

THE PREHISTORIC PERIOD

RESOURCE ASSESSMENT

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PALAEOLITHIC AND MESOLITHIC

The Palaeolithic period represents a time span covering almost the last half million years. Early material from the Lower and Middle Palaeolithic is uncommon on a national scale, and there are no known sites from the North West. This is perhaps not surprising as for a considerable part of this time the region was inhospitable due to glaciation, although the warmer, interglacial and interstadial periods would have undoubtedly seen gatherers and hunters exploiting the area that now forms the region. The Late Upper Palaeolithic (*c.* 11,000 to 8000 BC) represents the final stages of the Devensian glaciation. The archaeological evidence is sparse but certainly demonstrates the presence of human groups in the region during this time. The Mesolithic represents the period from the end of the Devensian glaciation at *c.* 8000 BC to the widespread adoption of Neolithic culture and economy sometime after *c.* 4000 BC. The period is regularly divided into an early and late phase, with a dividing line of approximately 6500 BC.

Environment

Late Palaeolithic deposits from the Late Devensian late glacial epoch, although not abundant, have been identified throughout the North West, e.g. at St Bees (Coope and Joachim 1980, Coope 1994) and the tarns of Cumbria (Pennington 1970) in the north, to Cheshire (Leah *et al* 1997, 50) and Greater Manchester (Birks 1964-65) in the southern part of the region. As the ice retreated and the climate became warmer in the Late Devensian interstadial period, the vegetation on the drier land was an open birch, juniper and willow scrub with a rich herbaceous flora. This was ultimately replaced by more open grassland with less stable soil conditions.

Environmental changes involved a general rise in sea-level, as the ice cap melted, an increase in rainfall and natural successions of woodland vegetation. In the earliest phase of the Mesolithic, by *c.* 7250 BC, the coastline of North West England lay at *c.* -20 m OD (Tooley 1974, 33). This produced a coastline drawn roughly along a line from just west of Anglesey to west of Walney Island in Morecambe Bay, forming a belt of now submerged land, about 10-15 km wide (Tooley 1985, Fig. 6.1). This gradually diminished up to *c.* 5200 BC, when it lay at -2 m OD, by when Britain had become an island (Tooley 1974; 1978; 1985).

Palaeoenvironmental analysis has illustrated a sequence of environmental changes culminating in increasing forest cover, up to about 500 m OD (Tallis 1975, 1999). The open grassland of the Late Devensian III (*c.* 11,000 to 9500 BC) was succeeded in the Early Mesolithic firstly by juniper, willow and birch scrub, then by a hazel woodland with pine, followed by a mixed deciduous woodland of oak, elm, birch, hazel and lime. In many areas swamp, and subsequently fen, formed behind the present coastal zones and in poorly drained hollows within inland and upland areas. About 6000-7000 cal BC alder spread throughout the region possibly as a response to a change to wetter conditions or as the result of human or animal interference (Chambers and Elliot 1989). Throughout the Mesolithic, when mixed woodland covered much of the drier ground, there is evidence that suggests that mire surfaces were being burnt. The North West Wetlands Survey and Taylor *et al* (1994) have recorded discrete bands of charcoal in peat deposits, often dated to the period, throughout the region from Solway Moss (C) to Lindow Moss (Ch). These bands are often correlated with brief changes in pollen diagrams, e.g. at Little Haweswater (C) (Taylor *et al* 1994), Thwaite House Moss (L) (Middleton *et al* 1995, 182-190) and at Walker's Heath (Ch) (Leah *et al* 1997, 81-7, 221-4), suggesting small clearances followed by woodland regeneration.

The wetland areas in North West England expanded further at the Late Mesolithic/Early Neolithic transition when the falling sea levels of the Lytham VI marine transgression (Tooley 1978) left behind

large areas of wet minerogenic soils along the Irish Sea Coastal Plain, which developed into the coastal raised mires (Cowell and Innes 1994; Middleton *et al* 1995; Hodgkinson *et al* 2000, 23-84).

Post-Glacial Activity

Although it has traditionally been argued that there is no definitive proof for early activity in Northern Britain, there is evidence suggestive of a Later Palaeolithic presence in Cumbria (Young 2002). Interpretations have however been problematic, with the majority of assemblages mixed with typologically 'later' artefacts, often a result of disturbance of the cave deposits with which this material is commonly associated. Salisbury (1992) provided the first discussion of such evidence from caves around the southern Cumbrian limestone. Despite a piece of red deer antler from Kirkhead Cave being dated to 11,050-10,400 cal BC (Salisbury 1992) the close dating of artefacts from lower stratigraphic contexts remains unresolved (Wood *et al* 1969; Ashmead and Wood 1974; Gale and Hunt 1985; Salisbury 1986, 1988; 1997; Tipping 1986; 1990). However, the Late Devensian zone III (c. 11,000 to 9500 BC) dating for some of the Kirkhead Cave lithic material remains unchallenged (Young 2002). A single flint bladelet from Badger Hole, Warton (L) has parallels with the Kirkhead material, and may also represent Late Upper Palaeolithic activity. Early indications of human activity have been identified at High Furlong in the Fylde (Hallam *et al* 1973) in the Late Devensian II warm interstadial period. Here the skeleton of an elk displaying signs of hunting was preserved within shallow water deposits. The skeleton was dated to 13,500 - 11,500 cal BC (Jacobi *et al* 1986; Middleton *et al* 1995, 87), although this date has recently been slightly refined towards the later end of this spectrum (R. Jacobi pers. comm.).

Excavations at Lindale Low Cave (C) recovered potentially the earliest evidence for occupation in the region in the form of a large angle-backed blade of Creswellian type, sealed beneath a stalagmite floor (Salisbury 1988; 1992). A single flint bladelet similar to those from Kirkhead Cave and Badgers Hole was recovered from a separate location within the cave, and is unlikely to be contemporary. Excavations in caves at Blenkett Wood, Allithwaite (Salisbury 1997) may also have produced Late Upper Palaeolithic tools alongside later lithic artefacts, faunal remains and human burials from within highly disturbed contexts (Young 2002). Excavations at the cave of Bart's Shelter on the Furness Peninsula have produced 80 complete lithic implements (Young 2002), including a Late Upper Palaeolithic shouldered point (R. Jacobi pers. comm.). The late glacial faunal assemblage includes elk and reindeer, while remains of bear and pig remain undated (R. Jacobi pers. comm.). Recent excavations at Carden Park (Ch) have also produced Late Upper Palaeolithic material including a Cresswell point, representing the first *in situ* Late Upper Palaeolithic material from the county (<http://users.breathe.com/kmatthews/carden2.html>).

Mesolithic

The evidence for Mesolithic activity across the region activity is heavily influenced by the exposure of diagnostic material, and concentrations of fieldwork in particular areas. The evidence for occupation, of any nature, is primarily represented by scatters of lithic material (Harding 2002, 15) and there have been few organic or structural remains identified. Palaeoenvironmental evidence is however, fairly widespread. This is suggestive of repeated woodland reduction episodes and in the uplands burning of the woodland to encourage regeneration and browsing, which may have been an important part of landuse (Mellars 1976a; Middleton *et al* 1995). The clustering of Later Mesolithic material in raised beach contexts around the Esk estuary (C) in particular is suggestive that communities were exploiting coastal resources and inland freshwater tarns (Bonsall *et al* 1994). Perhaps the most dramatic evidence is represented by a series of human footprints preserved in silts and muds at Formby (M), which have been dated to the later Mesolithic (Gonzalez *et al* 1996) and represent activity along a near-shore intertidal environment.

In western Cumbria, Later Mesolithic flint scatters have been located on the raised beaches of the maximum marine transgression and along clifftops north of St. Bees (Cherry and Cherry 1983; 2002). There are extremely few perceptible technological differences between Later Mesolithic and Early Neolithic lithic scatters in the region and it has been suggested that a microlithic technology persisted in Cumbria into the Neolithic (Cherry and Cherry 2002; Evans 2004). With perhaps the exception of some sites where microliths form the majority of tool forms represented, the identification of purely Later Mesolithic scatters in the area is problematic as the majority of assemblages derive from surface scatters and erosion scars. The visibility of earlier material is influenced by sea level changes and may have been truncated over the course of the Later Mesolithic, Early Neolithic or later (Cherry and Cherry 2002).

At Monk Moors on the west Cumbrian coast two large microlithic scatters incorporating a variety of largely geometric microlith forms have been investigated (Cherry and Cherry, 1986). Site 1 revealed an arrangement of hearths and stakeholes covering an area of 7 m by 2.4 m, corresponding with highest densities of artefacts recovered from the ploughsoil (Bonsall, 1989). Radiocarbon determinations from a hearth indicate occupation of the site at 5970-5630 cal BC (Bonsall *et al* 1986, Hodgkinson *et al* 2000). Nearby at Williamsons Moss, extensive activity was centred around the banks of an inland lake formed after 5473-5074 cal BC (Bonsall *et al* 1994). Excavations revealed a lithic assemblage of more than 32,000 pieces and a variety of occupation remains that have not seen full publication. Radiocarbon dates of 'wooden structures' dated to the fifth millennium BC and taken to be indicative of year round occupation of the site (Bonsall 1981) are however now believed to have been natural features (Hodgkinson *et al* 2000; Croft *et al* 2002). The lithic assemblages and the range of dates from both Williamsons Moss and Monk Moors span from *c.* 5790-5360 cal BC to 1252-910 cal BC and are indicative of multiple activity phases, not solely Later Mesolithic as has commonly been implied. The only current artefactual evidence for Mesolithic activity from the central Lake District is the find of a small number of microliths from the environs of the Roman fort at Waterhead, at the north end of Windermere (Fell 1971; CFA 1993; Manning and Dunwell 1995).

Both Earlier and Later Mesolithic material has been identified from cave sites on the southern Cumbrian limestone (Salisbury 1992; 1997; Young 2002). An assemblage of Early Mesolithic microliths, some manufactured from volcanic tuff, have been recovered from Bart's Shelter, along with a bone or antler point dated to 6210-6190 cal BC (R. Jacobi pers. comm.). Further sites in Furness have been identified and have seen some excavation, both at the hands of antiquarian and more recent investigators. The finds from these excavations are believed to incorporate a variety of material dating from the Later Palaeolithic, Early and Later Mesolithic onwards but few sites or full assemblages have seen detailed analysis or publication. Without close analysis of finds (a number of which are at present unaccounted for) the typological dating of a number of these implements as Early Mesolithic remains unresolved, with interpretations based on individual analyses of difficult and often chronologically mixed assemblages. Mesolithic flintwork has also been identified on the limestone in eastern Cumbria together with an early find of bone harpoon heads at Crosby-on-Eden (Hodgson 1895; Cherry and Cherry 1987a; Cherry and Cherry 1995). Assemblages of Late Mesolithic and Neolithic date have been found sealed beneath burial mounds at Levens Park, (C) (Cherry and Cherry 2000) and Borwick (L) (Olivier 1988), implying repeated use of some locations into the Neolithic.

Until recently, to the south of Morecambe Bay the main areas of prehistoric occupation were thought to be confined to the north Wirral coast (Hume 1863; Varley 1964; Roeder 1900). The North West Wetland Survey (Middleton 1990) together with a large scale programme of systematic field survey (Cowell 1991; 1992c; Cowell and Innes 1994) has added considerably to the picture. This has extended the pattern of coastal Mesolithic settlement along the present Sefton coast, around the valley of the river Alt. Potential Later Mesolithic material has been identified within the area of the former coastal zone and large scatters at Banks near Southport and on the north side of the Ribble estuary at Peel. Smaller scatters have been identified on islands of sandy soils, such as at Halsall (L) and Downholland (L) (Middleton 1997). Systematic fieldwork in inland areas is more generally characterised by the recovery of small numbers of lithic forms, generally debitage, scattered widely across the landscape (Cowell 1991a; Cowell and Innes 1994; Middleton 1993; Middleton 1997; Hall *et al.* 1995). The main exception to this pattern comes from a concentration of Later Mesolithic lithic material from Halton (L) in the Lune valley (Penney 1978). These are only small assemblages in comparison to many sites in the Pennines (Mellars 1976a), but are reasonably consistent, suggesting that they are representative of the nature of occupation in south Merseyside, west Lancashire and the Fylde (Cowell and Innes, 1994; Middleton 1997; Middleton *et al* 1995).

The western Wirral sandstone ridge has produced the best Early Mesolithic evidence from the western lowlands at Greasby (M) and Thurstaston (M) (Cowell 1992b), which includes the densest concentration of Mesolithic finds in the county. Later Mesolithic assemblages are also known from sites such as at Irby (M) (Philpott and Adams forthcoming; Philpott and Cowell 1992). Excavation of Early Mesolithic sites at Greasby Copse and Thurstaston Dungeon has shown that these sites are fairly typical of those found elsewhere in that they cover relatively large areas, 200 square metres or more, and incorporate a full range of flint reduction material and a wide variety of tool forms. The Greasby site also includes stone lined pits.

Radiocarbon dates from Greasby Copse are awaited. Raw material at both sites strongly suggests that the North Welsh coast was being used for the exploitation of local chert sources (Cowell 1992b). South of the Mersey, the Triassic sandstone mid-Cheshire ridge forms the focus for Mesolithic sites where a small number have been located by fieldwalking around Frodsham (Varley 1964; Longley 1987). A little to the south, four separate flint scatters from fields around the village of Ashton include both early and later forms (Leach 1942).

The central Pennine uplands of Lancashire and Yorkshire have produced one of the greatest concentrations of Mesolithic sites in the country, and this evidence has played a dominant role in interpretations of the period. Early work was undertaken on the flint assemblages of the Pennines during the late nineteenth century (Stonehouse 2001, 19) and from the 1920s by Francis Buckley (1924), whose work has subsequently been developed by others (Clark 1932, Switsur and Jacobi 1975; Jacobi, Tallis *et al* 1976). In addition to Buckley's finds and records a large collection of lithics and archives were accumulated by Pat Stonehouse (Stonehouse 1989; 1994; 2001). During the 1990s the West Yorkshire Archaeological Unit also undertook research on the Mesolithic archaeology of the southern Pennines, sometimes working on sites first investigated by the earlier researchers (Spikins 1995; 1996). The sites largely occur where erosion of the post-Mesolithic peat overlying mineral soil has taken place. Such material ranges from a few pieces of struck flint to several thousand (Stonehouse 1989). In contrast, sites within the Pennine foothills at Tatton (Higham and Cane 1999), Manchester Airport and Mellor (Redhead and Roberts 2003) have been located as a result of excavating sites of later periods.

The southern Pennine sites are represented by surface assemblages of varying sizes (Jacobi *et al* 1976; Tallis *et al* 1976). Most of the upland scatters are dominated by microliths, often forming more than 90% of the assemblage, with the greatest concentration being found in a fairly restricted area between Saddleworth and Marsden (Barnes 1982). Further south, a foothill valley ridge location at Alderley Edge (Ch), has produced several locations with Mesolithic lithics, including potentially early material (Longley 1987). Further to the north, the Pennines are seemingly almost devoid of sites but this may be a reflection of the limited fieldwork undertaken there.

Where excavation has taken place (Barnes 1982; Buckley 1924; Radley and Mellars 1964; Stonehouse 1986) upland sites are generally represented by circular arrangements of struck flint over small areas, often with hearths or evidence of burning (Spikins 1995; 1996; Poole 1986; Howard-Davis 1996). Structural evidence may be represented by small stake holes or circular arrangements of stone. A small flint assemblage was excavated at Radcliffe (GM) in the Irwell valley, including an axe sharpening flake. A multi-ringed post structure was also excavated but a direct association with the flint was not established (Spencer 1950; Clarke 1954). The site at Tatton Park (Ch) has produced an early Mesolithic flint scatter associated with a natural hollow (Higham and Cane 1999), while details are still awaited for the associations of the relatively large lithic scatter from the Manchester Airport excavations (Thompson 1998).

Ritual, Religion and Ceremony

Little is known of Mesolithic religion or burial practice for the country as a whole. There have been claims for a Mesolithic date from some of the human remains recovered from cave contexts (Young 2002) but these have not been scientifically dated, and equally may date from later prehistory.

Technology and Trade

Although flint-bearing chalk is present at the same latitude to the east in Yorkshire and Lincolnshire, and to the west in County Antrim, in geological terms flint is almost entirely absent from the region. Pebble flint does occur in localised pockets of coastal shingle, likely a result of a disintegrating chalk formation lying beneath the Irish Sea (Cross 1939), and flint also occurs in small quantities in boulder clay. The presence of black and grey chalk flint within assemblages suggests sources in East Yorkshire (Jacobi 1978; Cherry and Cherry 1987a; Cherry and Cherry 2000, 25-7; 2002) and the Flamborough Head area (Cherry & Cherry 1987a; Durden 1996) although an Irish origin cannot be ruled out for some of this material (Cherry & Cherry 1996; Edmonds 2004). The ubiquity of chalk flint in eastern areas has been taken to suggest the exploitation of sources to the east rather than the west (Cherry & Cherry 2000, 2002) which in turn might suggest the presence of long distance trade networks and exchange, possibly integrated within the seasonal movement of peoples. However, the evidence and sourcing of material remains equivocal.

In the eastern Cumbrian uplands Late Mesolithic scatters contain primarily (*c.* 60%) local cherts, while pebble flint was also used, probably sourced from local and Pennine river gravels. The dominant use of chert on the Early Mesolithic Wirral sites probably represents exploitation of a source within the limestone hills running along the west side of the Dee estuary, sometimes called Gronant chert. Derbyshire chert began to be widely used in the Pennines during the Late Mesolithic (Radley 1968) and this is a potential source for the chert found on the lowland sites east of the Mersey estuary. The source for lithic forms manufactured from volcanic tuff in the north of the region is still believed to be glacial drift originating from the central Cumbrian Massif (Bradley & Edmonds 1993). There is as yet no evidence that the high quality material in the central Lakes was exploited at source until the Early Neolithic (Bradley & Edmonds 1993).

Legacy

During the fifth millennium BC disturbed ground and associated small gaps in the woodland cover become more common across the region. They occur both around the coastal areas and around the central mosslands, and even continue into the fourth millennium BC in Merseyside and Lancashire (Cowell and Innes 1994; Middleton *et al* 1995). At the coastal sites of Bidston Moss and Flea Moss Wood these phenomena are accompanied by cereal-type pollen at *c.* 4900-4500 cal BC, mirrored at a number of other sites in North West England and Northern Ireland (Edwards and Hiron 1984).

If cereal-type, rather than positively identified cereal pollen, is taken as representing the introduction of domesticated plants into the region at such an early date, the implications are that Mesolithic communities were adopting aspects of an agricultural economy (Simmons and Innes 1987). All the sites where this phenomenon is found lie along the western seaboard of Britain (Edwards and Hiron 1984), suggesting widespread contacts along the western coast. Small-scale agriculture may have gradually become part of the Mesolithic repertoire, in addition to the established lifestyle of gathering and hunting. It is notable that the two local occurrences are both found in the coastal zone, where stronger evidence for the repeated use of the same locations is found (Bonsall 1981). The apparent lack of technological change between the flint assemblages of the Later Mesolithic and Early Neolithic also demonstrates a gradual change, and that many aspects of Neolithic lifestyle and economy were already in place by the fifth millennium BC.

NEOLITHIC AND BRONZE AGE

The onset of the Neolithic can be placed within the centuries around 4000 BC. Traditional narratives and perceptions of the Neolithic have concentrated on the 'sea change' thought to separate the transitory hunting and gathering lifestyle of Late Mesolithic groups to the increasingly settled agriculture practised by Neolithic communities. The distinctions between these periods are commonly defined by the appearance of ceremonial and funerary monuments together with a new artefact 'package', including pottery and distinctive lithic forms. Recent interpretations have, however, stressed that while there are many shared elements of material culture and architecture across Britain as a whole, the manner and chronology of the introduction of domesticated plants and animals and the use of particular monumental forms may have varied considerably across different regions. Furthermore, received wisdom concerning the changing character of settlement has been questioned, and it has been suggested that Neolithic societies maintained a significant degree of seasonal or transitory movement in some areas (e.g. Barrett 1989; 1994; Topping 1997; Whittle 1997) and more permanent settlement in others (e.g. Cooney 1997; Barnatt 1999; 2000).

The Late Neolithic (3000-2500 BC) is regarded as marking a phase of intensification of settlement, landuse and artefact production, and has been associated with the first indications for the existence of social hierarchies (Bradley and Edmonds 1993). There is increasing evidence for long distance communication and interaction, particularly in the realm of ritual and ceremony. In parts of the north, however, the period is also seen as one where distinctive regional characteristics become apparent (Piggott 1954; Bradley 1984; Harding *et al* 1996).

The Bronze Age is usually divided into three phases, namely Early (from *c.* 2500 BC), Middle (*c.* 1500-1100 BC) and Late (*c.* 1100-600 BC). While it is accepted archaeological terminology it must be emphasised how artificial it is to draw a boundary between the Later Neolithic and Early Bronze Age. At a

national scale the Early Bronze Age marks the introduction of bronze metalwork, changes in pottery styles, the increased occurrence of single burial traditions and changes in monumental building. At a regional scale there are hints at broad changes in religious, agricultural and social practices during the latter half of the third millennium BC, but there is also evidence from throughout the region for a large measure of continuity in the archaeological record. It is by no means certain when the first metals were used within the North West, and the continued exploitation of sources of stone can be seen in the production of axe hammers during the third millennium BC.

Environment

The maximum marine transgression around the time of the Mesolithic-Neolithic transition has been identified in a number of areas situated around the 8 metre contour, which has been associated with Later Mesolithic and Early Neolithic lithic scatters. Former shorelines are represented by shingle ridges, some now lying up to 1 km inland, the formation of a number of which have been closely dated (Tipping 1994; Clare *et al* 2001).

The upland evidence suggests that during the fifth, fourth and third millennia, communities were involved in the creation and management of forest and heathland clearings in a variety of topographic settings. Both upland and lowland areas were exploited, evidence suggesting occasional small scale cultivation on the coastal plain and the eastern limestone plateau (Pennington 1975; Skinner 2000). Clearance appears to begin in the Later Mesolithic, and material at Howgill Castle (C) (Skinner 2000) contained cereal pollen dated to *c.* 4000 cal BC. Temporary small-scale clearance episodes, which are often associated with records of cereal pollen, continued after the regional elm decline, dated at 3900 - 3640 cal BC at Red Moss (L) (Hibbert *et al* 1971), and 4340 - 3970 cal BC at Knowsley Park (M) (Cowell and Innes 1994, 148). Palynological analysis from Hatchmere, Norley (Ch) (cited in Higham and Cane 1999, 37), provided evidence for forest clearance dated to 4260 to 3950 cal BC, with a further episode between 3700 and 3300 cal BC. Evidence for possible selective clearance of oak was discovered at Bar Mere (Ch) at a similar date (Schoenwetter 1982, 11), but cultivation seems not to have taken place at this time. A charcoal layer within the peat at Lindow Moss (Ch) dated to 3950-3640 cal BC may represent vegetation clearance and is contemporary with the local Elm Decline (Turner and Scaife 1995, 17).

Cereal pollen from Barfield Tarn (C) (Pennington 1975) was identified in the main 'elm decline' phase, after a primary phase of clearance at 4457-3825 cal BC (Hodgkinson *et al.* 2000). This would appear to be broadly concurrent with other dated 'double elm declines' in the region (e.g. Tipping 1994). Upland clearances appear mainly to be associated with the maintenance of open or grassland areas at the edge of the treeline, occasionally through the use of fire (Pennington 1975; Skinner 2000). Palynological work undertaken at Ehenside Tarn on the west Cumbrian coast has a long history and has produced a range of carbon dates some of which were very early in the development of the technique (Arnold and Libby 1951; Godwin and Willis 1960; Walker 1966; Hodgkinson *et al* 2000, 74-5). Recent re-analysis and radiocarbon dating of pollen data from Ehenside Tarn illustrate the main periods of activity around the tarn edge span between *c.* 3900 and 1500 cal BC with increased charcoal at between *c.* 3000 and 2600 cal BC (Walker 2001). This activity, together with increased rainfall over the course of the Neolithic, appears to have been instrumental in causing the erosion of mineral soils and the formation of peat in upland contexts (Pennington 1975; Skinner 2000). In the central Cumbrian Fells peat formation at Great Rundale has been dated to *c.* 3300 cal BC (Skinner 2000) and at Thunacarr Knott dates from an axe working site overlain by peat span from 3250 to 2850 cal BC (Clough 1973).

The pattern of small clearances detected in the Neolithic continued throughout the Bronze Age. Evidence suggests a deterioration in climatic conditions and widespread regeneration of secondary woodland in the lowlands, heather moorland in the uplands and wetter conditions on the mire surfaces. At Leasowe Bay, North Wirral, deposits dated to 2700 - 2200 cal BC may be associated with sea level rise, with alder, fen carr and *Sphagnum* bog the dominant vegetation in the area (Kenna 1986, 5). Sea level was generally lower than today from the Late Neolithic (Tooley 1978), but from *c.* 1800 BC the present coast and dune system in Merseyside was largely in its present position (Innes and Tooley 1993). On the Fylde coast the transgression of Lytham VII is dated to the Early Bronze Age, while the north Wirral coast also becomes wetter before *c.* 1600 BC (Kenna 1978).

The dated pollen record for this period in the region is not extensive, but sites that cover the earlier and

Middle Bronze Age (or part of it) include White Moss (C), Helsington Moss (C) and Foulshaw Moss (C) (Wimble *et al* 2000), Knowsley Park (M), Parr Moss (M), Simonswood Moss (M) and Mount Pleasant, Waterloo (M) (Cowell and Innes J.B. 1994; Leah *et al* 1997). In other pollen diagrams in the region there is no evidence for a change in the landscape of the period, with lowland and upland sites either not dated well enough or showing little change in the scale or scope of clearance from the general pattern of the earlier periods (Howard-Davis *et al* 1988, Barnes 1982; Dumayne 1995).

Tephra sealed within the peat deposits of the North West comprise a series of very important chronological markers. Tephra is released into the atmosphere at the time of a volcanic eruption and are deposited on the landscape. Individual tephra have a unique chemical signature which can be identified to specific volcanic eruptions. One such layer at Fenton Cottage, Over Wyre (L), (Middleton *et al* 1995, 150; Wells *et al* 1997) has been identified as the fourth eruption of the Hekla volcano in Iceland dated to between 2560-2142 cal BC and 2288-1892 cal BC (Dugmore *et al* 1992).

Settlement and Landuse

Considering the region's broad topographical range and close juxtaposition of coastal, wetland and dry land environments, gathering and hunting could have remained of primary economic importance well into the period after which domesticated crops and animals became available. It is likely that there were variations between different parts of the region in the frequency of cereal use as an adjunct to wild resources. Although interpretation from the absence of cereal pollen is fraught with difficulties, there does appear to be a degree of patterning in the evidence that could have archaeological implications. After an initial cereal phase in north Lancashire at the elm decline, subsequent woodland reduction episodes provide no hint of the presence of cereals (Middleton *et al* 1995), and there is no evidence for cereals in the Pennine fringe areas, nor across most of the interior. It would perhaps be surprising if cereals played no part in these areas, as the Neolithic progressed, but circumstantially it seems as if they may have been characterised by a greater emphasis on animal management, either wild or husbanded. However, faunal assemblages are also rare, and details of diet and subsistence are still unclear. An exception is an auroch's skull, red deer antlers, dog and horse skulls and several vertebrae excavated at Leasowe Bay, North Wirral, in the 1960s (Huddart *et al* 1999, 569) subsequently dated to the third millennium BC (Kenna 1986, 5), which may relate to the exploitation of a now submerged forest off the north and west Wirral coast.

Other than the presence of monuments the majority of the record for Neolithic occupation comprises surface lithic scatters and signals in pollen diagrams. The location and intensity of fieldwork have varied according to topography, agricultural regimes and individuals. Parts of Cumbria have seen extensive survey and publication (Cherry 1963; 1965; 1969; 1982; Cherry and Cherry 1983; 1984; 1985; 1986; 1987a; 1987b; 1992; 1995; 1996; 2000; 2002) but the distribution of work is not even. The relatively high incidence of pasture in Cheshire has led to less fieldwalking, and subsequently a low density of lithic scatters. Leach (1942) carried out an extensive fieldwalking survey at Ashton, near Chester recovering Neolithic material, and similarly material of Neolithic date accounts for the majority of lithics recovered from fieldwalking at Tarvin (Philip Miles pers. comm.).

There is only a small amount of excavated evidence, and few stratigraphically secure assemblages directly related to Neolithic occupation. It is often difficult to determine the purpose of excavated post-built structures, and such evidence for domestic buildings remains rare on a regional and national level. An extensive palisade of posts at Plasketlands on the Solway Plain has been radiocarbon dated to 3970-2535 cal BC and 4032-3720 cal BC (Bewley 1993). The posts appear to be an annexe to a large ditched enclosure although association between the two is not proven. The site has been interpreted as a domestic settlement (Hodgkinson *et al* 2000) although its function remains unknown.

At Cocklakes, near Carlisle, a small hearth produced a radiocarbon date of 3650-3510 cal BC (Johnson *et al* in prep.). The hearth was cut by the corner of a sub-rectangular or sub-rectangular structure that may also have been Neolithic, although it remains undated. A probable later sub-rectangular enclosure has been excavated at Arthill Heath Farm, (Ch). Within an extensive ditch was a two-phase palisade with a number of buildings dated to 2790 to 2570 cal BC and 2210 to 2020 cal BC (Nevell 1988a). Apparently unenclosed early Neolithic post-built structures have been excavated at Tatton Park (Ch) radiocarbon dated to 3500-2945 cal BC (Higham and Cane 1999). The end of occupation of a second structure was dated to 2195 to 1680 cal BC (Higham and Cane 1999). A nearby pit containing oak charcoal, carbonised bone, fruit and

seeds was radiocarbon dated to 3370 to 2925 cal BC (Higham and Cane 1999). Excavations on Storrs Moss (L) revealed a layer of wood associated with worked flint and chert. The timbers were dated to 3694-3384 cal BC, although it was suggested that this represents a minimum date and occupation may date to the later fifth millennium BC (Powell 1971), and Mesolithic material was also present on site (Middleton et al 1995, 134)

The traces of a probable rectangular structure were excavated at Oversley Farm (Ch) comprising linear construction trenches, postholes and a central hearth or cooking pit, dated to 3975-3675 cal BC (Garner undated). The pit or hearth contained a large pottery assemblage, a high percentage of charcoal, fire cracked stone and traces of naked barley and crop weed species. Lipid analysis on the pottery identified the presence of sheep or goat fats within vessels believed to be utilised for cooking (Garner undated, 20). The rectangular building was subsequently overlain by a possible second rectangular structure with hearth deposits dated to 3015-2985 cal BC, demonstrating either a remarkable continuity of occupation or a reoccupation and rebuilding on exactly the same location.

Recent excavations have revealed large quantities of Neolithic ceramic and lithic material deposited in pits and tree-throw hollows. These sites may be indicative of clearance and settlement, although the precise depositional circumstances of these deposits remain unclear. Pits containing Early Neolithic Grimston Ware at Whalley (L) (Beswick and Coombs 1986) and Norton (Ch) (Greene and Hough 1977), and late fourth millennium BC dates for pits at Beeston Castle (Ch) may represent some form of occupation or even sites of communal gatherings and activities (Ellis 1993). Excavations at Roose Quarry and Holbeck Park on the Furness Peninsula (C) have produced assemblages including leaf shaped arrowheads, flakes of polished volcanic tuff and Early Neolithic pottery (Jones 2001; OA North 2002). At Holbeck Park deposits within a tree throw hollow contained 106 sherds of earlier Neolithic pottery associated with a rod microlith and two unpolished flakes of volcanic tuff (OA North 2002). Similarly at New Cowper Farm, Silloth (C), several tree-throw hollows contained an assemblage of Neolithic pottery (Russel Coleman pers. comm.). Pits and scoops containing Grimston Ware and stone tools have been excavated at High Crosby near Carlisle (McCarthy 2002, 36) and small quantities of Grimston Ware and Grooved Ware were also recovered from pits and other features at Scotby Road, Carlisle (McCarthy 2002, 37).

A settlement is the suggested source of 162 fragments of Peterborough Ware discovered in the mound of a round barrow at Woodhouse End (Ch) (Rowley 1977), although such an incorporation would appear far from inadvertent or accidental. At least 23 vessels were represented by the small, highly weathered sherds, which represents the largest assemblage of Peterborough Ware in the region. Another potential settlement site was uncovered during excavations at the medieval village of Norton (Ch), where pits containing Grimston Ware and flint flakes were excavated (Greene and Hough 1977, 80; Mullin 2002a). Grimston Ware and leaf arrowheads have been recovered from Beeston Castle (Ch) but were not directly associated with charcoal which produced late fourth millennium BC dates (Ellis 1993). Further finds of Grimston Ware have been made within the city of Chester during excavations at the Roman fortress, Abbey Green (McPeake and Bulmer 1980; Mullin 2002a) and sherds from an almost identical vessel have been found recently at 67 Handbridge, to the south of the River Dee (Keith Matthews pers. comm.).

A unique assemblage of Neolithic material was recovered during the drainage of Ehenside Tarn (C) in 1869. Finds included roughout and polished stone axe blades (one of which retained its wooden haft), polissoirs, animal bones and wooden objects including a bowl, paddles and 'clubs' (Darbishire 1874). Radiocarbon dates from organic material taken from environmental cores on the site suggest episodes of occupation throughout the Neolithic (Walker 2001) although some of the artefacts recovered may be later, as Roman pottery was also present in the original finds collection (Fair 1932). One of the activities on site certainly appears to have been the polishing of roughout axe blades, quarried from sources in the central fells to the east.

Without radiocarbon assays the dating of surface lithic scatters has proved more problematic. The presence of leaf shaped arrowheads, relatively rare in the region, has been taken to be the sole flint form indicative of an Early Neolithic date (Cherry and Cherry 1996) although they are also known to occur into the Bronze Age. Scatters associated with Group VI axes, either complete or re-worked, have also been used to indicate Early Neolithic occupation. However these artefacts are consistently associated with assemblages containing either scatters of microliths or later typological forms, (Cherry and Cherry 1996; 2002) and axe

production in the region took place into at least the Later Neolithic (Bradley and Edmonds 1993). The presence of both group VI axes and leaf shaped arrowheads with apparently Later Mesolithic material suggests that a largely microlithic technology persisted in Cumbria throughout the Neolithic (Cherry and Cherry 1996; 2002; Evans 2004). The evidence from the few sites with Neolithic diagnostic material in north Lancashire (Middleton *et al* 1995) and Merseyside (Cowell and Innes, 1994) also argues for a large measure of continuity of some Mesolithic lithic forms.

At a broad scale there are hints as to the nature and character of earlier Neolithic occupation. West Cumbrian areas such as Eskmeals, Williamsons Moss (Bonsall 1981; 1989; Bonsall *et al* 1986; 1994) and Ehenside Tarn (Darbishire 1874, Hodgkinson *et al* 2000) suggest that some places repetitively used over relatively long periods of time, whilst small less dense occupation evidence in other areas may rather be suggestive of short term or transitory occupation. With the exception of the work of Cherry and Cherry (1987b; 1996; 2002) little is known about the character of Neolithic upland occupation. The available evidence suggests that in the eastern uplands, Neolithic activity was clustered around the heads of major rivers as well as in the vicinity of Neolithic monuments (Skinner 2000; Cherry and Cherry 2002). Much of the pollen data from upland contexts suggests a degree of continuity, with upland clearance in evidence from the Earlier Neolithic onwards. There are no secure dates for the onset of cairnfield construction in the region, though evidence from other areas of Northern England is beginning to suggest that this may have begun during the Later Neolithic to Early Bronze Age (Evans and Edmonds forthcoming). In the western coastal zone, the majority of those scatters identified are clustered around the 8 metre contour (Cherry and Cherry 2002), probably in relation to the maximum marine transgression around *c.* 3800 BC. A number of hearth sites have been identified on the west coast associated with limited amounts of lithic evidence (e.g. Cherry 1982), and although incompletely published, excavations at Eskmeals appear to have revealed dense evidence of Prehistoric occupation ranging from the Later Mesolithic to the Earlier Bronze Age (Bonsall *et al* 1986; 1994). On the Furness Peninsula excavations of a sand dune occupation site at Walney North End revealed hearths, middens, small amounts of Beaker pottery and a considerable assemblage of lithic forms of a probable Later Neolithic/Early Bronze Age date (Cross 1938; 1939; 1942; 1946; 1949; 1950; Barnes 1955, 1970). Recent excavations at Sandscale, 3 km to the north east of Walney have identified a small posthole structure and pits associated with a lithic assemblage of Later Neolithic/Early Bronze Age date including a small polished Langdale axe, a barbed and tanged arrowhead and thumbnail scrapers (Evans and Coward 2004). In central Carlisle plough or ard marks have been found at a number of sites beneath Roman levels. Although undated, these features are thought to be of Late Neolithic to Early Bronze Age date on the evidence of large numbers of flints from the same excavations (McCarthy 1993, 1-2).

There are four potential Neolithic sites from the Over Wyre mosses (L) as well as numerous stone axe finds, with another a little to the south, on the edge of Lytham Moss (L) (Middleton *et al* 1995, 89). There are fewer such Neolithic sites in Merseyside, although lithic material has been recovered from the area to the south of the estuary of the river Alt. Further inland from the coastal mosses, the lithic pattern tends to consist mainly of single finds or small assemblages, several of which have also been found to contain a Late Mesolithic element.

Bronze Age

Little is known about Early Bronze Age settlement sites as few excavations have taken place and secure dating is scarce. The problem is compounded by the fact that many sites with evidence for Bronze Age occupation also saw activities in both the Neolithic and Iron Age. A small number of putative 'Bronze Age' round houses have seen excavation but there has been little reliable dating evidence and a number of features were found to have been disturbed funerary structures and ringcairns. A relatively small Early Bronze Age timber roundhouse was excavated at Stephenson Scale (C) with a minimum diameter of 4 m, and containing an internal hearth, stakeholes, and pits containing burnt stones (N. Thorpe pers comm.). At Botcherby, Carlisle, a circle of postholes with a diameter of 9 m and with a 'porch' to the west was associated with Bronze Age pottery. Although the excavators suggested that this feature may have been a free-standing timber circle with a religious purpose (Barkle 1998), its interpretation as a roundhouse cannot be ruled out. A number of large, shallow pits excavated at Cocklakes, near Carlisle, contained large amounts of charcoal and fire-cracked sandstone. Material from two of these features produced radiocarbon dates of 1780-1680 cal BC and 1740-1600 cal BC (Johnson *et al* in prep).

In Cumbria there is a wealth of evidence for ‘clearance cairnfield’ construction on the lower fells, which has traditionally been associated with Bronze Age improvement of land for grazing or cultivation. Investigation of cairnfields has a long history with numerous excavations and surveys in the nineteenth and early twentieth centuries (e.g. Clifton Ward 1878; Dymond 1893; Swainson Cowper 1888). During the 1980s and 1990s a programme of large-scale upland surveys was undertaken by the Lancaster University Archaeological Unit (now Oxford Archaeology North). More than thirteen thousand individual features were recorded on the western, southern and eastern Cumbrian fells (Quartermaine 1989; 2002; Quartermaine and Leech forthcoming).

The simplest cairnfields are small, randomly distributed groups of cairns with no associated boundary banks or structures, and it has been suggested that they represent small clearings for stock grazing on a temporary or seasonal basis (Quartermaine and Leech forthcoming). Further groups display stone-banked boundaries and appear to form what may be termed proto-field systems. The most complex of the groups incorporate field systems, with the cairns compartmentalised into areas or fields. These field systems are found to be associated with cultivated plots, albeit limited in size, and also stone founded unenclosed round houses or house platforms. Relatively few examples of this type of settlement have been identified to date, but the classic example is the Town Bank IV system in West Cumbria (Quartermaine 1989).

Preserved pollen from cairn excavations at Barnscar on the western coast of Cumbria illustrated the presence of woodland when the cairns were initially constructed (Walker 1965) and the ground surface beneath the cairns had been scorched and stripped, with shallow in-filled pits suggesting the excavation of tree roots. While the initial exploitation of some upland areas probably did occur in the Bronze Age few modern or large scale excavations of clearance cairnfields have taken place and there is little direct dating evidence. Cairnfield construction or reuse may in fact span between the Later Neolithic and Early Bronze Age through to the Post-medieval period. Excavations of a small cairn at Birrel Sike, in West Cumbria produced a date of 2290-1741 cal BC (Richardson 1982) which is contemporary with upland Bronze Age cairnfields from Dartmoor (Wainwright *et al* 1979), Derbyshire (Barnett 1994) and Northumberland (Jobey 1981).

The circumstances that prompted their construction, and the nature of the agricultural activity practised on the associated land have been the subject of some debate, with suggestions of primarily pastoral (Dimbleby 1961) and arable agricultural practices (Fleming 1971; Yates 1983) leading to clearance. To an extent the debate has been clouded by an assumption that all cairnfields are broadly similar, roughly contemporary, and reflect a consistent agricultural strategy. Variation in the character and form of cairnfields and their associated field systems may easily represent both arable and pastoral practices (Quartermaine and Leech forthcoming). While the clearance of stones may be a primarily agricultural operation the cairns may also serve as demarcation or boundary features and may contain or cover funerary deposits, relating to tenure rather than any single agricultural factor (Johnson 2001). Excavation of cairns at Barnscar suggested that the cairns were not simply random piles of stones but had a consistent structure with a clay core (Walker 1965). At Bank Moor (C) high levels of charcoal coincided with the first appearance of cereal pollen at *c.* 1950 cal BC, and cereal pollen and charcoal are present, discontinuously, for much of the Bronze Age (C. Skinner pers. comm.). This may suggest cyclical, small-scale arable production and intermediate stock grazing, although only high resolution pollen analysis would be able to substantiate this.

Further south there also appears to be a strong degree of continuity from the Late Neolithic into the Bronze Age, although much evidence for occupation is in the form of lithic distributions. While a Bronze Age element can often be distinguished within larger assemblages, the dating remains problematic on a regional scale. A lithic scatter from High Legh (Ch) led to the assignment of a late prehistoric, possibly second millennium BC date, to one of two enclosures identified from aerial survey by Higham in 1981 (Nevell 1991, 18-19).

North of the Ribble, excavations at Bonds Farm, Pilling (L), revealed stake structures together with coarse pottery, metalwork and an amber bead or spacer plate, with radiocarbon dates averaging 1445-1397 cal BC (Edwards 1978a; 1978b; 1992). This provides the best chronological control for an associated flint assemblage in this part of the region. There are also other excavated sites that may indicate a mobile element within the earlier Bronze Age settlement pattern. The site at Piethorn Brook (GM), near Rochdale, produced a stake-built structure with a hearth, a small amount of flintwork, jet and shale ornaments, and

Collared Urns and Beakers (Poole 1986). A further probable upland settlement context may be associated with four Beakers, from Castleshaw, east of Manchester (Thompson 1974).

In the early part of the twentieth century, a wooden trackway was located during peat cutting, across low-lying mosses below Whitbarrow Scar (C) (Munn Rankin 1910; Barnes 1904). This was provisionally dated to the Later Bronze Age but the stratigraphic context of the trackway was later radiocarbon dated by Wimble (1986) to 1592-1260 cal BC (Hodgkinson *et al* 2000). The presence of a Bronze Age sword and a 'wooden chariot wheel' found close to the trackway may also suggest votive deposition in the area. Along with finds of metalwork the Lancashire wetlands have also produced evidence of at least three wooden trackways in Stalmine Moss, including the oak plank trackway of Kate's Pad, which has been dated to the early Bronze Age on stratigraphic grounds (Middleton *et al* 1995, 60-62). There are also lithic finds, consisting of the occasional large concentration of finds and also a much larger group of quite small sites, consisting often of only one or two pieces (Middleton *et al* 1995). This sparse distribution of largely single finds is also found to the east in the central Fylde and inland Merseyside, and may suggest non intensive or temporary occupation on a repeated or seasonal basis.

Middle Bronze Age settlement was recorded at Irby, Wirral, where one main circular structure was identified, with pottery, possible oven fragments, bronze working debris and evidence for cereal farming dated to 1620-1130 cal BC (Philpott and Adams forthcoming). At Tarbock, east of Liverpool, a short section of ditch contained Beaker pottery which produced a radiocarbon determination of 2120-1680 cal BC (Cowell and Philpott 2000, 120-122). At Kirkby, north Liverpool, a semicircular structure associated with Collared Urn sherds produced radiocarbon determinations of 1910-1410 cal BC and 1945-1655 cal BC (Adams 1995). Two small pits containing Middle Bronze Age pottery at Ditton Brook in Tarbock produced a radiocarbon determination of 1620-1130 cal BC (Cowell 2000b).

In Merseyside there are three localities with technologically later prehistoric lithic scatters of possible Bronze Age date at Hale, Irby (Philpott and Cowell 1992), and Little Crosby (M) (Cowell 1991b). Palaeoenvironmental evidence is sparse for the coastal area at this time, but a context for this type of site may be suggested close to the Little Crosby site at Mount Pleasant, Waterloo, north Liverpool, where cereal type pollen with other potential arable indicators is centred on c. 1960 BC (Innes and Tooley 1993). A bone midden of wild animals dated c. 2030 BC from the north Wirral coast also provides a potential context for the activity represented by the stone tools (Kenna 1978).

More reliable settlement evidence was recovered from Oversley Farm (Ch) on the site of the Second Runway at Manchester Airport (Thompson 1998, Garner 2001) although there are discrepancies between the Neolithic and Bronze Age radiocarbon dates. Excavations revealed a Beaker pit and a 'hollow way' as well as at least two circular buildings, associated with pits filled with 'midden' deposits (Garner 2001). The site appears to have continued in use throughout the Middle and Late Bronze Age, although the smaller number of features (mostly pits) and the ephemeral structural evidence might suggest less intensive occupation than earlier phases. Up to 2000 sherds of Bronze Age pottery were recovered, much of it Early Bronze Age, including Beakers, Cordoned and Collared Urns, incense/pygmy cups and Food Vessels. A small amount of later Bronze Age pottery is also represented in the assemblage. A large quantity of lithic artefacts were recovered from Mesolithic and Bronze Age contexts including blades, scrapers and a barbed and tanged arrowhead.

Excavations at Beeston Castle (Ch) revealed evidence for an enclosure formed by a sand dump rampart, which was probably timber laced, with a scatter of pits and postholes representing contemporary settlement to the rear. Timber from the rampart was radiocarbon dated to 1270 to 830 cal BC and a deliberate deposit of two Ewart phase socketed axes, placed 4 m apart, was recovered from under the rampart (Ellis 1993, 47). A total of seven circular buildings were assigned a Late Bronze Age or Iron Age date (Ellis 1993, 39). The settlement may have been a specialist Late Bronze Age metalworking site with crucibles, moulds and refractory debris being recovered from the site and, although the evidence is equivocal, swords and ferrules seem to have been amongst the objects manufactured. Evidence for Late Bronze Age structures was excavated at Brook House Farm (Bruen Stapleford, Ch) where two round houses were dated to 920-780 cal BC and 800-350 cal BC (Fairburn *et al* 2003, 25), although the presence of earlier features might suggest that this represents a continuation of settlement from the Middle Bronze Age.

The fill of a posthole from a possible roundhouse at Tatton provided a radiocarbon determination of 2195 to 1680 cal BC, although this was interpreted as the final occupation of a Neolithic structure (Higham and Cane 1999, 32). An undated roundhouse associated with stakeholes which probably represented fences, was also excavated (Higham 1985, 78).

Ritual, Religion and Ceremony

Even though there appears to be a good deal of continuity from the Mesolithic in terms of landuse, technology and settlement patterns, the earliest monumental construction appears to be an almost entirely Neolithic phenomenon. Monuments are poorly represented in the southern part of the region but the density of such sites increases greatly in the north. While the larger monuments are generally agreed to be religious sites of some nature, to make a similar distinction between the secular and religious for many Neolithic sites is often down to the interpretation of the individual archaeologist. For example pits and tree-throws containing burnt material, pottery and flint (Greene and Hough 1977; Beswick, and Coombs 1986; Jones 2001; OA North 2002; Russel Coleman pers. comm.) may be interpreted as domestic rubbish pits or as the site of special, structured deposition, with symbolic overtones. Equally, religious activity may not be entirely restricted to monumental settings and the use of natural features as a focus for religious activities and artefact deposition has been noted (McKenny Hughes 1904; Horne 2000; Mullin 2001; Edmonds *et al* 2002; Evans 2004).

It should be noted that many monuments, however isolated they now appear, may have originally formed part of extensive complexes that were built up over time. Areas such as Askham Fell (C) and Burnmoor (C) appear to demonstrate good preservation and survival of multiple monumental structures, although other than varying levels of non-intrusive survey work, little investigation has been undertaken on these complexes.

Henges, stone circles and stone rows

Stone circles such as Castlerigg and Long Meg and her Daughters are probably the most widely known prehistoric monuments in North West England and generally considered to be amongst the earliest stone circles in the British Isles (Burl 1976, 59). Castlerigg was also one of the first monuments in the country to be selected for state guardianship, in 1883. Considering their national significance remarkably little work has been undertaken on the stone circles under modern conditions and few sites have been scientifically dated. Excavations at Carlisle Airport in 1996 uncovered evidence for a complex of timber and possibly stone settings, potentially contemporary with a single date of *c.* 3500 cal BC (Flynn 1998). Recent survey, aerial photography and environmental work (Soffe and Clare 1988; Clare 1999, Clare *et al* 2003) continue to demonstrate the value of non invasive techniques in placing monuments within their wider landscape setting.

Burl (1976, 58) proposed four phases of stone circle construction in Cumbria, dating from the Neolithic to the Middle Bronze Age. While the larger open circles are still believed to be the earliest, there are numerous problems with this proposed typology. The dating of some sites was based on excavated burial evidence, often of Bronze Age date, from the central areas of a number of the circles (Barnatt 1989). Without adequate dating or phasing it cannot be ascertained whether internal cairns are secondary to stone circles, or even that the construction of the stone circle was the final phase of the monument, as recently discovered on some Scottish sites (Bradley 2000). Many of Burl's 'later' circles (1976, 60) may in fact be better understood as relating to kerbed funerary cairns and the re-use of earlier open sites (Evans and Edmonds forthcoming). It is clear that some stone circles developed over several phases or were used over a considerable period of time, and the purpose, forms of use and symbolism of stone circle sites is likely to have also changed over time. The ring cairn overlying the Late Neolithic timber circles at Oddendale (Turnbull and Walsh 1997) demonstrates this complexity and longevity of phasing, and emphasises that many elements, such as timber settings, cannot be detected without excavation. The predominantly Bronze Age cairn at Hardendale Nab may also have a Neolithic origin, suggesting a considerable longevity of depositional activity (Williams and Howard-Davis forthcoming).

Much speculation has taken place concerning the relationship between stone circles and henges, in which monuments from Cumbria have taken a central role (Burl 1976; 1988). In Cumbria the architectural crossover between henges and stone circles is particularly strong with both henges and the larger of the stone circles sharing strong architectural and locational themes. The Major henges are Mayburgh and King

Arthur's Round Table, just to the south of Penrith (C), with the traces of a third enclosure, Little Round Table, visible to the south and further defined by geophysical survey (Topping 1992). King Arthur's Round Table was excavated by Collingwood in 1937 and Bersu in 1939 (Collingwood 1939; Bersu 1940; Bradley 1994) when cremated bone was recovered from the interior of the monument, but no other datable material. Hengiform structures at Gutterby and Summerhill on the west Cumbrian coast have recently been identified from aerial photographs. Although little is known about these features, they suggest that previously drawn geologically deterministic distinctions between the distribution of henges and stone circles (Burl 1976) have been overstated. Further possible monuments in Cheshire include a possible Late Neolithic/Early Bronze Age pit circle at New Farm, Henbury (Rowley 1975a, 1975b) and possible hengiform monuments identified from aerial photographs close to Sutton Weaver (J. Collens pers. comm.) and at Halsall in west Lancashire (R Philpott pers. comm.).

The avenue of standing stones at Shap (C) probably represented one of the most impressive prehistoric monuments within the north of the region, although this has been largely destroyed over the last three centuries or more and it is estimated that only a small fraction of the stones remain standing in their original monumental form (Clare 1978). Survey has suggested that the lines of stones may have once stretched for over 3 km, and it has also been suggested that this was constructed in two distinct phases to the north west and the south east of the barrow on Skelworth Hill. Excavation beneath one of the fallen stones revealed a complex packing arrangement during the original erection of the stone, but no diagnostic dating evidence (Clare 1978).

Enclosures

The analysis and interpretation of aerial photographs has recently extended the national distribution of Neolithic enclosures into the North West (Oswald *et al* 2001). In addition to the large enclosure adjacent to and putatively overlain by the stone circle of Long Meg (Soffe and Clare 1988) a number of enclosures in Cumbria have recently been recognised or reinterpreted as potentially Neolithic, including Carrock Fell (RCHME 1996a), Skelmore Heads (RCHME 1996b), Howe Robin (RCHME 1996c) and Green Howe (Horne 2000). Some of these had been previously identified as Iron Age hillforts (Powell 1963, 20; RCHME 1996a). Early Neolithic enclosures are unknown in the south of the region but a number of sites consisting of pits with deposits of pottery situated on hilltops could have acted as a form of special site perhaps performing a more than local role.

Burial

The Neolithic has been categorised as a time of multiple, communal burials, often of disarticulated remains within tombs and long cairns. However, the paucity of both monuments and excavated evidence from the region does not provide a sufficient basis for an authoritative overview of funerary practice.

Cheshire has a single Neolithic megalithic burial chamber, the Bridestones, on its eastern boundary. The monument has parallels in south west Scotland and Ireland (Clifford and Daniel 1940, 157; Powell *et al* 1969; Longley 1987, 44-6) and seems to fit within a general tradition of long cairns within the north-west. However, the burial deposit in the Bridestones appears to have been cremated bone, highly unusual in long cairns where large numbers of inhumations was the common practice (Powell *et al* 1969). Cremation is more commonly practised in Irish Court Cairns and the Bridestones may also share some affinities with the Irish tradition. A scheduled long barrow at Loachbrook Farm near Congleton may in fact be a cattle plague burial mound of post medieval date or a natural landscape feature (Mullin 2002b). The site of the Calderstones, Liverpool, a possible Passage Grave with parallels on Anglesey, has been destroyed (Forde Johnston 1957; Cowell and Warhurst 1984). Another possible burial site lies north of the Ribble where a surface scatter of exotic flint arrowheads and other implements were located near Peel Hall Farm, Lytham Moss (L) (Middleton *et al* 1995).

In Lancashire the only known Neolithic chambered cairn is the Pikestones, on Anglezarke Moor (Bu'Lock 1958), although a second chambered round cairn has recently been identified through survey (Howard-Davis 1996). A site known as Round Loaf, situated nearby, has also been tentatively identified as a burial monument (Howard-Davis 1996) but this may equally be a natural feature.

A total of twenty five possible long cairns have been identified in Cumbria (Collingwood 1933; Manby 1970; Masters 1984; Quartermaine and Leech forthcoming). None of these has seen detailed recorded

excavation and the majority have been identified solely through their external morphology. A number have been destroyed and the secure characterisation (and location) of others remains questionable. Some examples are present in cairnfield contexts, particularly on the south-western fells, but without excavation or dating evidence, it is difficult to distinguish between a funerary monument and clearance (Evans 2004). A tradition of long barrow construction utilising natural features is evidenced by Greenwell's excavation of Crosby Garrett CLXXIV in the Eden Valley, which was partially formed from a distinctive limestone outcrop (1866, 389-91).

The possibility of a Neolithic round barrow tradition in Cumbria is suggested by the morphology of the two excavated 'long' cairns at Raiset Pike (Masters 1984) and Skelmore Heads (Evans 2004; Clare 1979). The longcairn at Raiset Pike (Kinnes and Longworth 1985) was apparently formed from two separate round cairns conjoined to form a single monument (Clare 1979). Greenwell's (1877) description of the excavation of this feature however left much to be desired, and it has been subject to a variety of interpretations (Manby 1970; Ashbee 1970; Kinnes 1979; Masters 1984; Annable 1987). What appears to have been a wooden and stone mortuary house containing a number of disarticulated burials, had been burnt *in situ* before the construction of the cairns. Within the body of the mound were many unburnt deposits of broken and scattered human bone, principally of children, and a variety of faunal remains including ox, horse, sheep or goat and pig. The burials at Raiset Pike may have been similar to examples in western Scotland where a number of early simple box graves in individual round cairns were later covered by a single long cairn (Lynch 1997). The mound at Skelmore Heads is more oval than it is long. The site was excavated by Powell (1963; 1972) but was found to have been subject to the attention of a local antiquarian group, who recorded the presence of some pottery and bones. The existence of a large transverse slab in the barrow adjacent to one end of the destroyed burial deposit has been taken to correspond to the mortuary structure at Raiset Pike (Manby 1970; Powell 1972; Masters 1984).

There are numerous burial and ceremonial monuments of the Later Neolithic and Early Bronze Age in Cumbria. Evidence for funerary cairn cemeteries or clusters are often but not exclusively situated close to the large freestanding stone circles. Examples of funerary cairns excavated in these contexts have produced material of Later Neolithic to Early Bronze Age date, with others containing later urned cremation burials (Evans and Edmonds forthcoming). The upland surveys carried out by the Lancaster University Archaeology Unit indicate that in general, cairnfields are not closely associated with ceremonial complexes (Quartermaine and Leech forthcoming) but there are some associations with cairn cemeteries (Evans and Edmonds forthcoming).

An unusual Late Neolithic burial was discovered at Sandpit Field, Eddisbury in 1851 consisting of a large urn associated with cremated bone (Varley 1950). Recent analysis by Longley has shown the urn to be a Durrington Walls substyle of Grooved Ware (1987, 52), and this association of Grooved Ware with cremated bone is extremely uncommon. A 'number' of other urns were also found, perhaps indicating a destroyed round barrow.

Ringcairns occur in a variety of contexts in Cumbria and are found in association with areas of cairnfield, stone circle complexes, and cairn cemeteries in addition to isolated examples in the high fells (Hodgson *et al* in prep). Although these features had traditionally been thought to be Middle Bronze Age in date many appear to have been in use from the Later Neolithic and Early Bronze age (Lynch 1993).

Late Neolithic and Bronze Age

The numerous burial and ceremonial monuments of the Later Neolithic and Earlier Bronze Age display a wide variety of architectural, funerary and mortuary traditions. Although many of those identified saw small scale excavation in the nineteenth and twentieth centuries, a dearth of modern excavation and analysis means there is little secure dating evidence for the majority of these features. Additionally, similar forms of burial furniture appear to have been in use from the Early Bronze Age until at least 1100 BC (Longworth 1984). Evidence for funerary cairn cemeteries or clusters in Cumbria are often but not exclusively situated close to the large freestanding stone circles. Such complexes of monuments occur for example in association with the Eden Valley and Shap circles, and on the Furness Peninsula in association with Birkrigg stone circle. Where funerary cairns in these contexts have seen excavation some burial traditions and associated material culture indicate a Later Neolithic/Early Bronze Age date, with others containing later urned cremated remains (Evans and Edmonds forthcoming).

The first phase identified at the cairn at Oddendale, on the eastern Cumbrian Fells, took the form of two roughly concentric rings of timber settings dated to 2859-2579 cal BC, 2853-2466 cal BC and 2583-2483 cal BC (Turnbull and Walsh 1997). The timber circles were superseded by two rings of granite boulders, subsequently overlain by a ring cairn, surrounding a central pit which probably contained a crouched inhumation. The ringcairn structure contained deposits of cremated bone and sherds of Collared Urn and food vessel and a small sherd of AOC beaker.

Beaker burials are relatively uncommon in western Cumbria although a cairn excavated at Mecklin Park, Stanton Bridge, (Spence 1937) produced a sherd of Beaker pottery. Excavation of second cairn at the same site produced a jet necklace, a flint knife and sherds from a food vessel (Fletcher 1985). In contrast cist burials appear to have been relatively common, although the majority of the evidence is characterised by extant cairns with previously emptied cists (Evans and Edmonds forthcoming). Two stone-lined cists beneath a possible barrow at Clifton, near Penrith, contained crouched inhumations and three beakers (Taylor 1881). A number of cists have been located within large freestanding stone circles including Brats Hill, Gamelands and Gunnerkeld (Waterhouse 1985). Urned cremation cemeteries have been excavated at Ewanrigg on the Solway Plain and Allithwaite, both in Cumbria (Bewley *et al* 1992; Wild 2003) and a large cemetery of at least 15 urns was observed during construction work at Garlands Hospital, Carlisle, in 1861 (Hodgson 1956). The cemetery at Ewanrigg spanned the Neolithic Bronze age transition (2460-1520 cal BC) while at Allithwaite the cemetery was Early Bronze Age with radiocarbon dates of 2101-1747 cal BC, 1922-1637 cal BC and 2027-1741 cal BC. These excavations are the only examples of their type in Cumbria to have been radiocarbon dated, and both revealed urned cremated remains associated with natural features.

Circular structures of wood and stone, incorporating burials and later sealed by funerary or ring cairns appear to have been a relatively common monumental form in the north during the Later Neolithic and Early Bronze Age (Mawson 1876; Swainson Cowper 1888; Collingwood 1901; Dobson 1926; Turnbull and Walsh 1996; 1997; Evans and Edmonds 2003). Recent excavations have demonstrated the variation, complexity and longevity of these sites and perhaps a long term commitment to particular sites by the communities who built and maintained them (Turnbull and Walsh 1997; Williams and Howard-Davies forthcoming). The excavation of a funerary cairn at Levens Park (C) (Sturdy 1976) revealed a large circle of boulders surrounding a central Beaker inhumation (Turnbull and Walsh 1996). Two further inhumations and a covering barrow were later added. At Borwick (L) a ringditch encircled a double inhumation burial dated to 1740-1640 cal BC (Olivier 1988). The inclusion of a metal axe with the primary burial is an extremely unusual trait, mirrored in few other instances in England. This was later overlain by a stone cairn with evidence for further multiple funerary depositions. The timber circle at Bleasdale (L) may reflect similar elements of funerary practice, although internal elements differ. A penannular ringditch contained a timber circle 11 m in diameter, surrounding a central feature containing two inverted Collared urns, an accessory cup and probably cremated remains (Dawkins 1900; Varley 1938). This feature was subsequently covered by a mound and encircled by a timber circle or palisade with a diameter of approximately 46 m, although the chronological relationship between the inner and outer elements was not established. A radiocarbon date of *c.* 2200 BC from the inner ditch is not considered reliable due to the unknown provenance of the dated material (Gibson 1998, 49).

North of the Mersey the largest concentration of burials comes from the Pennine uplands, although several occur in the lower reaches of valleys, particularly around Bolton. A noteworthy concentration of ringwork type burial and ceremonial sites is found in a small area in the north-east of the region, around Burnley. This group is quite distinct and suggests a relatively localised architectural tradition. Work at Astley Hall Farm, Chorley, and Carrier's Croft, Pendleton, represent two of only a limited number of excavations on Early Bronze Age sites in Lancashire south of the Ribble. At Astley Hall Farm a penannular ditched enclosure was found enclosing two Collared Urns and four deposits of cremated remains. One of the urns contained the cremated remains of a child with the remains of a wooden bowl, pottery shreds, burnt flint and traces of a copper alloy artefact. Associated with the ditch was a worked quartzitic pebble, tentatively identified as a fragment of a phallus. At Carrier's Croft, Pendleton, excavations revealed an Early Bronze Age circular stone setting with a cobbled floor, sealing three Collared Urns containing cremated remains. One of these was associated with five sherds of re-fired Beaker Ware, a bone button, four quartz crystals

and a gold object described as a 'bead', with Beaker affinities. Work continues towards publishing these sites.

In common with many other regions, the Early Bronze Age evidence from Cheshire is dominated by funerary monuments. These appear to have gone out of use in the Middle Bronze Age but, unlike other regions, there is little evidence for the large scale 'settling down' and construction of settlements and associated field systems in the county during the later Bronze Age. In the south of the region, the main form of Bronze Age burial is multiple cremations, often associated with Collared or local Pennine Urns. The single grave tradition, largely associated with inhumation and stone cairns or earthen barrows, accompanied by Food Vessels and Beakers, is represented only by a few examples in the Pennines (Bu'lock 1963, 14). Such sites appear to have been later used as the focus for secondary multiple burials associated with cremation.

A group of five barrows lies around Winwick, to the north of Warrington. Two were recorded during the late nineteenth century (May 1904), while two have been excavated under modern conditions. One, badly disturbed, produced Beaker pottery. Another Beaker barrow at Southworth Hall Farm consisted of a two phase monument with multiple cremations, a Food Vessel, two Collared Urns and an accessory cup. The radiocarbon dates for the two phases spanned about 400 years between approximately the eighteenth and fourteenth centuries BC (Freke and Holgate 1990; Cowell 1991a). A flint dagger of Beaker type has also been found in the area of the barrow group (Cowell 1995; Hall *et al* 1995). Towards the coast there are a number of low-lying burial sites in the Weeton area, at Whiteprick Hill, which were recorded in the mid nineteenth century during their destruction. One appears to have been a stone cairn with 'many urns' and another find of 'urns' came from close by. There are also records of a series of cairns of 'fire-burnt broken stones' in the vicinity (Middleton *et al* 1995, 111), which are as likely to have been burnt mounds as burial cairns.

A smaller group of barrows is located on the Wirral and others are known from the urban area of Liverpool. The Wirral examples include numerous finds of urns but few structures, suggesting some may actually represent deposition of urns in locations without funerary mounds. 'Several urns' with cremations have been recovered from the sandstone hill overlooking West Kirby and from the eroding cliff. On the island of Middle Eye, close to the mainland, an inverted urn may represent another site. In Liverpool, the Wavertree burials consist of eight urns with burnt bones, of which only two Collared Urns have survived, with no record of an accompanying structure (Cowell 1991a). Later Neolithic traits may be seen in the multiple burials in 'ringwork' type structures in this area and concentric circles of stake holes beneath the mound at Southworth (Bu'lock 1963; Freke and Holgate 1990). The probable Neolithic burial site of the Calderstones, Liverpool, may have been open in the early Bronze Age when some feet carvings, which have Bronze Age parallels elsewhere, were added to the carvings on the stones of the chamber. Urns with burnt bone are also recorded as having come from within the mound and chamber (Forde-Johnson 1957; Cowell 1991a; Cowell and Warhurst 1984).

In Cheshire a total of 109 Bronze Age round barrows have been identified (data from SMR and literature search), 26 of which are grouped within six cemeteries, but the majority occurring in ones or twos. The most notable concentrations of barrows are those around Withington/Joderell Bank; to the west of Oakmere and to the west of Macclesfield. Excavations have been carried out at a number of round barrow sites in the county, but the majority remain unpublished beyond summary notes (see for example McNeil 1982; Rowley 1974; 1977; Wilson 1979; 1988). Radiocarbon dating has been carried out at many of the excavated sites and the general chronology is good, although lacking in detail of specific construction sequences.

During the Middle and Late Bronze Age burial appears to drop out of the archaeological record, perhaps suggesting the disposal of human remains in less archaeological visible ways, rather than the abandonment of formal funerary ritual. This may also be linked to the increasing disposal of objects, especially those of metal, in wet and watery places during these periods. A human skull, dated to c. 1250-840 cal BC, associated with wood chewed by beaver, was identified at Briarfield Nurseries near Poulton-le-Fylde (L) in 1997 (Wells and Hodgkinson 2001). It was thought to have been deliberately deposited in the wetland in the Late Bronze Age and the site appears to have been inundated possibly as a consequence of beaver damming. A second human skull recovered from Ashton Moss (GM), radiocarbon dated to 1320-970 cal

BC (Nevell 1997a). A Late Bronze Age ring ditch was partially excavated in 2003 at Poulton (L) containing fragments of a horse skull and 'coarse hand-made pottery' apparently associated with fragments of cremated human bone (Mike Emery, pers comm.). This feature was assigned a Late Bronze Age/Iron Age date and work on the site is ongoing.

Burnt Mounds

Although these sites have been notoriously difficult to interpret (see Barfield and Hodder 1987; O'Drisceoil 1988), they are generally accepted as dating within the Middle to Late Bronze Age. A single example of a burnt mound is known from Cheshire, to the south east of Egerton Hall (Leah *et al* 1997, 141, 151). A Bronze Age bracelet hoard was found close to the burnt mound (Leah *et al* 1997, 137) and it is a possibility that burnt mounds were involved in rituals of disposal including the consumption of food, discard of metalwork and other aspects of material culture (Mullin 2003a). A number of burnt mounds in Cumbria have been identified through recent fieldwork, bringing the known total to around twenty (Nixon 1980; Hodgson forthcoming). An example was excavated at Sparrowmire Farm, Kendal in 1999 and produced radiocarbon dates consistent with construction and use in the Bronze Age (Heawood and Huckerby, 2002). A second site was excavated at the Garlands Hospital site, Carlisle (Neighbour 1997), but has not been dated. A 'box' constructed from birch poles from Branthwaite (C), which was associated with a Bronze Age dugout boat (Ward 1974), and an oak trough from Lorton Moss (Wilson 1879) both contained burnt stones, and may represent evidence of similar activity.

Natural places

In many areas of north Lancashire and Cumbria there is strong evidence for the deposition of cultural material and burials in natural features over the course of the Later Neolithic and Bronze Age. Cave sites and solution hollows such as those at Dog Holes cave at Warton (L), the Doghole at Haverbrack (C) (Jackson 1913; Benson and Bland 1963), Whitbarrow Scar (C), Kents Bank Cavern and Blenkett Wood at Allithwaite (C) (Salisbury 1992; 1997) and Bonfire Scar and Bart's Shelter on the Furness Peninsula (C) (Hodgkinson *et al.* 2000; Young 2002) have revealed a variety of finds dating from the Upper Palaeolithic to the Early Medieval period. Scientific dating of the human bone from these caves has rarely been undertaken, but the association of pottery and flint might suggest some of the remains date to the Neolithic and Bronze Age.

More tangible evidence for deposition during the Neolithic and Early Bronze Age may be seen in deposits of cultural material, including stone and bronze axes, occurring on the southern Cumbrian limestone, especially in the environs of natural mounds and hummocks (Edmonds *et al* 2002). Beaker sherds were located in a limestone outcrop close to the Sizergh funerary cairn, and recent excavations revealed a small polished stone axe in a gryke close by (McKenny Hughes 1904; Edmonds *et al* 2002; Evans and Edmonds 2003).

Rock Art

Until relatively recently rock art was thought to be uncommon in the North West, but new discoveries have led to an increased knowledge of its location and significance, as well as being suggestive of stylistic links with other regions. Gazetteers of occurrences have been compiled by Frodsham (1989) and Beckensall (2002). In Cumbria standing stones bearing rock art motifs occur within stone circles or as outliers, and are constituent parts of stone avenues between monuments, such as that identified at Kemp Howe (Clare 1978). Plain or decorated standing stones and prominent earthfasts also occur as isolated or paired features on natural routeways, in particular those close to monumental complexes. Standing stones or natural earthfasts adorned with rock art motifs are commonly interpreted as 'waymarkers' (e.g. Bradley 1992; 1993; 1998), further suggested in Cumbria by decorated earthfast panels such as that at Chapel Stile, in the Langdale valley, and Patterdale, close to Kirkstone Pass.

A number of the Cumbrian stone circles illustrate orientations towards important celestial alignments, in particular Long Meg, Castlerigg and Swinside appear to be aligned on or close to the Midwinter sunset (Thom 1967; Burl 1976, 1988; Clare 1975; Ruggles 1999). Individual stones at both the Long Meg stone circle and Castlerigg (Beckensall 2002, 7) have been linked to the observance of celestial events, motifs on some stones being particularly visible when being 'lit up' by the setting or rising sun (Beckensall 2002; Hood & Wilson 2003).

Decorated stones such as those at Castlerigg illustrate an important crossover with the use of rock art and links with funerary cairns. At Castlerigg the spiral rock art motif on a stone on the eastern perimeter of the stone circle faces inwards towards the centre of the monument. The motifs would later be masked by the construction of a funerary cairn, today represented by a rectangle of stones. Rock art motifs on the inner kerbs of funerary cairns have been identified at Glassonby, Little Meg, Iron Hill South and Moor Divock 4 (Beckensall 2002). At Little Meg an internal cist excavated in the nineteenth century also incorporated decorated stones (Beckensall 2002). The incorporation of these stones, which are likely to only have been visible before funerary cairns were added to these monuments, appears to illustrate a change in the significance of rock art between the Neolithic and the Early Bronze Age (see Bradley 1992, 1993, 1998).

The Calderstones (M) is a probable passage grave, now re-erected at a new site. The carvings on the stones include concentric circles, spirals, chevrons, arcs, and feet, which are all likely to date from the Neolithic and Bronze Age (Forde-Johnston, J.L. 1957; Cowell and Warhurst 1984). The motifs may have been executed both before and after the incorporation of the stones in the monument.

Technology, Production and Exchange

Polished stone tools

Cumbria is well known as a source of stone utilised for stone tool production, and the distribution of stone axes is perhaps the best evidence for long distance exchange networks during the Neolithic. Although the term 'axe factory' is perhaps an unfortunate misnomer, the debitage and waste evident today ably demonstrates the scale of working. Early research on stone axes was driven largely by chance discoveries. The majority of the blades found in the North West came from cultivated fields and a regular crop of blades has also been brought to the surface on the coast. Most blades are recorded as having been found in isolation but the region does contain several 'hoards' of flaked and/or ground stone axes (e.g. Barnes 1963; Evans 1897; McIntyre 1937; Rawnsley 1902). Groups have also been recovered from fissures and gaps in outcropping stone, as at Skelmore Heads, near Ulverston, where four flaked stone blades were found in 1959 in a limestone gryke (Barnes 1963).

An early success in the petrological fingerprinting of different groups of axes and the tracing of these back to their points of geological origin was the linking of a specific petrological group of axes (Group VI) with outcropping sources in the central Cumbrian Fells. Work on implements made from this distinctive volcanic tuff has demonstrated that in addition to a local distribution, many are found at greater distances - over the Pennines in Yorkshire, in Scotland, Ireland and across much of central and southern Britain. To date, four broad source groups have been petrologically identified in the region (Clough and Cummins 1988).

Group VI	<i>Epidotised intermediate tuff of the Borrowdale Volcanic Series</i>	Central Lake District
Group XI	<i>A fine silicified tuff</i>	Great Langdale area
Group XV	<i>Micaceous sub-Greywacke</i>	Southern Lake District
Group XXXIV	<i>Leucogabbro</i>	Carrock Fell, Cumbria

These groups are for the most part represented by axes, and occasionally by other (potentially later) artefacts such as axe hammers and perforated implements. By far the largest of these is Group VI (Fell and Davis 1988). Some materials can also be found away from their parent sources; carried as glacial erratics and deposited when temperatures rose. It has been argued for some time that distribution studies have paid insufficient attention to the contribution of these erratics (Briggs 1976; 1989).

Archaeological fieldwork on sources has tended to concentrate on the extraordinary sites found along the line of the Group VI tuffs. What was first referred to as the 'Stake Pass Industry' was re-named by Clare Fell to reflect a more substantive link with Great Langdale (Bunch and Fell 1949; Fell 1954; Plint 1962). Since then, there have been several campaigns of survey and excavation at various locations in the Cumbrian Fells (e.g. Bradley and Edmonds 1993; Claris and Quartermaine 1989; Clough 1973; Houlder 1979). These have yielded evidence for quarries, excavated blockfields, and flaking floors away from the outcrop. These demonstrate different approaches to working and a date range for activity that currently stretches from the early fourth to the mid-third millennium BC. Additional, probably smaller worked

outcrops, are likely to exist in the central fells.

Group VI axes and related forms dominate the inventories of implements from the region. That said, finds of group XV implements are well represented and there is at least one axe of Group IX, which has its source at Tievebulliagh in County Antrim. One pattern worthy of note is a tendency for the bulk of Group VI roughout axes to be found within Cumbria itself, albeit right across the area (Bradley and Edmonds 1993; Edmonds 2004).

Beyond petrology and distribution, the study of axes has emphasised questions of morphology and typology, Clare Fell being the most important contributor to debate (Fell 1964). Together with others (e.g. Manby 1965; 1979), her research has suggested the existence of several forms, including '*Cumbrian Clubs*'. Varied in size but usually large, these are highly distinctive, often with a slight waisting towards the butt and flattened facets on either side.

In addition to the distribution pattern of struck flint, polished stone axe finds are common across the south of the region. Some axes from the region, particularly in the north, occur on what may be settlements, but others may represent other types of sites or activities. For example five of the nine axes from Pilling Moss have come from below the peat, which represents a reed swamp environment during the earlier part of the Neolithic (Middleton et al 1995, 195). The ritual deposition of Bronze Age metalwork is often associated with wet places and this may suggest that such activity took place at an earlier date.

Other axe concentrations are associated with the urban areas of north Wirral, Liverpool, Warrington and the Manchester conurbation, presumably reflecting the development that has taken place. On the southern Pennine slopes, axes are found mainly at or above the 200m contour while north of the Ribble there have been few axe finds within the Pennines.

A total of 81 Neolithic stone axes have been recovered from both excavation and surface collection from Cheshire. Of these, 31 have been petrologically examined (Robinson 1976, Coope et al 1988) and the raw material is predominately flint and Groups VI (Langdale) and VII (Penmaenmawr). Two jadeite axes have been found in the county, and this includes the second longest in the country found at Lyme Handley (Longley 1987: 49).

Perforated Stone implements

Perforated stone implements appear to have a chronology that lasts throughout the Early Bronze Age, tailing off by c. 1300 BC. Socketed and shafthole stone axes of later Neolithic/Early Bronze Age date are numerous in many areas of Cumbria, particularly close to the coast. Like Langdale axes, the overwhelming majority of examples were recorded by antiquarian writers of the late nineteenth and early twentieth centuries and little is known of their original context, although they have been known to occur in burial contexts (Edmonds 1995; Roe 1979, 23). The axe types are made from a variety of locally available rock (see Roe 1979) and in general have a wider topographic distribution than Neolithic axes, with some located in upland areas in addition to the coast and valleys. In Lancashire, Pilling Moss in the Fylde has a concentration of perforated stone implements and there is a thin scattering of axe hammers in the Burnley, Rossendale and Macclesfield areas.

Axe hammers dominate the perforated implement finds from Cheshire, with fewer battle axe and macehead finds than may be expected elsewhere in the country (Roe 1979: 26). Three implements from Cheshire (an axe hammer an adze and a mace head) come from find spots in rivers and a further two have been recovered from wetland contexts (Leah *et al* 1997: 151). Perforated implements also share a distribution pattern coincident with round barrows and metalwork finds.

Lithics

The locally available flint sources appear to have been extensively exploited during the Neolithic and Bronze Age while better quality flint material was probably sourced from areas outside the region, presumably arriving via networks of trade and exchange. Although many of the widely accepted typological or chronologically diagnostic forms for the Neolithic are represented, assemblages are often characterised by informal or multiuse forms suggesting the expedient use of available raw materials where these were easily available. Mesolithic traits continue throughout a large part of the Neolithic, and in turn

Neolithic types are also found in Early Bronze Age assemblages. In the north assemblages producing 'Bronze Age' material are confined mainly to coastal sand dune sites characterised by pebble flint assemblages. The sort of rough flake technology present in these contexts is commonly used to differentiate between periods (Pitts and Jacobi 1979; Edmonds 1987).

Where lithics have been located in association with Bronze Age burials, these are in general undiagnostic. A Bronze Age date for some surface lithic scatters has been suggested through spatial association with Beaker pottery in the eastern uplands (Cherry and Cherry 2002). However although domestic Beaker pottery is often found in later contexts than that associated with burials the situation remains unclear. It is likely that a number of 'later' scatters in both upland and lowland contexts are Bronze Age in date but have remained unrecognised due to mixing and the inadequacies of traditional lithic typological schema.

In Cheshire two high quality flint daggers typologically dating to the Early Bronze Age have been recovered. One from Acton Bridge in 1974 (Longley 1987, 79) was allegedly found with some bones and a second was recovered from Basford. These daggers are similar in form to examples from Scandinavia and have predominantly late Beaker associations (Clark 1931; Grimes 1931).

Mining and Metalworking

Alderley Edge (Ch) is one of the best known prehistoric copper mining sites in the country. Evidence for earlier mining and mining tools has been known since the seventeenth century (Ixer and Budd 1998, 21) and the site was amongst the first prehistoric mines to be recognised in the country. Boyd Dawkins excavated at Bryndlow Levels in 1875, recovering over 100 grooved stone hammers from the site. Sainter (1878) examined the Bryndlow site and recovered more hammers from pits 3-4m deep as well as an oak shovel. This shovel was recently re-discovered (Garner 1994) and yielded a radiocarbon date of 1980-1520 cal BC. Further sites in the area are known although much evidence has been removed by later mining (Gale 1986, 1989, 1990). It is noteworthy that metal from the Alderley Edge source has been traced within bronze artefacts of the Ewart Park period, c. 1020-800 BC, (Rohl and Needham 1998, 107-8) which are considerably later than the current evidence for the ore extraction.

Despite the presence of copper ores and numerous finds of prehistoric stone hammers in the Coniston area, no direct evidence of prehistoric mining or extraction is known from the north of the region, possibly a result of both extensive and intensive later working.

Evidence for the conversion of copper ore into metal objects has been recovered from Beeston Castle, where 20 fragments of bivalve clay moulds and five crucible sherds were recovered from excavations within the Late Bronze Age enclosure (Ellis 1993). The mould fragments were generally poorly preserved but parts of matrices for casting swords and ferrule were tentatively identified and probably dated to the Ewart phase (Ellis 1993, 55). A local source of copper was available, located at Bickerton, although there is no firm evidence that these deposits were exploited (S. Timberlake, pers com). Within the north a ceramic tube recovered from a grave at Ewanrigg (C) dated to 2290-1750 cal BC (Bewley 1992), may represent a connecting rod to join a pair of bellows to a metalworking furnace. There was no further evidence to suggest the adult (possibly male) within the grave was a metal worker, and no further metal was found on the site. Evidence for casting comes from Croglin (C) where two halves of a stone mould for casting a leaf-shaped double looped socketed spearhead were found in June 1883. This was dated to the Late Bronze Age by Hawkes, but a spearhead matching the mould has yet to be found.

Metalwork

The known Bronze Age metalwork has entered collections as a consequence of piecemeal discoveries over the last 250 years and is consequently eclectic in nature, and comparatively few items (2%) have come from archaeological excavations. Most objects are single finds which potentially represent individual acts of deposition. The remainder represent objects recovered from barrows. The nature of the deposition of many items of Bronze Age metalwork may in fact have a religious or ceremonial significance, although in almost all cases contextual information beyond general location is lacking (Barber 2003, 43).

Potential evidence for the earliest use of metal in the region comes from the axe marks found on wood excavated from the trackway known as Kate's Pad, (L) in 1949, where narrow mortise holes may indicate bronze axe use. The trackway was initially dated to the Later Bronze Age but has now been dated by

stratigraphic association to 2559-1950 cal BC (Middleton *et al* 1995, 60-65). The earliest metalwork in the North West of England includes 25 flat axes (Barrowclough in prep.). Typical of these (although not its context) is the find from Manor Farm, Borwick (L), with a relatively late date of 1740-1640 cal BC (Olivier 1988). Also present within the region are flanged axes, such as one from Radcliffe, awls, tanged spearheads and daggers.

By far the largest number of metal objects of Middle Bronze Age date are palstaves, of which 74 are known (Barrowclough in prep.). Also present, but in much smaller number are haft-flanged axes, looped spearheads and rapiers. In his analysis of metalwork from the north of England Burgess (1968) assigned the Middle and Late Bronze Age metalwork of the North West to the Wallington tradition of metalworking, in contrast to the Willburton tradition of southern England.

The Late Bronze Age assemblage is dominated by socketed axes, of which there are 69 from the region. It also includes gold ornaments such as the gold torcs from Maplas (Ch) and gold lock-ring from Portfield Camp (L). Swords although present are comparatively rare with only ten examples recorded from the Region. This assemblage does however contain some early and rare examples, such as the Ambleside hoard (Needham 1982). Hoards are considerably smaller than many contemporaneous ones in the south of England. Typical Northwestern hoards are those from Winmarleigh, Whalley and Congleton. The latter consisted of a barbed spearhead, lunate spearhead, two spearshaft ferrules and a three-ribbed socketed axe.

Pottery

Beakers, or Beaker sherds, have been found in a variety of different contexts in Cumbria including a limestone gryke at Sizergh (McKenny Hughes 1904), a pit in a natural hummock at Ewanrigg, in association with the timber circle/ringcairn at Oddendale (Turnbull and Walsh 1997), at Levens ringcairn/barrow (Turnbull and Walsh 1996), in a funerary cairn at Mecklin Park (Spence 1937) and from domestic contexts on North Walney (Barnes 1970). At Ewanrigg the burial containing Beaker pottery was dated to 3350-2920 cal BC, which was deemed too early for the material and 'not archaeologically acceptable' (Bewley *et al* 1992, 351). The only other date is by association only, from the fills of post pits from the Oddendale ringcairn (2583-2483 cal BC, 2859-2579 cal BC, 2853-2466 cal BC), one of which contained a sherd of AOC beaker (Turnbull and Walsh 1997).

Food Vessels occur in a similar range of contexts to Beakers although they are more often associated with cremation burials and Collared Urns. A Food Vessel was however found associated with an inhumation burial at Ewanrigg (Bewley *et al* 1992). This pottery has also been located within funerary cairns at Moor Divock (C) (Greenwell 1876, 1877), Bleaberry Haws (C) (Swainson Cowper 1888), and associated with Collared Urns and cremation deposits at the Banniside (C) (Collingwood 1910) and Oddendale (Turnbull and Walsh 1997) ringcairns. There is at present no secure dating for this pottery type in Cumbria. Food Vessel sherds from an apparent non-funerary context are known from Oversley Farm (Ch) dated to the centuries either side of 2000 cal BC.

The North Western Style of Collared Urn, belonging to Longworth's Secondary Series (Longworth 1984), are the most frequently recorded style of Early Bronze Age pottery within the region, characterised by relatively deep collars and pronounced lower collar lips. Collared Urns, as well as accessory vessels/incense cups where these have been identified, often appear secondary to what may have been earlier funerary cairns, and have been recorded in the internal elements of stone circles. They are also associated with ringcairns as well as being deposited in limestone grykes, potholes and other natural features. Decoration of urn groups within Cumbria, including those from Millom Without, Coniston, Garlands and Ewanrigg (Bewley *et al* 1992) illustrate strong diversity in form and decoration (Wild 2003). The majority of those recorded were recovered in the later nineteenth and earlier twentieth centuries, and there is little secure dating either for specific 'styles' or the individual monuments within which urns have been deposited. However recently derived dates from Ewanrigg span from 2460-1520 cal BC (Bewley *et al* 1992), from Allithwaite span 2101-1747 cal BC, 1922-1637 cal BC (from the same urn) and 2027-1741 cal BC (Wild 2003) and examples from Ribchester have been dated to 2600-1900 cal BC and 2470-2030 cal BC (Olivier 1987). Mid Bronze Age pottery from Irby consists of eleven fabrics, probably all of local origin, with six radiocarbon dates spanning the period 1500-1010 cal BC (Philpott and Adams forthcoming).

Late Bronze Age pottery from Abbey Green, Chester (McPeake and Bulmer 1980) has been petrologically examined by Elaine Morris of the University of Southampton (unpublished report in Grosvenor Museum, see Mullin 2003a) and a source either in north Wales or from local drift deposits was identified. Morris's petrographic analysis of pottery from Beeston Castle (in Ellis 1993) has drawn attention to the similarities between the fabrics from Beeston and the Wrekin, assigning a local source to the Beeston material. Given the evidence from these sites and from the Breiddin, Powys (the pottery from which was also examined by Morris), a source either at the Wrekin itself or from local drift deposits is most likely for the inclusions in the Late Bronze Age pottery from all four sites.

Warfare

The appearance of swords and spearheads within the Early and Middle Bronze Age may suggest intermittent feuding or conflict although the evidence is so far unconvincing, and it is notable that the region has an apparent lack of sword finds in comparison to other parts of the country. The cremated remains of the woman representing the primary burial under a barrow at Lower Withington (C) apparently displayed a possibly fatal wound to the head (Wilson 1980; Thorpe forthcoming), but on its own this hardly represents evidence for warfare. During the Late Bronze Age, hilltops begin to be developed as enclosed sites, usually seen as the precursors to hillforts. It is a strong possibility that these sites had specialist functions, however, perhaps associated with metalworking, gatherings of some sort, or high status individuals.

Legacy

A degree of mobility may have been a feature of settlement throughout the Neolithic, and even into the Early and Middle Bronze Age. Broad processes of change may be seen taking place aside many aspects of continuity, in seasonal movements of people and animals, and continued re-emphasis to particular locations, such as complexes of monuments. By the Early Iron Age and possibly in some areas during the ninth or tenth century BC, this pattern may have changed. The appearance of the first fixed farmsteads with large ditched enclosures, dispersed across the landscape, coincides approximately with the seeming disappearance of lithics and burials as major forms of evidence, while environmental changes caused areas of land to become less productive. This may indicate an intensification of landuse and settlement in former core areas rather than depopulation, as is sometimes implied (Davey 1976, Nevell 1992a). Some areas may have seen the establishment of more permanent tenure of land and resources by smaller individual groups, perhaps based on the extended family. There are subtle differences in adaptation to these new conditions. The increase in Late Bronze Age material deposited in the Ribble and wetlands of the Fylde may suggest that strong central socio political control was established across the landscape. In Cheshire, the rise of large defended enclosures, such as Eddisbury (Forde-Johnston 1965) or Beeston Castle (Ellis 1993) is also apparent. Whether these centres operated in relation to a seasonally mobile system or were part of a settlement hierarchy is not clear, although the latter is possibly the more likely, given the pollen and environmental evidence.

IRON AGE

One of the greatest problems for Iron Age archaeology in the North West is the apparent scarcity of evidence, and an alleged poverty of material culture. Within a recent review of Iron Age studies the areas of Cumbria and Lancashire were described as a 'black hole' regarding the current state of archaeological knowledge (Haselgrove *et al* 2001, 25). Pottery is a rarity on most excavated sites, and indeed is apparently absent from many. Metal finds that can be securely dated to the period are rare, and generally confined to the southern part of the region. The overall picture is one of a society living in relatively small, dispersed settlements with little evidence for non-organic material culture. This in turn has been taken as evidence for a relatively shallow settlement hierarchy, perhaps reflecting an egalitarian society (Nevell 1992a; 1999a), although this view has been challenged as an over simplified interpretation of the evidence (Haselgrove 1996, 69; Matthews 2002a). The northern part of the region lies within the so-called territory of the Brigantes, while the south has been presumed to be part of the territory of the Cornovii. However, evidence for the extent of Cornovian territory is late second century AD and refers to Romano-British, not Iron Age, administrative arrangements. There is no evidence that a people known as the Cornovii even existed during the Iron Age (Wigley 2001, 9). Likewise, the probable late first-century source used by the Alexandrian mathematician Ptolemy in compiling his *Geography* implies that Cumbria and Lancashire belonged to the Brigantes, but we cannot know whether this territorial arrangement was ancient or an

innovation of Roman provincial government. This may actually be a catch-all collective phrase for the peoples inhabiting the north of England. Specific details of intra tribal identity or how widespread political unity may have been across the north remains elusive and references to the Setantii in Lancashire, a *Civitas Carvetiorum* in Cumbria (Rivet and Smith 1979, 301) and a people known as the Tectoverdi all date from the Roman period.

Environment

The lack of identifiable sites combined with less evidence for anthropogenic disturbance within the pollen record have led some to suggest there was a lower population density within the north during the Early Iron Age, and even abandonment of the uplands (Nevell 1992a; 1999a; Wimble *et al* 2000, 28), although localised clearance has been identified (Dumayne 1995, 27; Wimble *et al* 2000, 27). In the Late Iron Age, in contrast to the archaeological record, there are well-dated pollen data that suggest that there was widespread clearance activity, including cereal cultivation, throughout the North West. Examples of this can be seen in pollen diagrams from sites in Cumbria (Pennington 1970; Pearsall and Pennington 1973; Hodgkinson *et al* 2000; Wimble *et al* 2000; Walker 2001; Quartermaine and Leech forthcoming), the Lancashire lowlands (Middleton *et al* 1995, 141-189; Wells *et al* 1997) and uplands (Mackay and Tallis 1994), from the western Pennine fringes of the Mersey Basin (Brayshay 1999) and from Cheshire (Leah *et al* 1997).

Settlement

Across much of the region, Late Pre-Roman Iron Age settlement is poorly understood with a low level of surviving material culture and few dated sites located or investigated, although there is a growing body of excavated settlement evidence from Greater Manchester, Merseyside and Cheshire. Thus, only a decade ago in a discussion of the work in Solway Plain Bewley could ask 'where and what is the Iron Age?' (Bewley 1994, 73), noting that to 1994 there were just five records of sites of Iron Age date in the Cumbria SMR (Bewley 1994, 63). Although in Cumbria numerous enclosure sites were known in quantity both as earthworks in the uplands and as cropmarks in the lowlands, unequivocal Iron Age occupation is difficult to identify owing to the scarcity of identifiable material culture. Equally, two palisaded enclosures of possible Iron Age date excavated at Burgh-by-Sands and Scotby Road, Carlisle, were defined by narrow and shallow palisade trenches that would probably have only been detected during excavation. More intensive survey on the low-lying Solway Plain and its adjacent transitional zone has enabled Bewley (1994, 77) to argue for a potential pre-Roman phase at several sites, including Ewanrigg, Wolsty Hall (Blake 1959) and Boustead Hill. At Aughtertree Fell a long period of occupation is suggested by three enclosures, supported by the presence of Bronze Age finds from the adjacent barrows (Bewley 1994, 35). However, Bewley has argued that the dating of rural sites which relies on the visible material culture may not tell the whole story of the duration of occupation. A similar assumption can be made for the southern part of the region south of the River Ribble where systematic aerial photography across Cheshire and Merseyside during the 1990s has revealed dozens of cropmark enclosures. When fieldwalked the material culture remains of the Iron Age is extremely limited (Collens 1994 and 1999).

Although Cumbria and North Lancashire are predominantly upland there are very few hillforts (Haselgrove 1996), and these are typically univallate and small in size, although displaying relatively impressive defences e.g. Castle Crag (LUAU 1998). By default, these hillforts were once assumed to be classic Iron Age monuments, forming large heavily defended sites perhaps acting as the foci of a clan or tribal chief and exerting considerable land control on their immediate hinterland, although there have been recent claims to place many of these sites in either earlier or later periods. Where excavation has taken place, datable finds have been scarce and radiocarbon dates imprecise (e.g. Bewley 1992, 39). In fact few hilltop sites can be securely dated to the Iron Age in the northern part of the region.

So-called hillforts south of the Ribble are also scarce and appear to be confined to the upland fringes of the Ribble Valley, the western Pennine foothills and the central Cheshire Ridge. Excavations at Beeston (Ch), Castercliffe (L), Maiden Castle (Ch) and Mellor (GM) have all produced early to mid Iron Age radiocarbon dates (Matthews 2002a; Nevell 1999a). However, by the end of the Middle Iron Age, the hillforts that were occupied within the Early Iron Age had fallen out of use. Until recently, excavations within hillforts have tended to concentrate on ramparts and entrances and consequently little is known about their interiors, although there has been a tendency to assume that they were inhabited. At Castle Hill, Eddisbury (Ch), roundhouses with stone footings were built over the slighted ramparts, whilst extensive interior

excavations at both Beeston and Mellor have revealed post-built round houses. Radiocarbon dating suggests that the earliest sites are of Later Bronze Age date (perhaps even before 1000 BC, as at Beeston) and that they were abandoned during the Middle Iron Age (Nevell 1999a). An unusual triple-ditched enclosure at Swarthy Hill (C) produced a single Middle Iron Age date from an upper ditch fill (Bewley 1992). Until recently no hillforts had produced evidence for continued occupation during the Late Iron Age or at the time of the Roman conquest (Matthews 2002a), although there is artefactual evidence from Mellor for a re-occupation in the later first century AD (Nevell 2001; Redhead & Roberts 2003). Further potential sites in the north are situated at Cargo (C) (McCarthy 2002, 46) Carrock Fell, Warton Cragg (L), Castlehead (C) and Skelmore Heads but none has secure dating for Iron Age construction or occupation. Recent investigation of a mire-filled rock-cut ditch at Shoulthwaite (C) produced two Early Medieval dates, although it was not possible to establish if this actually represented early medieval reoccupation of an Iron Age site (LUAU 1999).

The majority of Iron Age sites are represented by single banked or ditched enclosures. The poor visibility of this period in the archaeological record has meant that it has been difficult to recognise open settlements, and the few known have tended to be the results of accidental discoveries, such as during pipeline construction (eg Nevell 2001; Matthews 2002a; Fairburn *et al* 2003). There is some variety in the topographical situation, and in the morphology of the enclosures. Morphology has frequently been considered as an unreliable guide to chronology, and the form of the settlement is generally considered to have more to do with its function than its date. However, in this part of the region there is some evidence which suggest that consistent elements can be associated with particular periods. The large double-ditched curvilinear enclosures, where examined, have Iron Age origins, such as Brook House Farm (Halewood, M) or Great Woolden Hall (GM). The settlement site at Mill Hill Road, Irby, had a long occupation sequence dating from the Late Bronze Age to the medieval period (Philpott and Adams 1999, 66) although it may be unsafe to regard it as typical. Although aerial photograph analysis has revealed several potential promontory sites in the Irwell and Roch valleys and hill-top enclosures in the uplands it may be unsafe to date sites to this period on morphological grounds or analogy (Bewley 1994, 32-34; Matthews 2002, 9) or on the basis of fieldwalking finds alone.

The predominant recorded settlement sites within the uplands are simple enclosures, with a substantial bank, external ditch and a single entrance. Within the enclosures are typically one or more circular roundhouses, and these are usually in the centre of the enclosure away from the outer bank. Many have been dated to the Iron Age on the basis of some carbon dated parallels from North East England, although finds of Romano-British material suggest a degree of continuity on many sites. A series of more complex enclosed settlements are concentrated on the eastern uplands of Cumbria. These are characterised by a low exterior enclosing bank, with a series of internal enclosures, dividing banks and round houses. The sites may also have complex entrances. The enclosure on Askham Fell contains a series of circular houses within its centre, with larger enclosures on either side, possibly for stock (Quartermaine 1988). This type of enclosure has often been typologically dated on the basis of antiquarian excavations (e.g. Collingwood 1908) to the Roman period, although the occasional find of Romano-British pottery, not necessarily from stratified contexts, may be misleading.

The smaller lowland enclosures fall into a number of types including promontory enclosures, oval enclosures and sub-rectangular enclosures. Some are univallate and some are bivallate, and social ranking has been proposed as a factor behind this difference (Matthews 1994, 53; Nevell 1992b; Nevell 1999b). Likewise it has been proposed that the limited variations in size of enclosures is evidence for limited social differentiation and therefore for a lack of social (and settlement) hierarchy (Nevell 1999b, 63). This has been challenged on other grounds, notably the distribution of exotic material culture, as well as site location and social formation (Matthews 2002a, 33). However, at least for the Early Iron Age, it is possible to suggest that the smaller lowland promontory enclosures, such as Peckforton Mere (Ch) or Oakmere (Ch), were closely connected with nearby hillforts in some form of settlement hierarchy (Matthews 1994, 53). There is little information about the interior of any of these sites and the nature, scale and duration of occupation is unclear. It might be suggested that the hillforts were home to rather larger populations than the lowland promontory enclosures, and given the close association between the two types, it has been proposed that the latter may have been the residences of elites (Matthews 1994, 53 Nevell 1992b; 1999a). There are also hints that some of the single-ditched curvilinear enclosures, such as Legh Oaks I (Nevell 2003), belong to this early period, while some open sites, such as Brookhouse Farm (Bruen Stapleford, Ch)

are certainly Early Iron Age, and in this case, occupation begins during the Late Bronze Age.

Excavations of a double-ditched hilltop enclosure at Mellor near Stockport (GM), have revealed a strongly defended inner enclosure radiocarbon dated to the fifth century BC (Roberts and Redhead 2003). The outer ditch contained a rare, almost complete hand made pottery vessel shown by thin section analysis to have come from Castleton, Derbyshire. The enclosure contained a round house radiocarbon dated to 520 to 380 cal BC, although an extensive assemblage of Romano-British finds from the inner enclosure ditch attest to continued occupation throughout the Roman period. Two apparent palisaded enclosures at Scotby Road, Carlisle, and Burgh-by-Sands probably suggest a defensive purpose, although an Iron Age date for these sites is not certain (McCarthy 2002, 46). Although there appeared to be evidence for occupation within the palisaded enclosures no buildings were recorded (McCarthy 2002, 46). More typical are the excavated examples at Great Woolden Hall and Castlesteads (GM) (Fletcher 1992; Nevell 1994, 32-33; Nevell 1999b) where single-ditched enclosures contained a farmstead with round houses. Both settlements began in the mid- to late Iron Age but only Great Woolden continued into the Roman period (around 200 AD). A third site, a hill-top enclosure at Rainsough near Prestwich (GM), was largely destroyed by sand quarrying in the 1930s, however excavations around its periphery in the early 1980s revealed late prehistoric pottery sherds as well as an abundance of first century and second century AD fine Roman wares, including possible pre-conquest imported vessels (Brisbane 1987; Nevell 1994, 11-5). The Lousher's Lane site at Wilderspool produced one coarse gritty potsherd, interpreted as being of Iron Age date (Hinchliffe and Williams 1992, 100), and it must be suspected that one or more of the structures are contemporary. Two of the radiocarbon dates from the site at Tatton Park suggest occupation during the first millennium BC (Higham and Cane 1999, 39). The published plan also shows a circular feature of evident Iron Age form (Higham and Cane 1999, 46). The multi-period site at Meols (M) on the northern tip of the Wirral Peninsula is best known as a source of unstratified material although timber structures were reported during the nineteenth century included both rectangular and circular forms, which may be pre-Roman in date.

The salt towns of the first and second millennia AD are likely to occupy sites that were the centres of production during the Iron Age although it is unlikely that salt production was centralised in the way it was during the Roman period and later. Indeed, the source of clays used in the manufacture of Cheshire Very Coarse Pottery (VCP) is the Middlewich/Nantwich area of the Cheshire plain. Recent excavations on the eastern outskirts of Middlewich uncovered a brine boiling hearth incorporating pieces of briquetage, which was subsequently truncated by a Roman period ditch (Earthworks Archaeological Services 2004). This may represent a Late Iron Age (or very early Roman period) salt production site.

Buildings

The two principal types of structures identified are the roundhouse, typical of the British first millennium BC, and an oval variant. The roundhouse building tradition also continues into the Romano-British period. Dating of later prehistoric round houses has been problematic, largely due to the sparsity of chronologically diagnostic finds, although a roundhouse excavated at Stephenson Scale (C) was probably associated with Iron Age sherds and a 'Celtic' glass bead (Thorpe pers. comm.). Radio-carbon dated round houses include examples from Beeston, Mellor and Brook House farm (Bruen Stapleford) in the southern part of the region. Examples from the lowland zone are typically of timber construction with timber posts such as Great Woolden (GM) where a nearly complete plan of a double-ring house was dated to 65-15 cal BC (Nevell 1999b). A large rotary quern fragment and sherds of Very Coarse Pottery were associated with the house. A well-dated sequence of roundhouses and an oval structure were excavated at Brook House Farm (Bruen Stapleford) spanning the Middle to Late Iron Age (Fairburn *et al* 2001), although occupation on the site begins in the Late Bronze Age.

Within the uplands examples are usually represented by a curtain wall of stone. Two apparently unenclosed round houses excavated at Baldhowend (C) appear to have been occupied in the latter stages of the first millennium BC and the first two centuries of the first millennium AD (Hoan and Loney pers. comm.). The excavation of a roundhouse at Glencoyne Park (C) revealed three phases of occupation with only the middle phase datable by artefacts to the Roman period, while the primary and later phases of occupation were apparently aceramic and artefact free (Hoan and Loney 2003, 59). The size of roundhouses is variable, suggesting functional variation, as reported from other parts of Britain. Examples of roundhouses range from 11 m and above in diameter (as at Mellor, Great Woolden Hall Farm and

Brookhouse Farm, Bruen Stapleford) to 4 m at Tatton Park. The dominance of south-east facing entrances, noted on sites elsewhere in Britain is also evident in these examples (Fitzpatrick 1997, 77).

Subsistence and agriculture

Evidence for subsistence practices is limited, as animal and plant remains tend to be poorly preserved. Nevertheless, Beeston Castle produced early evidence for the use of bread wheat *Triticum aestivocompactum* (Jones and Moss in Ellis 1993, 80) which can now be matched at Mill Hill Road, Irby (Philpott and Adams 1999, 70). Several other species are represented, including emmer wheat (*T. dicocum*), spelt (*T. spelta*), barley (*Hordeum sp.*), oats (*Avena sp.*) and possibly rye (*Secale cereale*). No Iron Age plant remains or animal bone assemblages have been recovered from sites north of the Mersey (Huntley 1995, 41; Stallibrass 1995, 128), with the exception of the small assemblage from Brook House Farm, Halewood (Robinson in Cowell and Philpott 2000, 49). This group is dominated by cattle mandible fragments, with some frog and the fragment of a tooth from a sub-adult pig. The cattle bone shows good evidence for butchery practice, including the likely removal of the tongue and the extraction of marrow, while charring is indicative of cooking. How representative this small assemblage is of the pattern throughout the region is unknown and the recovery of more environmental remains is an important research priority (Stallibrass and Huntley 1995, 201). Few so-called 'Celtic fields' have been recognised in the region, the principal exception being at Longley Hill, Kelsall (C) (Bu'Lock 1955, 26). The remains of probable Iron Age cord and rig cultivation were found sealed beneath the Hadrian's Wall counterscarp bank and the possible parade ground for Stanwix fort, at Tarraby Lane, Carlisle (McCathy 2002, 43-4). A buried lynchet, sealed by loam, excavated at Tatton Park, radiocarbon dated to 410 cal BC to 30 cal AD (Higham 1985), although this is now believed to be sub-Roman in origin (Higham 1999). An extensive area of irregular coaxial fields to the south of Chester has been proposed as pre-Roman (Matthews 2002b, 408), but the evidence for this is indirect and needs to be tested.

Ritual, Religion and Ceremony

Evidence for overtly religious or ceremonial activity of this period is thinly spread across the region, and is dominated by finds from bogs or watery places, often discovered during peat cutting in antiquity. The burials that dominate the regional Bronze Age all but disappear by 1000 BC and evidence for Iron Age funerary practice has so far proved to be elusive. Possible Iron Age burials include a group of three crouched inhumations at Crosby Garrett (C) (Whimster 1981, 169, 403), while a cist burial at Billington (L) was found beneath a barrow associated with one or more iron spearheads and was taken to be Iron Age by Whimster (1981), as has an inhumation burial associated with sherds of pottery that was cut by the construction trench of the milecastle at Risehow (C) (Bewley 1994, 85; Bellhouse 1984). The most definitive evidence is a crouched inhumation burial recently excavated within a Limestone Gryke at Levens (C) which has been radiocarbon dated to the second or first century BC (J. Quartermaine pers. comm.), demonstrating a degree of continuity of Bronze Age practices.

The treatment of the so-called bog bodies typified by 'Lindow Man' from Lindow Moss (Ch) appear to be a tradition with its origins in religious practice, despite some scepticism (Turner 1995, 122; Briggs 1995, 181). The stratigraphic location of the remains of an individual, possibly a woman, discovered on Scaleby Moss (C) in 1845 might suggest a late prehistoric date (Turner 1988). Likewise a bog body from Seascale Moss (C) is believed to date from the Iron Age (Turner 1989) although the date of the remains is not certain (Hodgkinson et al 2000, 78).

Other indicators of religious activity or structured deposition may be represented by numerous finds of metalwork and the carved stone heads which have 'Celtic' features. These heads are difficult to date and many have been moved from their original locations to adorn house walls or gardens, but originally they may have been placed next to springs or pools. Their distribution is skewed towards the Pennine foothills and uplands (Nevell 1992b).

Technology and Production

After the Late Bronze Age to Early Iron Age ceramic types as seen at Brookhouse Farm (Bruen Stapleford) (Fairburn *et al* 2003) and Poulton (Ch) there are few examples of pottery, most appearing to belong either to the very early Iron Age or to its very end. This suggests a considerable reduction in the use of pottery during the Early Iron Age. Some Early Iron Age material may be represented amongst the largely Middle Bronze Age assemblage from Mill Hill Road, Irby (Woodward in Philpott and Adams forthcoming), but in

the absence of a defined typology for the region this remains uncertain. The most characteristic artefact is the so-called 'Very Coarse Pottery' (VCP), a form of briquetage used in the production of salt from brine and its subsequent distribution (Morris 1985, 352) which has been recovered from most excavated Iron Age sites in the southern part of the region (Neveil 1999a). Although most evidence suggests that it belongs to the Iron Age there is some evidence for a Late Bronze Age origin for the material (Fairburn *et al.* 2003, 32) and it was still in circulation at the time of the Roman conquest. Within this long period of production and use there is little evidence for typological development although there appears to be a poorly represented variant at Beeston Castle, Brookhouse Farm (Bruen Stapleford) (Fairburn *et al.* 2003) and Irby.

The most comprehensive assemblage of ceramics and metal objects comes from Beeston Castle, including a clearly high-status leather drinking vessel with copper alloy fittings (Ellis 1993, 50) together with other material that appears to date largely from the first half of the first millennium BC. The ironwork includes a La Tène I (conventionally dated *c.* 450-325 BC) dagger and a La Tène II (*c.* 325-150 BC) spearhead together with an Early Iron Age type swan's neck pin (Dunning 1935, 269). A steatite bead with La Tène decoration from Mill Hill Road, Irby, enables it to be dated to the third century BC (Foster in Philpott and Adams forthcoming), while glass beads from Tarporley and Chester are first century BC to first century AD in date. Objects from stratified contexts show the difficulty of recognising diagnostically later prehistoric artefacts, as with a pounder from Brookhouse Farm, Bruen Stapleford (Fairburn *et al.* 2003). Some are completely unexpected, such as the wooden base from Brook House Farm (Halewood) with its radiocarbon date of *c.* 875 BC which appears to have been at least five centuries old when discarded (Cowell and Philpott 2000, 46).

Elsewhere, discoveries are generally without context. Most spectacular is a La Tène bull's head escutcheon from Crewe, belonging to the Late Iron Age. A terret ring from Stamford Bridge (Ch), although published as Roman (Robinson and Lloyd-Morgan 1984-5, 95), is a La Tène type of the first half of the first century AD and is therefore a very Late Iron Age product, as is a fine bronze cauldron from Bewcastle (C) (McCarthy 2002, 117). Spindle whorls and whetstones are relatively common finds, but very difficult to date, and many of the finds reported through the provisions of the Treasure Act are necessarily without adequate context. There are very few Late Iron Age finds from Greater Manchester and only two decorated metal objects, represented by a torc with bronze beading from Littleborough and a bronze ox head ornament from Manchester.

The greatest problem is the evident rarity of domestic ceramics, although some later Bronze Age traditions appear to continue into the Early Iron Age. While an attempt have been made to classify the scanty Iron Age pottery from the Mersey Basin (Neveil 1994), and a Bickerton-Mam Tor jar continuum has recently been proposed by Matthews (2002a, 16), too few examples of Middle and Late Iron Age pottery have been identified to recognise broad patterns of form and fabric. Pottery from excavations at Middlewich in 2001 included an almost complete plain jar; although found in a Roman period context, the material is clearly of Iron Age date. The excavators compared it with Malvernian Ware of the mid-first century AD, but the fabrics do not match. Residual Very Coarse Pottery was found in Roman contexts at the recently identified Roman settlement in Nantwich but there was no firm evidence for Iron Age settlement.

Trade, exchange and interaction

Few diagnostic artefacts of the first millennium BC have been recognised which places limits on interpretations of both production and trade. The exception is at Meols which has produced numerous exotic finds, mostly during the nineteenth century, dating from the first millennium BC. The quantity of this material has allowed characterisation of the site as an *emporium*, a beach trading site of a type best known at Hengistbury Head, Dorset, but increasingly recognised on the west coast of Britain, as at Whithorn. The coins suggest that some form of organised exchange was taking place at Meols and it is likely that it was carried out between local elites and foreign traders. This kind of exchange requires a society with a much more complex economic organisation than we are accustomed to attributing to the Iron Age peoples of the region, and a degree of social differentiation that has hitherto been difficult to perceive.

Cheshire salt was exchanged over a wide region during the first millennium BC, with VCP containers being distributed throughout the North West, the north Midlands and Wales (Morris 1985, 355). There is a

small scatter of exotic goods in the lowland North West that has been seen as socially significant. They include Coriosolite and Carthaginian coins from the coastal site at Meols, swan's neck and ring-headed pins from several sites, glass beads and more surprising objects, such as a Massaliot amphora from the Dee Estuary. Despite considerable scepticism regarding the origins and status of many of these objects they do form a coherent group, indicative of trading links with the western Mediterranean region from the fifth to second centuries BC (Matthews 2002a, 24).

Defence, Warfare and Military Activity

With few overtly defended sites and no burials, direct evidence for warfare is not discernible. Although the first millennium BC was clearly a period of endemic, small-scale warfare throughout Britain, it is unclear whether hillforts played a military role. It is also unclear whether the enclosed farmsteads were intended either primarily or incidentally as defensive. Four Iron Age swords are recorded from Cumbria and a sword pommel and scabbard mount from Brough. In particular, a fine La Tène sword within its scabbard was recovered from Great Asby Scar by a metal detectorist, although the exact context is not known.

Legacy

Prior to the arrival of the Roman military the north of the region appears to have had substantial areas of clearance, stock grazing and cereal cultivation. There is likely to have been both enclosed and unenclosed settlement, but few large strongly defendable sites. Metalwork is relatively rare although fine metalwork is present and practices of selective deposition, especially in irretrievable contexts, must also be borne in mind. Evidence for burial or funerary practice is extremely rare. The perceived lack of artefacts within the archaeological record has often been interpreted as evidence of an impoverished culture (in comparison to southern England) whilst the lack of an extensive settlement hierarchy has led to reconstructions of a society with little social stratification. However, the small number of high status and traded artefacts may suggest this is an oversimplification, at least in parts of the region. The Roman period references to the tribes of the North West are not necessarily a reflection of the political organisation of the peoples of the region for the larger part of the Iron Age, and aspects of cultural identity still rely on archaeological evidence.

Contributions to the Prehistoric period Resource Assessment

- Barrowclough, D.A. Source Criticism: The limitations and possibilities of the evidence
Barrowclough, D.A. An Overview of the contribution of the Portable Antiquities Scheme to the archaeology of the Northwest of England
Barrowclough, D.A. The Prehistoric Metalwork of Northwest England
Barrowclough, D.A. The Palaeoenvironment of Lancashire
Barrowclough, D.A. Lancashire: the environmental background
Clare, T. The Stone Circles of Cumbria – a retrospective
Cowell, R. Aspects of the Mesolithic, Neolithic and Bronze Age in the North West.
Edmonds, M. Stone Axes in North-Western England
Evans, H. On Cumbrian Prehistory
Evans, H. Some introductory text for the Neolithic and Bronze Age
Evans, H. Prehistoric Rock Art in Cumbria
Evans, H. The environmental record in Cumbria
Haselgrove, C. Romanization' and Iron Age societies in North-west England
Hoaen, A.W. and Loney, H.L. Bronze and Iron Age Connections: Memory and Persistence in Matterdale, Cumbria
Huckerby, E. Pollen and Environmental Overview
Lund, J. Summary of Historic Landscape Survey by the National Trust
Matthews, K.J. Iron Age Lowland North-West England
Miles, P. Prehistoric Tarvin – Fieldwalking Project
Mullin, D. Neolithic and Bronze Age Cheshire
Mullin, D. The Calderstones
Mullin, D. Radiocarbon Dates for Neolithic and Bronze Age Cheshire
Mullin, D. A Bit Close For Comfort: Early bronze Age Burial in the Cheshire Basin
Mullin, D. Evidence of Absence? The Neolithic of the Cheshire Basin
Prag, J. Recent work at Alderley Edge
Quartermaine, J. Problems of site recognition and interpretation outlining intraregional differences in settlement morphology
Thorpe, N. Excavations at Stephenson Scale

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