The distribution of known sites is incomplete, but suggests use of the uplands by peoples originating in the Eden valley to the north.

Numbers of sites of Late Mesolithic type have been found, utilising a blade technology, with geometric microliths, scrapers and knives. The raw materials used for toolmaking are predominantly local cherts, comprising about 65% of total artefacts from these sites. The remaining raw materials used are flint, both pebble flint and chalk flint, with some localised use of volcanic tuff pebbles. The chalk flint is mostly translucent pale grey with black or white speckled inclusions. There is also a little brown chalk flint. These chalk flints almost certainly derive from eastern Yorkshire. The pebble flint does not resemble Irish sea beach pebble flint. The predominant colour is grey, in contrast to the yellow of Irish sea flint. The pebble cortices are rolled but not sandblasted. The most obvious source for these flints is in the gravels of central and eastern Yorkshire.

In upland sites with Late Neolithic or Early Bronze

Age affinities, raw material usage is significantly different. Chalk flint becomes the predominant raw material for toolmaking, comprising around 75% of total artefacts. There is virtually no pebble flint or pebble tuff. The balance of artefacts is made from local cherts.

Arrowheads are, in relative terms, about fifteen times more frequent than in the coastal assemblages. Also, we have found pottery on 40 of the upland sites, which was probably made locally (Cherry 1992). Nevertheless, we have encountered the same difficulty in identifying 'classic' Early Neolithic assemblages in the uplands as on the coast.

As yet, there is no evidence for pre-Elm Decline clearance in the area. Only two pollen diagrams exist. The first is for Sunbiggin Tarn, near Rayseat Pike (Webster 1969). This was intended to support research on the environmental impact of Romano-British occupation, and the Elm Decline is used as a starting point for the diagram, so that no information prior to the Elm Decline is available. The second is from Wet Sleddale near Shap (Chinn and Innes in Cherry 1995). This covers periods before the Elm Decline but identifies no interference with the vegetation cover until the Elm Decline itself, notwithstanding that there is a significant concentration of Late Mesolithic sites within 2 kilometres to the east, at Shap.

We have identified a number of sites where Late Mesolithic artefacts occur together with Neolithic artefacts. As with coastal assemblages, there is no way of demonstrating whether these occurrences are the result of coincidence or genuine association. Sites (reported in Cherry 1987b) include Shap 5 (microlith, leaf arrowhead, probable Grimston ware), Shap 6 (microlith, fragment of polished stone axe), Gaythorn 3 (microlith, stone axe fragment, chert leaf arrowhead, and a crumb of heavily grit-tempered pot), Tarn Moor 4 (microlith, chert leaf arrowhead), Gamelands 1 (microlith, leaf arrowheads) and Rayseat 7 (microliths and leaf arrowheads). However, we have not observed any obvious variation in blade size, degree of patination or microlith size or type which would distinguish these sites from other Late Mesolithic sites, as in the case of the coastal assemblages at St Bees and Eskmeals.

It may be worth noting that Neolithic monuments tend to occur in the vicinity of clusters of sites with Late Mesolithic affinities, particularly at the Shap South and Gamelands stone circles, and Rayseat Pike long cairn. The lithic scatters may well be earlier than the monuments, but there are hints of continuity in patterns of activity here.

Late Neolithic sites on the limestone uplands are numerous and recognisable not only by finds of leaf, chisel and oblique arrowheads, but by the presence of Peterborough Ware (15 sites) and Grooved Ware (5 sites) (Cherry 1987b, 1992, 1995). The presence of pottery of probable local manufacture on these sites implies that the uplands were occupied for significant periods, not just by transient hunting parties.

Fragments of polished stone axes, from use or reworking, are frequently found, and although most are derived from the axe factory sites of the central Lake

District, a small proportion may come from the tuffs which outcrop in the vicinity of Ullswater and Haweswater, both easily accessible from the Shap area (Davis 1987 in Cherry 1995). A similar conclusion has been reached for a group of finds from the Craven district of Yorkshire (Davis in Cherry forthcoming). Curiously, although fragments of polished stone axes are common in the limestone uplands, they are extremely rare in coastal assemblages. Finds of complete or substantially complete axes are relatively common on the coast and include numbers of roughout axes (eg Cherry 1969, 1984b).

Other differences can be found when comparing artefact types between coastal and upland assemblages. For example, serrated blades and flakes are commonly found on upland sites but are extremely rare on coastal sites. The ratio between knives and scrapers - a subjective distinction but consistently applied - is twice as high on upland sites as on coastal sites. Finally, as previously mentioned, arrowheads of all types are found some fifteen times more frequently on the uplands than on the coast. This may indicate that fishing as opposed to hunting was the main source of protein in the diet of coastal communities.

A small group of specifically Bronze Age sites has been identified on the higher ground with scrapers and barbed and tanged arrowheads. This type of arrowhead is relatively uncommon in the uplands (22% of finds), by comparison with leaf (54%) and chisel/oblique arrowheads (27%) (Cherry 1987b, table 9) and is often found in isolation, rather than with other occupation debris. We have found only small amounts of Beaker pottery. We have interpreted this to indicate a general reduction or change in prehistoric activity in the uplands, perhaps with greater emphasis on hunting during the Bronze Age. This contrasts with coastal evidence where the majority of sites are of Bronze Age type.

The two areas of survey are neatly bisected by the extensive workings of the Great Langdale axe factory complex (Claris and Quartermaine 1989). In their recent investigations into the production and dissemination of stone axes from these sources, Bradley and Edmonds (1993) have considered the evidence of vegetational history and monuments in Cumbria and have concluded that prehistoric communities in the Eden Valley and East Cumbria may have developed in a different way from their coastal counterparts. The view that there may have been two distinct social groups in Neolithic Cumbria is also supported by the evidence of the petrology and distribution of hammerstones excavated recently from the Great Langdale axe factory sites (Bradley and Suthren 1990).

Our surveys show a clear distinction between the coastal and upland settlement, in the raw materials used for toolmaking. Significant amounts of good quality flint from Yorkshire were available to the upland communities. The amount of this superior material reaching the coast was negligible. Arguably, therefore, the coastal groups were not in the same exchange networks as the upland communities. Moreover, this distinction was evident during, or had its roots in the Late Mesolithic. The evidence from the uplands cannot be regarded as the activity of an intrusive immigrant Neolithic population

derived from Yorkshire.

The key to these issues, in our view, lies in the Eden Valley, in the area round the Penrith henges (Topping 1992) and Long Meg stone circle (Burl 1994). Very little fieldwork has been carried out in the Eden valley to date, but probable chalk flint artefacts are recorded from Brougham with Peterborough Ware (Fell 1972), Murton (Fell 1991) and Skirwith (Cherry 1993). Connections with Yorkshire are highlighted by the finding of a 'Seamer' type flint axe at Ainstable (Richardson 1991). A systematic programme of fieldwork will be needed to establish the detailed nature and chronology of Neolithic settlement in this area, to ascertain whether the tentative arguments advanced here can be supported.

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