An Archaeological Resource Assessment of the Mesolithic in Derbyshire

Dr. A. M. Myers (SMR Officer, Derbyshire County Council)

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The Derbyshire Landscape

Derbyshire's landscape encompasses dramatic variations in geology (fig. 1), geomorphology, soil types, hydrology, relief and land-use. In the north-west lie the Carboniferous gritstone uplands rising to over 600m. Covered principally by acid soils and retaining extensive areas of upland peat moorlands the dominant drainages are the River Etherow which flows to the west and the River Derwent which flows southwards through the centre of the county until it joins the Trent to the south east of Derby. The Carboniferous limestone of the White Peak forms a massif rising to over 400m. This predominantly pastoral landscape has few surface water courses, but is deeply incised by the River Wye as it flows east to join the Derwent River. The latter is flanked on its eastern side by the Carboniferous gritstone East Moors forming a narrow belt of upland rising to 300m. With a mixture of open moorland, improved pasture and woodlands the East Moors extend southwards almost as far as Derby and are drained eastwards and westwards by a series of small streams. There is also a small area of Carboniferous gritstone in South Derbyshire in the area around Repton.

In the north-east corner of Derbyshire the Magnesian limestone of Bolsover district forms a narrow north-south ridge of high ground between 130m and 150m. Once again, with few surface water courses the limestone is bounded in the west by the River Doe Lea, and in the south by the River Meden. Sandwiched between the gritstone East Moors and the Magnesian limestone lie the coal measures, rarely rising to more than 130m. Running from the South Yorkshire border southwards through North East Derbyshire, Chesterfield, Amber Valley and Erewash the coal measures have been the focus for considerable development activity in the last few hundred years. Today this landscape presents a sometimes uncomfortable mixture of urbanisation, transportation routes, industrial development, mineral extraction and farming. The coal measures also form smaller areas around Swadlincote, in South Derbyshire, and along the north-western edge of High Peak district.

The Carboniferous limestone is bounded by Carboniferous mudstones forming a narrow belt except along the southern edge of the limestone where the mudstones cover an extensive area. South of Ashbourne they give way to a large area of low, undulating landscape formed by Triassic mudstones and sandstones. This extensive area of heavy soils within a predominantly pastoral landscape stretches south to the River Dove and the River Trent, and eastwards past Derby and across to Nottinghamshire. The alluviated river valleys of the Trent and the Dove cut east to west across the county, with the alluviated valley of the lower Derwent branching northward. The Trent and Dove are bounded to the south by a complex area of undulating relief including Triassic mudstones and sandstones and Carboniferous coal measures and gritstones.

The Mesolithic Resource in Derbyshire

Derbyshire occupies an interesting position regarding Mesolithic studies. In the north of the county it encompasses the southern end of the Pennine upland gritstone environments that have provided such a focus for Mesolithic research for so many years. Numerous excavations of Mesolithic sites, mainly just to the north in South and West Yorkshire (Radley and Mellars 1964; Radley and Marshall 1963, 1965; Jacobi et al. 1976), have established the importance of this upland archaeology and ensured a continuity of research interest (Jacobi 1978; Jacobi et al. 1976; Spikens 1999; Williams 1985). Yet the south of Derbyshire in landscape terms belongs to the English midlands and its relatively neglected Mesolithic archaeology. Located across the interface of these two areas with their very different histories of archaeological practise Derbyshire may offer important integrating perspectives for upland Pennine and lowland midland Mesolithic research.

Perhaps the main problem with the Mesolithic resource in Derbyshire as represented on the Derbyshire SMR is that very few records make any distinction between material belonging to the Earlier and the Later Mesolithic. The majority of records are simply classified as Mesolithic. Many of the records were compiled from the Mesolithic Gazeteer (Wymer and Bonsall 1977) that also made no such distinction. Yet It has long been recognised that over much of Britain the technology of the Mesolithic changes at or around 8650 BP (Clark 1932; Jacobi 1973, 1976; Mellars 1974). Microlith assemblages characterised by a relatively restricted range of large, non-geometric forms are replaced by those in which a wider variety of smaller, geometric forms predominate. The debitage assemblages reflect a shift from the production of relatively long and narrow to shorter and more squat flakes and blades (Pitts and Jacobi 1979). Changes are also apparent in the organic component of technology. Earlier Mesolithic assemblages sometimes include bone or antler uniseral points, similar to those found in a number of Late Devensian contexts. Uniseral forms appear to have disappeared by the mid-seventh millennium bc. Biseral points or harpoons are, in contrast, seemingly associated with Later Mesolithic sites.

This unfortunate absence of detail limits the utility of the current SMR as a research tool. The chronological sub-division of the Mesolithic into Earlier and Later phases has significance far beyond the classificatory. The typological and morphological changes in technology which define the Earlier to Later Mesolithic are part of a much more profound set of changes affecting technology, settlement and subsistence activities. In many regions of Britain the varieties of stone being used for the lithic technology also changes (Care 1982; Jacobi 1978, 1979; Pitts and Jacobi 1979; Radley and Mellars 1964). Later Mesolithic assemblages are manufactured from a wider variety of raw materials, including an increased usage of cherts and low quality riverine flints.

In many of the same regions there are changes in the sizes, number and location of sites. Many Later Mesolithic sites tend to be relatively small, discrete lithic concentrations. While the Earlier Mesolithic also has small sites, such as those along Mickleden Edge (Radley and Marshall 1965), there is a significant increase in the representation of larger sites, both in terms of area and assemblage size

(Mellars 1976a Myers 1987). It is also recognised that in well surveyed areas Later Mesolithic sites tend to be more numerous and more widely distributed across most environmental zones, in contrast to the more restricted distribution of Earlier Mesolithic evidence (Jacobi 1973: 247; Morrison 1980: 136).

Finally, it is generally recognised that it is during the Later Mesolithic that there is a significant increase in evidence for the deliberate manipulation of vegetation by man through the use of fire (Hicks 1972: Jones 1976: Simmons 1964, 1969, 1975: Smith 1970: Turner and Hodgson 1983; Williams 1985). Mesolithic groups may have sought to promote through fire improved browse conditions in the post-glacial forests for various prey species (Mellars 1975, 1976b: Simmons and Innes 1987: Williams 1985) or to actively encourage useful plant species such as hazel. Although the suggestion has also been made that significant manipulation of the environment by fire took place during the Earlier Mesolithic (Bush 1988) the evidence would appear to be extremely limited. Taken together the evidence for technology, settlement and subsistence activity suggests that the mid-seventh millennium bc was a time that marked the on-set of significant change amongst hunter-gatherer societies in Britain (Myers 1989a,b).

Many of the most important research topics concerning Mesolithic archaeology are going to be concerned with understanding the significance of change in the material record, and particularly the various changes in technology, settlement and subsistence patterns associated with the Late Devensian to the Early Flandrian , from the Earlier to Later Mesolithic (via a 'Middle Mesolithic' where it can be recognised), and from the Later Mesolithic to the Earlier Neolithic. Yet if SMRs cannot distinguish between sites of the eighth and of the fourth millennium bc then there is little prospect for SMRs to be anything other than a 'course-grained index' to sites. At the very least it is to be hoped that the Research Frameworks initiative will emphasise the need for SMRs to refine their chrono-typological classifications of Mesolithic records.

History of Archaeological Endeavour

The Derbyshire SMR currently contains just under 300 records relating to the Mesolithic period. Allowing for hierarchically duplicated records there are some 280 findspots or sites represented. The spatial distribution of Mesolithic sites (fig. 2) is highly clustered with the overwhelming majority being in the northern half of the county. For large parts of southern Derbyshire there would appear to be no recorded Mesolithic evidence. Furthermore, within the northern half of Derbyshire it is also apparent that the numbers of recorded sites varies dramatically across the landscape. The history of archaeological endeavour, particularly in terms of the character and location of fieldwork, combined with variations in the character of opportunities for site recognition influenced by patterns of land-use has demonstrably played a critical role in shaping this picture.

A cursory examination of previous period reviews (table 1) reveals how the numbers of recognised Mesolithic findspots within the county have grown since the early 1960s. It is worth selectively documenting the history and distribution of fieldwork as the influence of certain programmes of field survey upon the known distribution of Mesolithic evidence has been considerable. The majority of findspots noted by Manby (1963) were located on the high gritstone moorlands in the north of the county.

The collection of flints from patches of erosion within and particularly along the edges of the moors has a long tradition within the central and southern Pennines (i.e. Armstrong 1929; Buckley 1924). By the 1930s the growth in popularity of rambling had made it a mass recreational activity for the populations of the northern cities (Blunden and Curry 1990). The growing number of moorland ramblers both promoted the localised erosion of peat and underlying mineral soils while increasing opportunities for the discovery of artefacts.

Survey of Mesolithic Derbyshire: Source & Year	**Approx. No. of Findspots**
Manby 1963	c.46
Wymer & Bonsall 1977	49
Hart 1981*	209
SMR Audit 1999**	>215
Research Framework 2000	280

Table 1: The numbers of recorded Mesolithic findspots in Derbyshire recorded in reviews of the period. * = covers only the north of Derbyshire ** = Audit figures were calculated in 1998 and omit then uncomputerised SMR data for certain parts of Derbyshire

In contrast, finds of Mesolithic material from the upland pasture of the Carboniferous limestone or from the lower lying Trent basin were few (Lomas 1959). Exceptions to this pattern came mainly from excavations within caves in the Carboniferous or Magnesian limestone regions. Manby's paper sought to redress the impression that Mesolithic activity had been focussed upon upland gritstone environments by drawing attention to the existence of sites in other areas of Derbyshire.

The emphasis upon the excavation of caves and rockshelters also has a long history. On the Magnesian limestone Mesolithic material had been recognised from excavations in several locations including Creswell Crags where Mother Grundy's Parlour (Armstrong 1925; Jenkinson 1984), Pin Hole Cave (Armstrong 1926, 1929, 1937) and Yew Tree Shelter (Armstrong 1938) have all produced Mesolithic assemblages. Outside of the Crags the site at Ash Tree Cave (Armstrong 1956, 1957) had also produced Mesolithic material, as did Radley's excavations during the 1960s at Whaley 2 Rockshelter (Radley 1967). On the Carboniferous limestone Mesolithic material was excavated from Dowel Cave (Bramwell 1959), Fox Hole Cave (Bramwell 1971) and the rock-fissure site at Sheldon (Radley 1968). Many excavations in smaller caves have not been published.

In 1973 the Chesterfield Archaeological Research Committee was formed as a response to the redevelopment of central Chesterfield. Only in 1976 was it reformed as the North Derbyshire Archaeological Committee, which subsequently became a Trust (NDAT). NDAT undertook a series of field surveys and excavations in the north of the county. The systematic and controlled collection of worked lithics from ploughed fields had been pioneered as a field technique in Derbyshire during the 1960s

(Radley and Cooper 1968). Between 1976 and 1978 NDAT engaged in a series of surface collection surveys across north Derbyshire with a particular view to assessing the density of Mesolithic settlement (Hart 1981, 25-6). Central to the approach was the survey of each of the major geological regions. The resulting increase in the number of recognised sites was dramatic, confirming that "all of the geological regions appear to have been exploited to some degree by Mesolithic man" (Hart op cit. 25). Significant numbers of open air sites were identified for the first time on the Carboniferous and Magnesian limestones, and on the Coal Measures north of Chesterfield.

As a result of the pioneering survey fieldwork on the Coal Measures NDAT undertook a rescue excavation of one of the more promising scatters identified along a south and easterly facing prominence above the River Drone. The excavations during 1977 and 1978 at Unstone 1 (fig. 3) produced some 4066 flints, with the majority coming from an area of c. 120m^2. The excavations appear to have demonstrated a tightly defined concentration on the northern side, but did not find a clear edge to the scatter to the south where the material, possibly spread by ploughing and the slope of the land, appears to continue. The assemblage was 'balanced' (*sensu* Mellars 1976a) with microliths, scrapers, awls and burins all represented along with cores, core maintenance flakes, retouched and unretouched flakes and blades. A series of features, possibly of Mesolithic date were recorded. There were also indications of surviving stratigraphy within the features suggesting at least two phases of occupation.

Typologically the assemblage contains both Early and Later Mesolithic material, although the former predominates. Yet in spite of the importance of the excavations at Unstone 1 there has never been a published report on the assemblage or the excavation. Unpublished reports include a preliminary study of the lithic assemblage (Ataman 1978) and a largely complete report on the excavation, including a complete analysis of the lithic assemblage (Courtney nd.). Along with the documentary and material archive these reports were deposited at Weston Park Museum, Sheffield

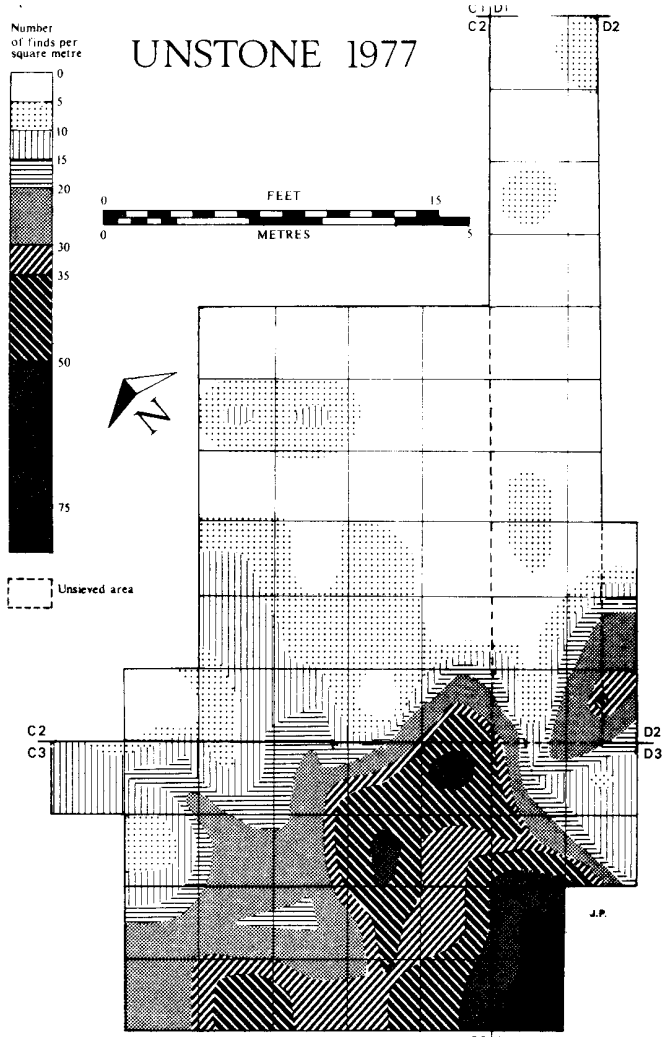

Fig: 3: Density of lithic artefacts at Unstone 1 (from Courtney 1977)

In 1970 Saddleworth Historical Society undertook the excavation of a Mesolithic site at Red Ratcher (SE058036) identified through surface collection from erosion patches on the gritstone moors (Stonehouse 1976). This small Later Mesolithic site was located on the 500m contour occupying a south-easterly facing position overlooking a stream, Little Clough. The assemblage of 210 artefacts was recovered from a tightly defined, roughly circular area of c. 17 m^2. There was a high proportion of retouched pieces (c. 1:3). The tool assemblage was dominated by well made trapezoidal microliths, and a small number of notched flakes. There were no scrapers or other formal tool types. The principal raw material was a brown, translucent flint.

NDAT also undertook repeated surface collections from a peat erosion scar at Harry Hut, at around 430m on an east-facing moorland promontory to the south-east of Glossop (Pierpoint and Hart 1980). A total of 1083 pieces, all Later Mesolithic, came from an area of 1250m^2 . It is not possible to tell if this came from a single, or several concentrations. Once again, the tool assemblage was dominated by microliths.

In the 1980s a number of archaeological field programmes were undertaken by Manpower Services Commission (MSC) schemes. Of particular relevance here are the three schemes which undertook systematic surface collection surveys looking at part of the Magnesian limestone (Knight et al. 1998), at a transect stretching from the Carboniferous limestone across the Wye and Derwent river valleys up onto the Millstone grit of the East Moors (Barnatt et al. nd ; Myers 1991), and at a series of fields located on the Mercian mudstones and alluvium of southernmost Derbyshire (Evison 1988). One of these schemes also undertook a variety of excavations which coincidentally led to discoveries of Mesolithic evidence on the Carboniferous limestone (Barnatt 1987) and on the gritstone East Moors (Barnatt 1985, 11). At the latter a pit containing charcoal was encountered underneath a Bronze Age field bank. A date of 8130 +/- 90 BP (OxA-2295) was obtained on the charcoal. Interestingly, a single Later Mesolithic geometric microlith was also recovered from the fill of the bank overlying the Mesolithic pit (Barnatt pers. comm.). This site has yet to be published.

At about the same time a Sheffield University research project at Roystone Grange, on the Carboniferous limestone, saw programmes of test-pitting (Edmonds et al. in prep.: Torrence and Edmonds n.d.) and shovel pitting (Donahue 1990) undertaken as experimental methods of evaluating artefact densities in a pasture landscape. Another fieldwalking project, undertaken by Sheffield University in 1981/82, looked at the area between Elton Common and Minninglow, on the Carboniferous limestone (Gerrish 1982). Between 1980 and 1983 the Trent Valley Archaeological Research Committee (TVARC) together with a local volunteer archaeologist, David Nutt, undertook a ploughed field survey and excavations around Kenslow, also on the Carboniferous limestone (Garton and Beswick 1983). It can be readily appreciated that the 1980s witnessed a great deal of field survey in the White Peak of Derbyshire (Garton 1991). The mid-1980s also saw a pilot field survey undertaken of Tintwistle Moor on the Millstone grit in the far north-west of the county (Garton 1987b), once again adding to the numbers of recognised Mesolithic findspots.

In 1984 a trial trench was excavated by Trent and Peak Archaeological Trust at a site called Lismore Fields, Buxton, in advance of a housing development. Sitting at a point in the Wye Valley where it widens to form a bowl shape Buxton lies at 300m O.D. on the junction of the Carboniferous limestone and the millstone grits. Lismore Fields, an area of (then) surviving pasture within Buxton's south-western suburbs, occupies a low, 175m wide plateau between two tributaries of the River Wye. The soils of the plateau are capped by a Head deposit, derived from the gritstones, and would have been heavy and wet before the insertion of field drains in the post-medieval period (Garton 1991, 13). The trench was excavated in the belief that a Roman road crossed the area. In place of the Roman road four seasons of excavation revealed a Later Mesolithic flint industry, possibly associated with a ring-slot and post structure, and an Earlier Neolithic settlement with evidence for 3 rectangular houses (Garton 1987a; 1991, 12-13). A post hole associated with the ring-slot produced a date on charcoal of 5270 +/- 100 BP (OxA-2433). As yet the excavation report has not been published.

Important environmental evidence from Lismore Fields has also made a significant contribution to the debate on the manipulation of the environment through deliberate burning of forests. Wiltshire and Edwards (1993) were able to look at a pollen sequence that included evidence contemporary with the Mesolithic activity. The presence of charcoal in the sediments suggested that fire had been used, but the pollen analysis indicated localised clearance impacts of relatively small scale and duration.

The majority of the field surveys discussed have targeted archaeology in the north of the county. The impact upon the number and distribution of recognised Mesolithic sites has been dramatic (table 1). Yet even here the distribution of fieldwork has been uneven. A great deal of survey has been undertaken on the Carboniferous limestone south and east of the Wye River valley, on the Millstone Grit of the East Moors and in the north west of the county, or on the Magnesian limestone. In contrast, NDAT's surveys looked at a relatively small area on the Coal Measures. As for the south of the county, the SDAS survey has been the only research driven survey project designed from the outset to look at lithic artefact distributions.

Major Geological Area	Approx. % of Land Area	Expected No. of Mesolithic Records	Actual No. of Mesolithic Records	Actual % of Mesolithic Records	Difference in Actual and Expected No. of Mesolithic Records	% of Expected Mesolithic Records Actually Recorded
Millstone Grit	25.7	72	107	38.2	+ 35	148.6
Coal Measures	23.5	66	21	7.5	- 45	31.8
Mercian Mudstone	14.7	41	2	0.7	- 39	4.9
Carboniferous Limestone	13.2	37	80	28.6	+ 43	216.2
Namurian Mudstone	7.8	22	10	3.6	- 12	45.5
Alluvium	7.6	21	5	1.8	- 16	23.8
Magnesian Limestone	4.3	12	55	19.6	+ 43	458.3
Bunter Sandstone	3.2	9	0	0.0	- 9	0
	100.0	280	280	100.0		

Table 2: The comparative distribution of the major geological zones and of Mesolithic findspots in Derbyshire.

This history of spatially biased archaeological endeavour clearly has consequences for any reading of the current distribution of known Mesolithic sites. Assuming an even distribution of fieldwork effort, and assuming that the distribution and nature of Mesolithic activity was spread uniformly across the landscape we would expect the percentage of Derbyshire's land area in the different geological zones to correlate with the percentage of Mesolithic findspots. The actual figures (table 2) reflect a far from uniform distribution of evidence. Those geological areas that historically have received the bulk of archaeological attention have numbers of known Mesolithic findspots far in excess of the expected figure. In contrast, all of the other geological areas show an under-representation of findspots. Perhaps of greatest concern is that two of the

three largest geological zones, the Coal Measures and the Mercian mudstones, show most dramatic under-representation of known sites.

The density and character of Mesolithic evidence across different geologies can of course be expected to reflect differences in how Mesolithic populations exploited the varied resources available in the landscape. Mesolithic research remains heavily involved in developing an improved understanding of such spatial variability in the frequency, intensity and character of exploitation. It is possible for example that the structure and content of environmental resources available on the Mercian mudstones resulted in a pattern of less intensive exploitation than was generally true of the Magnesian limestone. However, our evidence cannot be used to examine this hypothesis with any great degree of confidence. The patterns in our current evidence are just as likely to be products of the spatial distribution in the endeavours of nineteenth and twentieth century archaeologists as they are reflections of patterns in the lifeways of Mesolithic populations.

For this reason developer funded archaeology assumes a significance for research that is frequently overlooked. Since 1990 fieldwork undertaken as part of the evaluation and mitigation stages of planning applications has begun to significantly contribute to our knowledge of Mesolithic activity in historically neglected areas. Work along pipelines and roads crossing alluvium and Mercian mudstones in the south of the county (Bonner 1999; Elliott and Knight 1999; Moore and Bonner 1997) is providing important landscape information about the general distribution of evidence and about specific sites. One striking feature of this work and that undertaken by SDAS has been the comparative scarcity of Mesolithic finds in comparison with material classified as Neolithic or Bronze Age. When a Mesolithic presence is recognised it is usually in the form of relatively isolated, occasional pieces. The major exception to this picture has been the recognition of an Earlier Mesolithic assemblage on Swarkestone Lowes (Elliott and Knight 1999). The site was located on the eastern end of the narrow east-west ridge of Triassic Mercia Mudstone that forms the Lowes. Here the Lowes are capped by the Etwall sands and gravels, providing improved drainage. The location has commanding views of the surrounding landscape, being about 10m above the level of the River Trent to the south, the Cuttle Brook to the east and Sinfin Moor to the north. The assemblage, predominantly made from Wolds flint, contains a fairly broad range of knapping evidence including core maintenance debris, cores, blades, flakes and end scrapers.

Similarly, developer funded archaeology on the Coal Measures has begun to identify flint scatters containing Mesolithic components. At Blackwell a scatter of predominantly Neolithic/ Early Bronze Age material also contained Mesolithic artefacts (Garton and Kennett 1996). The site occupied an area of relatively level ground to the west of and overlooking a small stream. Furthermore, evaluations at Lordsmill Street in Chesterfield have recently resulted in the identification and excavation of a site where a series of features contained a substantial lithic assemblage dating to the Later Mesolithic (Foundations Archaeology 1999). The site occupied a low, pronounced headland on the west side of the River Rother. The site is also bounded immediately to the south by the River Hipper and would have originally occupied a position commanding views of the floodplain. The assemblage, dominated by varieties of chert, included

a simple obliquely blunted microlith, five scrapers, an awl, blade cores, core rejuvenation material, retouched and unretouched flakes and blades. This site, a remarkable example of prehistoric survival in the midst of intensive 19th and 20th century development, has now been developed as a Holiday Inn. It is only the second excavated Mesolithic site on the entire Derbyshire Coal Measures. As yet the excavation report has not been published, although a report has been lodged with DCC.

Discussion

It is evident that there are a number of problems with the current evidence for the Mesolithic in Derbyshire. The historically uneven distribution of fieldwork has ensured that the current record provides inadequate information for much of the county. The consequences for a subject where the relationship between past activity and the structure of environmental resources is a central issue are profound.

There is also a persistent problem with important excavations not being published. This has been true in the past of cave investigations and it is important that the excavation archives for this finite resource are consolidated and secured for future research. The lack of publication also remains as a problem with important pre-PPG16 sites such as Unstone 1 and Lismore Fields. It would be tragic if this became a continuing problem with PPG16 sites such as Lordsmill Street. Many of the important surface collection and test-pitting surveys also await publication. The author freely acknowledges his own complicity in this latter problem.

There are also some general observations that may also be broadly applicable for areas beyond Derbyshire. It is noticeable that open sites tend to be preferentially located providing good visibility over lower lying ground. In some cases this takes the form of ridges, promontory or headland locations. This appears to be true of sites throughout the county, from gritstone uplands to the Trent Valley. In some cases sites are found on very slightly elevated ground – as was the case at the Horse Pastures site in the Derwent Valley (Barnatt and Robinson 1998). In the latter instance there may well have been an active preference for a location that was slightly better drained that the adjacent river floodplain. Yet it is also evident that heavy soils were not, in themselves, a deterrent to settlement (Garton 1981). In many cases proximity to water appears to have been a positive consideration. On those geological formations where surface water sources were relatively scarce, such as the Carboniferous or Magnesian limestones, it is interesting to note that many sites are located within a short distance of streams or spring lines (Myers 1992). Such water sources may have attracted game and provided improved opportunities for hunting.

Despite the problems with the current evidence there are some valuable, specific observations that can be made. Typologically, the range of microliths found in Derbyshire is in keeping with the picture established for the Pennines. Earlier Mesolithic sites with obliquely blunted points that have opposing retouch at the tip, characteristic of the so-called ‘Deepcar’ type assemblages (Jacobi 1978: Radley and

Mellars 1964), are found as far south as Melbourne (Lomas 1959: Manby 1963). In contrast, elongated trapezoids are exceedingly rare (Myers 1991).

Evidence for Mesolithic tranchet axe/adzes in Derbyshire is of some interest. For the Pennines as a whole tranchet axe/adzes and evidence for their resharpening is exceedingly scarce. Close examination of the Mesolithic gazeteer (Wymer and Bonsall 1977) reveals the extent to which tranchet axe/adzes have an overwhelmingly lowland distribution. Yet it is reported that there are three from Derbyshire's Carboniferous limestone (Hart 1981). This is probably as many axes as have come from all of the rest of the Pennine uplands. The recent analysis of a small collection of material from Blackwell Hall (Myers 2000), on the Carboniferous limestone to the south-east of Buxton, has identified a single clear example of a tranchet axe resharpening flake made in mottled grey, opaque Wolds flint. This is the first resharpening flake identified in Derbyshire.

The well documented reliance during the Earlier Mesolithic upon the distinctive grey, mottled, opaque flint originally from parent sources in the Cretaceous limestone of East Yorkshire and Lincolnshire (Radley and Mellars 1964: Buckland and Dolby 1973: Myers 1986b) can also be identified from sites in the county (Courtney nd: Hart 1981: Radley 1968) as far south as Melbourne and Swarkestone (Elliott and Knight 1999). The presence of small quantities of Derbyshire chert within Earlier Mesolithic assemblages has been noted from the Pennines eastwards as far as the Lincolnshire Edge (Jacobi 1978). The recent recognition of an assemblage in north Derbyshire made predominantly from cherts originating from the Carboniferous limestone is an interesting departure from this pattern (Barnatt et al. nd). Certainly, the Later Mesolithic assemblages of Derbyshire do generally illustrate the use of a wider variety of materials than is the case for Earlier Mesolithic assemblages.

The so-called 'balanced' tool assemblages that are characteristic of Earlier Mesolithic Pennine assemblages (Mellars 1976a: Myers 1987) – Warcock Hill North, Lominot 3, Deepcar, Crow Chin – can also be found in the Derbyshire Coal Measures at Unstone 1. The smaller, Later Mesolithic 'microlith dominated' assemblages of the Pennines also seem to be present on the Derbyshire gritstone uplands at sites such as Red Ratcher (Stonehouse 1976) and Harry Hut (Pierpoint and Hart 1980). However, the limited survey and excavation evidence on the Coal Measures points to the presence in the Later Mesolithic of assemblages with a more scraper-dominated tool assemblaget (Foundations Archaeology 1999: Hart 1981, 29). More balanced tool assemblages may also be found on the Carboniferous and Magnesian limestones (Radley 1967). Once it has been completed it will be interesting to see the analysis of the Lismore Fields Mesolithic assemblage.

	Early Mesolithic	Later Mesolithic	Total
Few Finds	9	11	20
Many Finds	5	17	22
Total	14	28	42

Table. 3: Mesolithic findspots from systematic surface collection in the Peak Park (Barnatt, Myers and Garton (unpublished))

In the well surveyed parts of Derbyshire there would seem to be more Later Mesolithic findspots. Certainly, the surface collection surveys undertaken in the north of the county (Barnatt et al. nd) appear to show that there are twice the number of Later Mesolithic as there are Earlier Mesolithic findspots (table 3). As already discussed, this would support the pattern observed in many other regions of Britain.

Conclusions

In assessing the Mesolithic resource in Derbyshire it is important to acknowledge the role that archaeologists have had in shaping the current distribution of evidence. It is necessary to emphasise the role that surface collection survey has had in increasing the number of known sites. While it may be true that important sites have and will in the future be discovered accidentally it is also true that a purposeful and structured approach to survey can lead to well targeted excavations. If we wish to improve our ability to characterise patterns of settlement location, contrast site numbers, sizes and distributions for the Earlier and Later Mesolithic, and discuss the variability in assemblages across different environmental zones then we need to extend the programme of survey to previously under-researched areas. PPG16 fieldwork has begun to reveal the potential remaining in areas such as the Coal Measures and the Mercian Mudstones. In these and the other neglected areas it is important that future PPG16 fieldwork strategies for the evaluation of sites are designed to be capable of recognising small Mesolithic lithic concentrations.

The Derbyshire SMR needs to engage in a programme of record enhancement, particularly in respect of the chrono-typological classifications assigned to Mesolithic records. This may be assisted through a project proposing (Prehistoric Society 1999) the updating of the CBA gazeteer (Wymer and Bonsall 1977). Once this has been achieved the Derbyshire SMR will be a much more useful research tool.

The problem of unpublished or inadequately published excavations needs to be addressed. The archaeological evidence from the caves and rockshelters in Derbyshire's limestone regions represents a rare and important resource. Whilst many caves are now scheduled thereby protecting much of the unexcavated resource, a history of excavation and interim publication threatens to deny to future research an understanding of much of the archaeology represented at these sites. To avoid the unnecessary loss of information about this comparatively scarce resource excavation archives must be secured, consolidated and conserved. The more important and informative excavations should be fully published if the results are to substantively contribute towards discussions of the Mesolithic. In much the same way, some of the most important excavations of open air Mesolithic sites have yet to be published. The excavated but unpublished resource effectively restricts the scope of current research, public access to archaeological information and raises serious questions regarding the justification of past and future expenditure on excavations.

This discussion has identified a number of issues where the current evidence in Derbyshire contributes to our understanding of Mesolithic archaeology, where conservation and management concerns require

attention, or where priority of fieldwork effort needs to be directed. Many of the issues discussed echo or would contribute towards the themes identified in the recently published 'Research Frameworks for the Palaeolithic and Mesolithic of Britain and Ireland' (Prehistoric Society 1999). It is to be hoped that the East Midlands Research Frameworks initiative will identify how Mesolithic archaeology in the region as a whole can best contribute towards our understanding of the period.

Bibliography

Armstrong, A. L. 1925 'Excavations at Mother Grundy's Parlour, Creswell Crags, Derbyshire 1924', *Journal of the Royal Anthropological Institute*, 55.

Armstrong, A. L. 1926 'Excavations in the Pin Hole Cave, Creswell Crags', *Report of the British Association for the Advancement of Science* H: 392

Armstrong, A. L. 1929 *Proceedings of the Sorby Scientific Society*.,I: 79-97

Armstrong, A. L. 1929 'Excavations at Creswell Crags, Derbyshire, 1924-26. Pin Hole Cave', *Transactions of the Hunter Archaeological Society*, III: 116-122.

Armstrong, A. L. 1937a 'Excavations at Creswell Crags, the Pin Hole Cave 1928-32', *Transactions of the Hunter Archaeological Society*, 4: 178-184

Armstrong. A. L. 1938 'Report of the Committee for the Archaeological Exploration of Derbyshire Caves, Interim Report 16', *Report of the British Association for the Advancement of Science*, H.

Armstrong, A. L. 1956 'Report on the excavation of Ash Tree Cave, near Whitwell, Derbyshire, 1949 to 1957', *Journal of the Derbyshire Archaeological and Natural History Society* 76: 57- 64.

Armstrong, A. L. 1957 'Report of the excavation of Ash Tree Cave, near Whitwell, Derbyshire', *Report of the British Association for the Advancement of Science* H.

Ataman, K. 1978 *Excavations at Unstone, Derbyshire, 1978*. Unpublished Report: NDAC (copy with DCC)

Barnatt, J. 1985 'Neolithic and Bronze Age radiocarbon dates from the Peak District: a review', *Derbyshire Archaeological Journal*, 115: 5-19

Barnatt, J. 1987 'Trial excavations at Silverlands, Buxton, 1984', *Derbyshire Archaeological Journal* 107: 18-23.

Barnatt, J., Myers, A. M. and Garton, D. n.d. *The Systematic Collection of Artefacts from Ploughed Fields in the Peak*. Report in preparation

Barnatt, J. and Robinson, F. 1998 'Excavations of a Bronze Age cremation burial and multi-period artefact scatters at Horse Pastures, Beeley, Derbyshire 1994', *Derbyshire Archaeological Journal* 118: 24 – 64.

Blunden, N. and Curry, N. 1990 *A People's Charter? Forty Years of the National Parks and Access to the Countryside Act 1949*. London: H.M.S.O.

Bonner, D. 1999 'Flint' in (Network Archaeology Ltd) *Drointon to Sutton Proposed Gas Pipeline: Archaeological Fieldwalking, Field Reconnaissance and Geophysical Survey*: Unpublished Report: DCC

Bramwell, D. 1959 'Excavation of Dowel Cave, Earl Sterndale, 1958-9', *Derbyshire Archaeological Journal* 79: 97-109

Bramwell, D. 1971 'Excavations at Foxhole Cave, High Wheeldon, 1961-1970', *Derbyshire Archaeological Journal*, 91: 1-19

Buckland, P. C. and Dolby, M. J. 1973 'Mesolithic and later material from Misterton Carr, Notts. - an interim report', *Transactions of the Thoreton Society* 77: 5-33.

Buckley, F. 1924 *A Mesolithic Industry from the Pennine Chain*. Privately printed: Huddersfield.

Bush, M. B. 1988 'Early Mesolithic disturbance: a force on the landscape?'. *Journal of Archaeological Science*, 15: 453-462.

Campbell, J. B. 1969 'Excavations at Creswell Crags', *Derbyshire Archaeological Journal* 89: 47-58

Care, V. 1982 'The collection and distribution of lithic raw materials during the Mesolithic and Neolithic periods in southern England', *Oxford Journal of Archaeology*, 1 (3): 269-285.

Clark, J. G. D. 1932 *The Mesolithic Age in Britain*. Cambridge.

Courtney, T. 1977 *A Stone Age Site: Unstone, Derbyshire*. North Derbyshire Archaeological Committee

Courtney, T. nd *The Excavation of a Mesolithic Occupation, Derbyshire*. Unpublished Report: Weston Park Museum, Sheffield (copy with DCC)

Courtney, T. and Hart, C. R. 1977 'North Derbyshire', in Mahany, C. M. (ed), *Priorites 1977: East Midlands Committee of Field Archaeologists*: 10-13. Leicester: Leicestershire County Council.

Derbyshire Archaeological Advisory Committee (DAAC) 1986 *Archaeology in Derbyshire: Research Potential.*

Edmonds, M., Evans, H. and Hind, D. in prep *Analysis of the worked flint and chert from the Roystone Grange project*

Elliott, L. and Knight, D. 1999 'An Early Mesolithic and first millennium BC settlement and pit alignments at Swarkestone Lowes, Derbyshire', *Derbyshire Archaeological Journal*, 119: 79-153

Evison, R. 1988 *An Analysis of Flints from South Derbyshire*. Unpublished report – SDAS archive (held by DCC)

Foundations Archaeology 1999 *Lordsmill Street, Chesterfield, Derbyshire: Post Excavation Assessment*. Unpublished Report: DCC

Garton, D. and Beswick, P. 1983 'The survey and excavation of a Neolithic settlement area at Mount Pleasant, Kenslow, 1980-83', *Derbyshire Archaeological Journal*, 103: 7-40

Garton, D. 1987a 'Buxton', *Current Archaeology*, 103: 250-3

Garton, D. 1987b 'A pilot archaeological field survey of Tintwistle Moor, North Derbyshire', *Derbyshire Archaeological Journal* 107: 5-12.

Garton, D. 1991 'Neolithic settlement in the Peak District: perspective and prospects', in (eds Hodges, R. and Smith, K.) *Recent Developments in the Archaeology of the Peak District*, J. R. Collis, University of Sheffield: 3-21.

Garton, D. and Kennett, A. 1996a 'Evaluation of a flint scatter by Slipper Low Farm, Brassington, Derbyshire, 1994', *Derbyshire Archaeological Journal*, 116: 5-11.

Garton, D. and Kennett, A. 1996b *Archaeological Assessment of the Proposed Development Area at Sherwood Parc, Blackwell, Derbyshire*. Unpublished Report, DCC.

Gerrish, E. 1982 'Fieldwalking in the White Peak: Recent Results', *Derbyshire Archaeological Journal*, 102: 45-48.

Guilbert, G., Garton, D. and Malone, S. 1997 'Test pitting for prehistoric artefacts near Bradwellmoor Barn', *Derbyshire Archaeological Journal* 117:48-53.

Hart, C. R. 1981 *The North Derbyshire Archaeological Survey*. Leeds: A. Wigley & Sons

Hicks, S. P. 1972 'The impact of man on the East Moor of Derbyshire from Mesolithic times', *Archaeological Journal* 129: 1-21

Jacobi, R. M. 1973 'Aspects of the Mesolithic Age in Great Britain', in Koslowski, S. K. (ed) *The Mesolithic in Europe*, 237-265. Warsaw

Jacobi, R. M. 1976 'Britain inside and outside Mesolithic Europe', *Proceedings of the Prehistoric Society*, 42: 67-84.

Jacobi, R. M. 1978 'Northern England in the eighth millennium b.c.: an essay.' in P. Mellars (ed.) *The Early Postglacial Settlement of Northern Europe*, 295-332. London: Duckworth.

Jacobi, R. M. 1979 'Early Flandrian hunters in the south-west', in *Prehistoric Dartmoor in its Context*. Devon Archaeological Society 37: 48-93.

Jacobi, R. M., Tallis, J. H., and Mellars, P. A. 1976 'The southern Pennine Mesolithic and the ecological record.' *Journal of Archaeological Science* 3: 307-320.

Jenkinson, R. D. S. 1984 *Creswell Crags: Late Pleistocene Sites in the East Midlands*, BAR British Series 122

Jones, R. L. 1976 'The activities of Mesolithic man: further palaeobotanical evidence from north-east Yorkshire', in Davidson, D. D. and Shackley, M. A. (eds) *Geo-archaeology: Earth Science and the Past*. London, Duckworth: 355-367

Knight, D., Garton, D. and Leary, R. 1998 'The Elmton fieldwalking survey: prehistoric and Romano-British artefact scatters', *Derbyshire Archaeological Journal* 118: 69-85.

Knight, D. and Howard, A. J. 1994 *Archaeology and Alluvium in the Trent Valley: An Archaeological Assessment of the Floodplain and Gravel Terraces*, TPAT.

Lomas, J. 1959 'A Mesolithic site in South Derbyshire', *Derbyshire Archaeological Journal* 79: 119-123.

Makepeace, G. A. 2000 'Prehistoric and Roman material from the Brassington area of Derbyshire:'The Radford Collection', *Derbyshire Archaeological Journal*, 120: 87-100

Manby, T. G. 1963 'Some Mesolithic sites in the Peak District and Trent basin', *Derbyshire Archaeological Journal*, 83: 10-23

Mellars, P. A. 1974 'The Paleolithic and the Mesolithic', in (Renfrew, C) '*British Prehistory: A New Outline*', Duckworth: 41-99.

Mellars, P. A. 1975 'Ungulate populations, economic patterns and the Mesolithic landscape', in Evans, J. G., Limbrey, S. and Cleere, H. (eds) *The Effect of Man on the Landscape: the Highland Zone*. CBA Res. Rep. 11: 49-56.

Mellars, P. A. 1976a 'Settlement patterns and industrial variability in the British Mesolithic', in (Sieveking, Longworth & Wilson eds.) *Problems in Economic and Social Archaeology*. Duchworth, London:

Mellars, P. A. 1976b 'Fire ecology, animal populations and man: a study of some ecological relationships in prehistory', *Proceedings of the Prehistoric Society* 42: 15-46.

Moore, R. and Bonner, L. 1997 *Drakelow Power Station Proposed Gas Pipeline: Archaeological Fieldwalking, Field Reconnaissance and Geophysical Survey*, Unpublished Report: DCC

Morrison, A. 1980 '*Early Man in Britain and Ireland'*, Croom Helm, London.

Myers, A. M. 1987 'All shot to pieces? Inter-assemblage variability, lithic analysis and Mesolithic assemblage 'types': some preliminary observations', in Brown, A. G. and Edmonds, M. (eds) *Lithic Analysis and Later British Prehistory*, BAR 162: 137-153

Myers, A. M. 1989a Reliable and maintainable technology in the Mesolithic of mainland Britain. in R. Torrence (ed.) *Time, Energy and Stone Tools*, 78-91. Cambridge: Cambridge University Press.

Myers, A. M. 1989b Lithics, risk and change in the Mesolithic. in I. Brooks and P. Phillips (eds.) *Breaking the Stony Silence: Papers from the Sheffield Lithics Conference* 1988, 131-160. Oxford: British Archaeological Reports, British Series, 213.

Myers, A. M. 1991 *The North Derbyshire Transect Survey: Preliminary Assessment of the Lithic Evidence.* Unpublished Report: Peak National Park Archaeological Archive

Myers, A. M. 1992 *Roystone: An Analysis of Worked Lithic Artefacts from Area Excavations and One Test Pitting Project*. Unpublished Report: Peak National Park Archaeological Archive.

Myers, A. M. 2000a *Derbyshire Sites and Monuments Record: Audit and Business Plan*. Unpublished report: DCC

Myers, A. M. 2000b *Blackwell Hall: Lithic Report.* Unpublished Report, Hunter Archaeological Society.

Pierpoint, S. J. and Hart, C. R. 1980 'A Mesolithic surface collection from Harry Hut, Chunal Moor, Charlesworth, Derbyshire', *Derbyshire Archaeological Journal* 100: 5-11

Pitts, M. and Jacobi, R. M. 1979 'Some aspects of change in flaked stone industries of the mesolithic and Neolithic in Southern Britain', *Journal of Archaeological Science*, 6:163-177

Prehistoric Society 1999 *Research Frameworks for the Palaeolithic and Mesolithic of Britain and Ireland.* Report by the Working Party for the Palaeolithic and Mesolithic Annual Day Meeting and the Council of the Prehistoric Society

Radley, J. and Marshall, G. 1963 'Mesolithic sites in south-west Yorkshire', *Yorkshire Archaeological Journal*, 41: 81-97

Radley, J. and Marshall, G. 1965 'Maglemosian sites in the Pennines.' *Yorkshire Archaeological Journal* 41: 394-402.

Radley, J. and Mellars, P. A. 1964 'A Mesolithic structure at Deepcar, Yorkshire, England, and the affinities of its associated flint industry.' *Proceedings of the Prehistoric Society* 30: 1-24.

Radley, J. 1967 'Excavations at a rock shelter at Whaley, Derbyshire', *Derbyshire Archaeological Journal* 87: 1 - 17

Radley, J. 1968 'A Mesolithic structure at Sheldon', *Derbyshire Archaeological Journal* 88: 37-46

Radley, J., Tallis, J. H., and Switsur, V. R. 1974 'Excavation of three "narrow blade" Mesolithic sites in the southern Pennines.' *Proceedings of the Prehistoric Society* 40: 1-19.

Simmons, I. G. 1964 'Pollen diagrams from Dartmoor', *New Phytologist*, 63: 165-180

Simmons, I. G. 1969 'Pollen diagrams from the North Yorks Moors', *New Phytologist*, 68: 807-827

Simmons, I. G. 1975 'Towards an ecology of Mesolithic man in the uplands of Great Britain', *Journal of Archaeological Science*, 2: 1-15

Smith, A. G. 1970 'The influence of Mesolithic and Neolithic man on British vegetation: a discussion', *Studies in the Vegetational History of the British Isles: Essays in Honour of Harry Godwin.* Cambridge: 81-96

Smith, C. 1992 *Late Stone Age Hunters of the British Isles.* Routledge, London.

Spikens, P. 1999 *Mesolithic Northern England: Environment, Population and Settlement*, BAR (BS) 283.

Stonehouse, W. P. B. 1976 'Red Ratcher: The excavation of a Mesolithic site in the Peak National Park', *Bulletin of the Saddleworth Historical Society*, 6 (2): 15-22

Stonehouse, W. P. B. 1986 'Dean Clough 1: A Late Mesolithic site in the Central Pennines.' *Greater Manchester Archaeological Journal* 2: 1-9.

Torrence, R. and Edmonds, M. 1988 *Lost in Space: Linking Lithic Technology to Prehistoric Land-Use*. Unpublished Manuscript

Turner, J. and Hodgson, J. 1983 'Studies on the vegetational history of the northern Pennines: 3. variations in the composition of the mid-Flandrian forests', *Journal of Ecology*, 71: 95-118

Wheeler, H. and O'Brien 1977 'The Trent Valley'. in Mahany, C. M. (ed) *Priorites 1977: East Midlands Committee of Field Archaeologists*: 37-41. Leicester: Leicestershire County Council.

Williams, C. T. 1985 *Mesolithic Exploitation Patterns in the Central Pennines: A Palynological Study of Soyland Moor*. BAR (BS) 139.

Wiltshire, P. E. J. and Edwards, K. J. 1993. 'Mesolithic, early Neolithic and later prehistoric impacts on vegetation at a riverine site in Derbyshire, England.' In F. M. Chambers (ed.) *Climate Change and Human Impact on the Landscape*, 157-168.

Wymer, C. C. and Bonsall,, C. J. 1977 *Gazeteer of Mesolithic Sites in England and Wales with a Gazeteer of Upper Palaeolithic Sites in England and Wales* CBA Research Report 20, Norwich.