5 Flaked lithics *by C R Wickham-Jones*

5.1 Introduction

A total of 4913 flaked lithic artefacts was recovered. These comprise a variety of pieces relating to both the manufacture and use of stone tools (Table 1).

The assemblage is made from several different raw materials some of which are very local while others come from further afield (see below, Table 4). Lithics were recovered from several separate locations on the site, but the majority come from the pre-excavation collection across the area of the track and from the ploughsoil and other disturbed contexts of trench 1 (Table 2). Analysis of the assemblage did not reveal anything to distinguish the components of the different locations so that for much of the current discussion it will be treated as a uniform whole (this is in contrast to the conclusions of the preliminary analysis immediately after the close of excavation, Wickham-Jones & Hardy 2000). Material from the different locations is discussed separately in Section 5.6, below.

The assemblage includes many pieces such as blades and flakes that would have been quite suitable for use without modification. The retouched pieces include both larger pieces such as scrapers and edge-retouched pieces, as well as many small microliths (Table 3). Although the microliths are all narrow-blade in type, the widths of the unretouched blades vary from narrow (4–5 mm) to considerably wider (up to 20 mm). There is no apparent distinction between the narrow and the broader blades, and it would seem that many of the microliths were originally made on broader blanks (Section 5.4 – Secondary Technology).

Table 1 Camas Daraich: breakdown of the whole flaked lithic assemblage by type

Type	Quantity	Percentage
Pebbles	25	0.5
Chunks	991	20
Cores	27	0.5
Debitage flakes	2005	41
Regular flakes	1640	33
Blades	92	2
Retouched pieces	133	3
TOTAL	4913	100

Table 2 Camas Daraich: breakdown of the flaked lithic assemblage by location

Sub-Site	Quantity
Camas Daraich 1: Track	2775
Camas Daraich 1: Trench 1	1383
Soil Pit 1	76
Soil Pit 2	25
Soil Pit 3	2
TPW	76
TPX	103
TPY	12
TPZ	192
Camas Daraich 2	220
Camas Daraich 3	17
N Sondage	6
Camas Daraich 4: Stone-lined ditch	25
Xmas tree hole	1
TOTAL	4913

5.2 Raw materials

Most of the assemblage was identified as made of chalcedonic silica (46%), with Rùm bloodstone (33%) and quartz (19%) as the other main components (Illus 25; Table 4).

There is, however, a problem in that work on the assemblage from Kinloch, Rùm (Finlayson & Durant

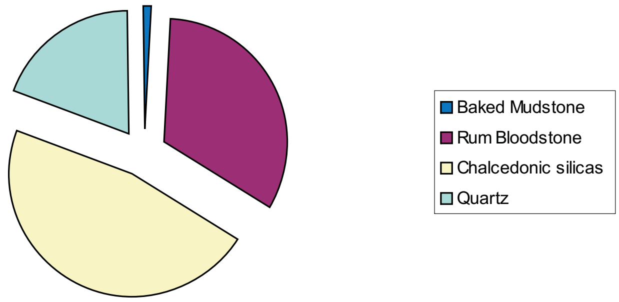
Table 3 Camas Daraich: breakdown of the retouched pieces by classification

Classification	Quantity
Scraper, general	26
Scraper re-sharpening flake	1
Edge-retouched	17
Awls and points	3
Notched	1
Obliquely blunted blades	10
Barbed and tanged point	1
Microliths:	63
Microburins	2
Backed bladelets	15
Crescents	5
Fine points	8
Rods	8
Scalene triangle	1
Microlithic retouch	10
Broken microliths	14
Broken	11
TOTAL	133

Table 4 Camas Daraich: breakdown of the whole assemblage by raw material

Material	Quantity
Baked mudstone	51
Greywacke	1
Baked tuff	1
Rùm bloodstone	1607
Breccia	1
Chalcedonic silicas	2288
Porcellanite-like	1
Quartz	949
Quartzite	11
Silicifed limestone	2
Volcanic glass	1
TOTAL	4913

Note: The category of 'chalcedonic silica' includes a few pieces that appeared to be definitely flint or chert.



Illus 25 Camas Daraich: the lithic assemblage, proportional use of the main raw materials

1990) showed that due to the similar components of chalcedonic silicas and Rùm bloodstone (albeit with different formation processes, Durant *et al* 1990) it is impossible to distinguish with certainty among many archaeological pieces of the different materials without detailed analysis. This is compounded by the recognition – since the work on Rùm – that a whole range of chalcedonic silicas occur in the vicinity of Skye and the Inner Hebrides. These include both flint and chert as well as various chalcedonies and they are indistinguishable to the naked eye.

For the purposes of cataloguing the material from Camas Daraich, a wide range of materials was recorded under the one heading of 'chalcedonic silica'. This included flint, chert and agate, as well as less distinguishable chalcedonies. The only chalcedonic material that could be safely picked out was Rùm bloodstone, though the work at Kinloch showed that much bloodstone will still have been recorded as chalcedonic silica.

The use of chalcedonic silica represents the collection of lithic raw material from several sources, all probably local. A variety of chalcedonies has been recorded in the general area, including pebble nodules on beaches, nodules in tills and river gravels and, occasionally, nodules that have eroded out of more substantial rocks such as the silicified limestones of Eigg (Wickham-Jones 1990, 52).

The Rùm bloodstone is interesting in that it is likely to have been brought from Bloodstone Hill on the island of Rùm, some 25 km away (Illus 4 & 26). Rùm bloodstone has been the object of some specialist study (Clarke & Griffiths 1990; Durant *et al* 1990; Finlayson & Durant 1990; Wickham-Jones 1990). Though natural spreads of bloodstone around the Small Isles and Skye have been suggested to be due to glaciation and subsequent erosion, no evidence for this has been found. Pebbles of bloodstone do not apparently occur in the local beach gravels, in neither raised beaches nor present day deposits. They are not obvious in other gravels such as till

Illus 26 Camas Daraich: view of Bloodstone Hill, Rùm

either. One reason for this may be that the main period of erosion for the present pebble nodules took place at the end of the last glaciation (Sutherland 1990), by which time the main agency of long distance transport (the glaciers) had ceased. The bloodstone, therefore, comes from a precise source, and is only found on archaeological sites within a

Illus 27 Camas Daraich: view of the Staffin Bay area

specific area. There is not yet enough detail of bloodstone assemblages within this area to specify how it may have been collected and transported by the local residents; in this respect the material from Camas Daraich is very important (see below).

Next in quantity after Rùm bloodstone comes another very local material – quartz. The quartz used at Camas Daraich was derived from pebble nodules, available in local gravels and on the nearby beach. It varies greatly in quality; there are some fine pieces of good quality material but much of the quartz assemblage is very friable with an irregular fracture. This no doubt accounts for the increased amount of debitage within the quartz assemblage, as knapping must have led to the production of many irregular chunks.

Baked mudstone was another significant raw material, not so much for the quantity of pieces found (Table 4) as for the location of the source. To date the only known knappable source of baked mudstone, in the vicinity, lies some 70 km away at Staffin, on the NE coast of Skye (Illus 4 & 27; Hardy & Wickham-Jones 2003). There has been some work on the Mesolithic assemblage of baked mudstone from An Corran in Staffin itself, and work on the use of the material across a wider area is currently underway as part of the Scotland's First Settlers Project (Finlayson *et al* 1999; Hardy & Wickham-Jones 2000, 2001, 2002, 2003). At Staffin, outcrops of baked mudstone have been recorded as flat beds in the cliff face above the Mesolithic site at An Corran (Hardy *et al* in prep), but it is actively eroding here and nodules of mudstone are abundant on the beach below the site. Mudstone nodules may easily be collected right around Staffin Bay and there may well be other, unrecorded, sources in the vicinity.

Other materials present in the assemblage in very small quantities include 11 pieces of quartzite, one piece of baked tuff, a greywacke, one piece of a brecciated sandstone, one of a porcellanite-like material, two pieces of silicified limestone and one piece of volcanic glass. All are probably local materials, either outcropping nearby, or brought in by natural agency such as a glacier. Outcrops of the limestone, Durness limestone, have been recorded at the head of Loch Slapin and Loch Kishorn, both well within the likely annual round of the inhabitants of Camas Daraich. Given the complex igneous history of Skye and the surrounding islands, the breccia, tuffs and porcellanite-like material are all likely to be local though no specific sources have been recorded. The greywacke must have been transported into the area, whether by natural or human agency is not clear (pers comm, S Miller). It is notable that the inhabitants of Camas Daraich were experienced at locating silica-rich rocks suitable for the production of tools. The one piece of volcanic glass deserves mention. Volcanic glass is, of course, well known in Scottish lithic studies, under the name of pitchstone. There are, however, other sources of volcanic glass in Scotland, notably in this instance, on the island of Eigg, just to the south of Skye. It is not possible to distinguish the precise source of a piece as small as that from Camas Daraich, but there is no good evidence for the long-distance transport of pitchstone in the Mesolithic and, in the circumstances, a local source, such as Eigg, seems most likely. Six pieces of volcanic glass were identified from an assemblage of some 140,000 pieces of flaked stone from the excavations at Kinloch on Rùm (Wickham-Jones 1990).

It is one thing to show the reach of raw materials, another to suggest the mechanism by which nodules reached Sleat. Surviving cortex suggests that most of the materials worked at Camas Daraich were derived from pebble nodules, and this is confirmed by the presence of a few pebbles in all main materials except baked mudstone. The quartz and chalcedonic silica were, as noted above, readily available in local gravels, and the location of the site, on a gravel raised beach should not be overlooked. The marine movement of pebbles into beach materials has long been recorded (Piggott & Powell 1949) and may be observed even today (Illus 28). This would have supplemented other agencies such as glacial and river gravels and could well have accounted not only for the local availability of chalcedonic silica and quartz, but also for Rùm bloodstone. Present day analysis, however, yielded no obvious Rùm bloodstone in the local raised beach gravels so that it would seem that the people of Camas Daraich had to venture further afield to obtain bloodstone.

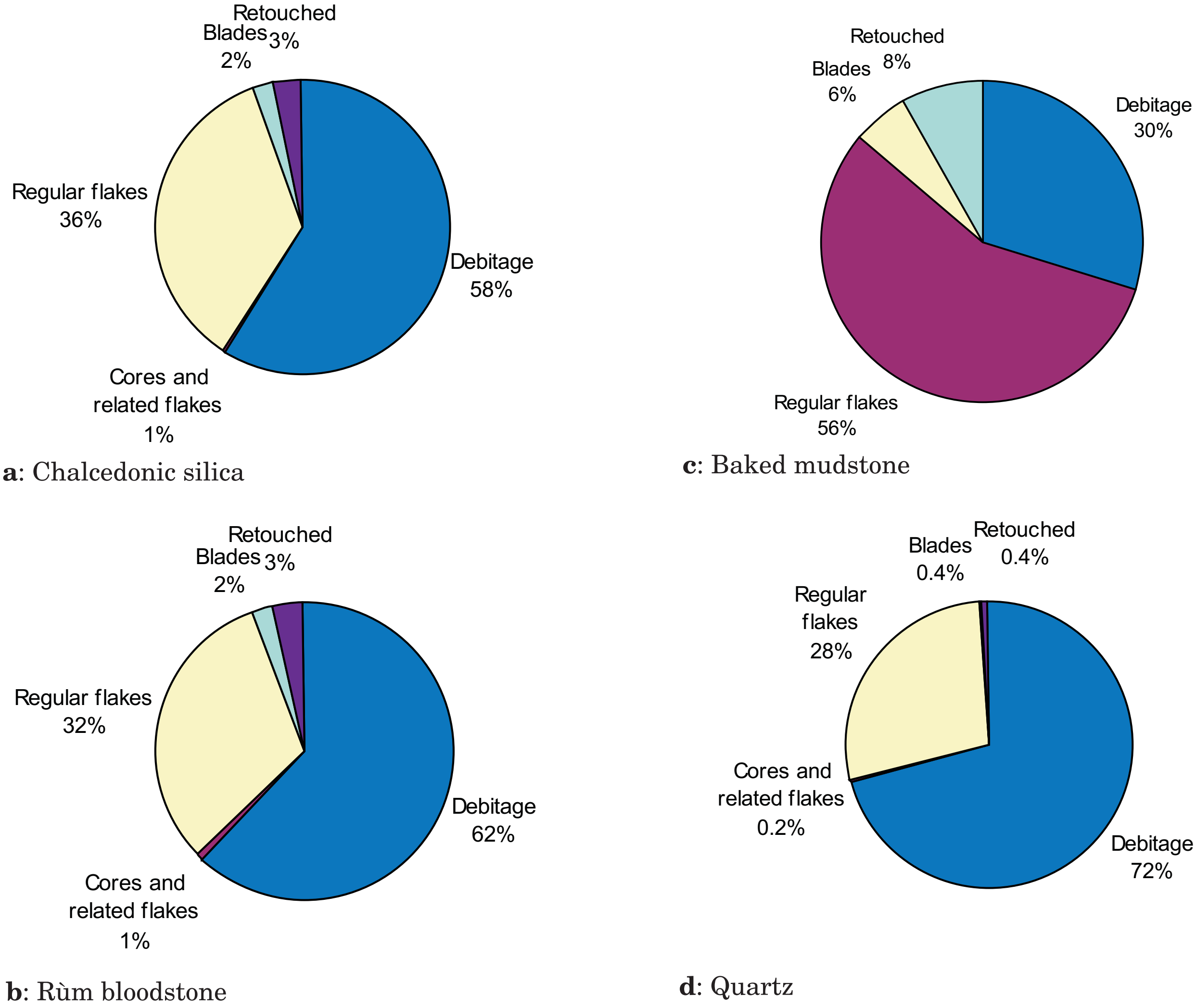
In general, therefore, the knappers of Camas Daraich were using materials that came either from their immediate vicinity or from within an area that extended to include sources some 25 km to the west and 70 km to the north. In this they were acting in common with the inhabitants of other Mesolithic sites in this area of NW Scotland. Although the use of stone for flaked tools must have been determined by the sources available, it is also possible that the common raw materials suggest some links between the users of the different Mesolithic sites in the area. Given that the Mesolithic lifestyle is likely to have included a degree of mobility (Wickham-Jones in prep), it is possible that those who left their lithic debris at Camas Daraich may also have visited one or more of the other Mesolithic sites in the area. It may be impossible to prove whether or not the same people used specific different sites, but this is something that might be resolved in more detail by the work of the Scotland's First Settlers project as the specialist analysis takes shape.

Even once a human agency for the movement of stone can been suggested there are plenty of uncertainties surrounding the precise mechanisms by which this took place. It is quite possible that the people of Camas Daraich traveled to Rùm to collect

Illus 28 Camas Daraich: marine-transported stone, Applecross Bay

bloodstone, but did they collect the nodules themselves from the deposits on Guirdil beach, below Bloodstone Hill (as suggested for the inhabitants of Kinloch; Durant *et al* 1990, 51), or did they meet up with others who lived on Rùm to exchange valuable commodities for the stone that they needed? Perhaps the nodules were brought across the Sound of Rùm by people from Rùm, as they left the island during part of their annual round. The evidence available so far does not provide great detail as to the way in which the stones made their way to Sleat. It does suggest, however, that the people of Sleat were indeed obtaining unknapped pebbles from which they constructed cores to their liking. These cores could then be reduced into blades and flakes for use and further working.

Although the source areas lie several kilometres apart, there are strong similarities in the makeup of the bloodstone and chalcedonic silica assemblages. These are also reflected in the quartz, but not in the baked mudstone, and they may shed further light on the ways in which the different materials found their



Illus 29 Camas Daraich: the lithic assemblage, breakdown by type of the different assemblages of ***a****: chalcedonic silica;* ***b****: Rùm bloodstone;* ***c****: baked mudstone;* ***d****: quartz*

way on to the site. Small pebbles of both bloodstone and chalcedonic silica as well as quartz were found on site, and these are likely to reflect the quality of the original nodules. There were also cores and related flakes, as well as debitage of all three: bloodstone, quartz and chalcedonic silica (Illus 29). Regular flakes, blades and retouched pieces were undoubtedly important in these assemblages, but in general their makeup suggests that knapping took place at Camas Daraich and that some pieces were subsequently used. The baked mudstone, however, has far less debitage and there are neither any pebbles nor any cores. This is not just due to the different nature of the raw materials: quartz is certainly more friable than baked mudstone and that must account for some of the greater quantity of quartz debitage, but Rùm bloodstone and chalcedonic silica are not considerably different in nature to mudstone. The mudstone assemblage, however, includes far higher proportions of regular flakes, blades and retouched pieces. Overall, the impression of the mudstone component of the material from Camas Daraich is that there was little on-site knapping, but that pieces were brought on to the site ready for use with perhaps some on-site alteration and attrition. This is supported by studies elsewhere regarding the movement of raw materials and production of stone tools (Torrence 1986; Geneste 1989; Geneste 1991).

Another factor relevant to the interpretation of the procurement of raw materials for the site is the presence of cortical material. In general, the outer surface, or cortex, of a pebble is considered to have been of less use to the prehistoric tool maker. A comparison of cortex present on the four main raw materials at Camas Daraich shows some interesting differences (Table 5). Chalcedonic silica and quartz, both thought to be more local, have considerably more cortical pieces than Rùm bloodstone and baked mudstone. It is only common sense that those

Table 5 Cortex recorded on relevant pieces of the different materials

Material	Cortex present	No cortex	Total
Baked mudstone	8% (4)	92% (47)	51
Rùm bloodstone	7% (108)	93% (1498)	1606
Chalcedonic silica	27% (602)	73% (1666)	2268
Quartz	23% (214)	77% (730)	944

Table 6 Cores by type and material

Core type	Rùm bloodstone	Chalcedonic silica	Quartz
Bipolar	5	6	2
Platform	8	6	
Core rejuvenation flake		1	
Core trimming flake	2		

responsible for the movement of stone would remove the cortex and test the stone before transport and this is clearly reflected here. Interestingly, there is little difference between the cortex present on the Rùm bloodstone and the baked mudstone, though the former may well have been worked on site while the latter seems to have been brought in as finished pieces.

5.3 Primary technology

The assemblage includes considerable evidence of on-site knapping. This comprises primarily cores and related flakes, debitage flakes and chunks. There are also a few pebbles, some of which have been tested by flaking.

The 24 pebbles give a good idea of the nodules selected by the knappers. All have a rolled outer cortex and are small, measuring up to 60 mm in greatest dimension. This factor may well be biased as larger pebbles are more likely to have been transformed into cores, but over half of the pebbles have been flaked, presumably to give an idea of knapping quality. Interestingly, although there are pebbles of Rùm bloodstone, chalcedonic silica and quartz, there are none of baked mudstone.

There are 27 cores in the assemblage: 13 bipolar and 14 platform cores (Table 6; Illus 30). In addition there are three related flakes: one core rejuvenation flake of chalcedony and two core trimming flakes of bloodstone.

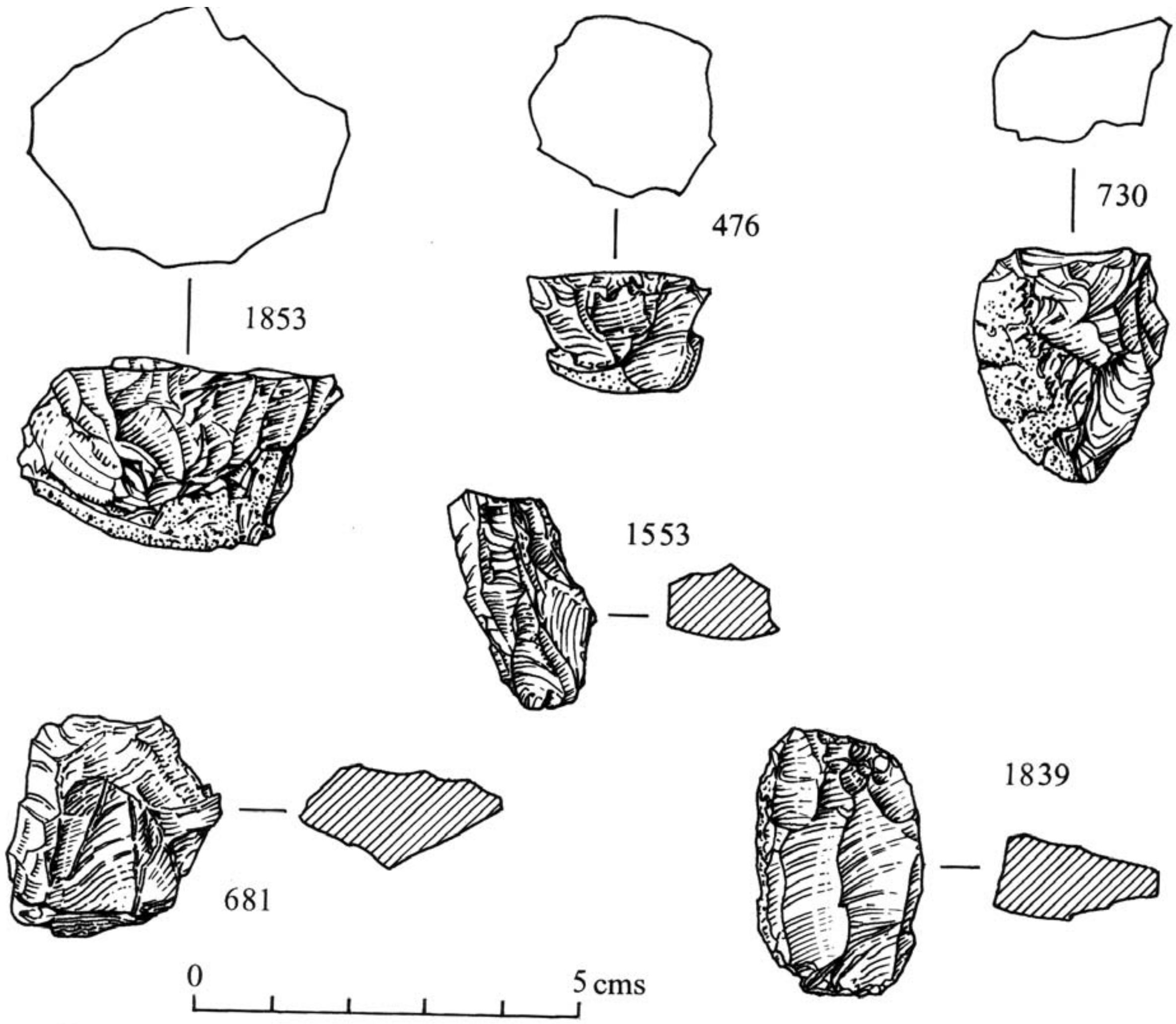
Half of the cores and related flakes come from the use of bipolar knapping, half from platform knapping. This is in contrast to the regular flakes, where only 7% showed signs of bipolar knapping. This may be partly due to the difficulties of recognizing bipolar knapping on many flakes, but it is also likely to reflect the fact that many cores would have been knapped from a platform at first and only reduced with bipolar knapping once they were too small, or too difficult in other ways, for platform knapping. Bipolar knapping is in many ways ideal for the reduction of pebble nodules, such as those that were apparently worked at Camas Daraich, but it is not surprising to find that the Mesolithic knappers preferred more control and created a platform where possible. This has been recorded elsewhere (Finlay *et al* 2000a), and it is certainly easier to make blades, such as those preferred in the Mesolithic, from platform cores.

None of the cores is large. They grade in length from 14 to 34 mm, though there are of course many other reasons besides size to stop knapping, such as the intractability of the material or inherent flaws. There is no obvious difference between the lengths of platform and bipolar cores, though interestingly the bipolar cores tend to be thinner than the platform cores and more of them have no remaining cortex. This adds weight to the argument that bipolar knapping was used to reduce exhausted platform cores. Core size relates closely to the size of the blanks, there are, as might be expected, a few shorter flakes and blades, but the majority fall between 13 and 30 mm in length. In addition, only 6% of blanks are over 34 mm long, which supports the view that though some cores were originally larger, most were reduced in width and thickness rather than in length as they were knapped. Before exhaustion and the change to bipolar knapping, it is clear that the platform cores were carefully trimmed and maintained. Three core-working flakes were recognized in the assemblage. These relate both to the rejuvenation of platforms, by a side blow near to the top of the core face, and to the trimming of the platform edge.

This study did not include detailed observation of knapping characteristics such as bulbar features, but a general record of platform type and bulb size was recorded on complete flakes. From this it can be seen that the majority have diffuse bulbs while platforms vary from wide to narrow, and in many cases there is no conventional platform at all. There

Table 7 Percentage of whole flakes with bipolar characteristics by material

Material	Bipolar	Platform
Baked mudstone	13%	87%
Rùm bloodstone	12%	88%
Chalcedonic silica	19%	81%
Quartz	54%	46%



Illus 30 Camas Daraich: the lithic assemblage, cores (NB: numbers refer to the catalogue numbers in Section 18). Cat. nos 1853, 476, 730 – platform cores all of chalcedonic silica; cat. nos 1553, 1839 – bipolar cores of bloodstone; cat. no. 681 – bipolar core of quartz

were obviously also some flakes (7%) that bore the signs of bipolar reduction, but it would seem that the knappers of Camas Daraich preferred to use direct percussion with a softer hammer, perhaps of antler or a soft quartzite, when working from platform cores. Although in some cases they struck well back from the platform edge, they also tended to strike right at the edge, resulting in narrow platforms or even no platform at all.

Although both chalcedonic silica and Rùm bloodstone seem to have provided very similar characteristics from the point of view of the knappers, there is one overall difference in the way in which these two materials, and the others, were treated. This lies in the use of bipolar knapping (Table 7).

Interestingly, a very similar proportion of the flakes of baked mudstone and Rùm bloodstone show bipolar characteristics, while that of chalcedonic silica is not much greater. Quartz, however, shows far greater use of bipolar knapping. This, no doubt, reflects the properties of the different materials: quartz, with a more irregular fracture can be harder to control than the others and the preference for bipolar knapping to maximize the reduction of quartz is something that has been recorded elsewhere (Saville & Ballin 2000).

Table 8 Proportions of blades to regular flakes by material

	Baked mudstone	Rùm bloodstone	Chalcedonic silica	Quartz	All materials
Blades	3	38	47	4	92
Regular flakes	28	511	821	269	1629
Lamellar index	10%	7%	6%	1%	6%

Table 9 Lamellar index as worked out on platform-struck pieces

Type	Chalcedonic silica	Rùm bloodstone	All materials
Platform flakes	771	492	1528
Platform blades	47	38	92
Lamellar index	6%	8%	6%

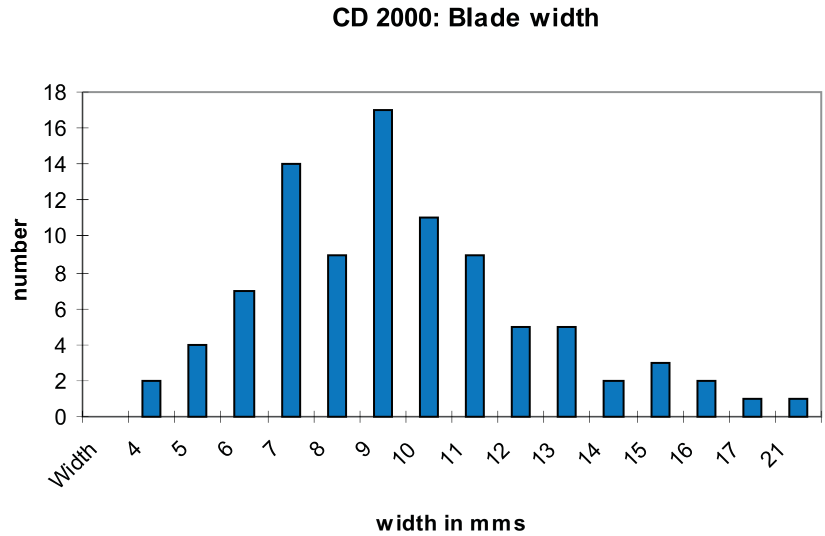
The knappers at Camas Daraich were obviously competent stone workers, but what were they making? It is now generally recognized that many of the products of knapping were quite suitable for use without modification (Knutsson 1988a; and see below Section 6.7; Section 6.7.1; Section 6.7.2). This applies equally to irregular chunks as well as to flakes and blades and there are certainly plenty of all of these in the assemblage. It is nevertheless useful to look in a little more detail at the flakes and blades as they can give an idea of the general aims of the knappers.

Although regular flakes predominate in all materials (Table 8), there are blades of each material as well. It is generally accepted that the knappers of the Mesolithic were keen to make blades as well as flakes (Wickham-Jones 1990; Finlay *et al* 2004) and this is supported at Camas Daraich by the presence of at least one crested flake: the formation of a crest on a blade or flake is a well-recognized way in which to guide the production of blades. In addition there are several classic blade cores among the platform cores. Blades were obviously an important product, but how important?

Blade-making is a specialized process that inevitably results in the production of much debris including regular flakes as well as irregular flakes and chunks. It is not, therefore, surprising to find many non-blades amongst a blade-type assemblage. Experimental work has developed the lamellar index as a ratio used to measure whether a site specialized in blade-making (Bordes & Gaussen 1970). Where the proportion of blades to flakes exceeds 20% it is generally recognized that the knappers must have been aiming to produce blades. Table 8 shows clearly that the lamellar index at Camas Daraich falls well below the 20% required, even in the apparently 'best' material: baked mudstone (where the overall sample is tiny). This ratio is clearly affected by the raw material in use, hence the low ratio for quartz, and it is important to remember that the lamellar index was originally defined through work on high quality Bordeaux flint. Nevertheless, Mesolithic knappers at Kinloch on Rùm using both Rùm bloodstone and chalcedonic silica were able to produce an assemblage with a lamellar index of 24% (Zetterlund 1990), so it is clear that the influence of raw material can be, in part at least, overcome. It would seem, therefore, that, though blades were certainly important at Camas Daraich, they were not the only aim of the knappers.

The use of bipolar flaking at Camas Daraich is another factor that must be taken into account in any consideration of the importance of blades. The bipolar technique is very different to the controlled platform knapping that must be undertaken for blade production. Although blades may occasionally be produced by bipolar knapping they cannot be a main product, and this is confirmed at Camas Daraich where none of the blades had evidence of bipolar knapping. Interestingly, however, if the clearly bipolar pieces are removed from the equation, the lamellar index does not vary from that when they are included (Table 8; Table 9). The platform cores were obviously important for flakes as well as blades. Blade-making mainly took place on platform cores of chalcedonic silica and Rùm bloodstone. Flake-making was easier, and therefore more productive, and took place on quartz as well. Bipolar flaking was reserved for the re-working of used platform cores and resulted in the production of many flakes, especially of quartz (Table 7).

Blades certainly represent one of the main primary products at Camas Daraich and, given their importance as a Mesolithic-type fossil, it is worth looking at the Camas Daraich blades in a little more detail. Much has been written of the distinction between narrow and broad blades in Mesolithic assemblages (Finlay *et al* 2004) and the possible meaning of this in both chronological and other terms. At Camas Daraich, there is a general gradation of width among the blades, from 4 to 21 mm (Illus 31), with no distinction among the different sizes of blades made in the different materials. At Kinloch, blades were divided by width into those under 5 mm, those between 5 and 8 mm, and those over 8 mm (Zetterlund 1990). There was, however, little indication at Kinloch that the knappers preferred any one width. At Camas Daraich, the distribution of blade-widths is ambiguous. Illus 31 could represent a continuous



Illus 31 Camas Daraich: the lithic assemblage, width of unretouched blades

distribution, but it might also be interpreted as two normal distributions centred on 7 and 10 mm, with the value for 9 mm inflated because it lies within the tail-off for each. Overall, the blade dimensions at Camas Daraich echo those of Kinloch very closely, with the exception that there are only two blades less than 5 mm in width: 38% of the blades lie in the 5–8 mm wide group and 62% are over 8 mm wide, a very similar proportion to Mesolithic Kinloch. Given that it seems likely that many of the microliths were made on broader blanks (Section 5.4), it may well be that broader blades are actually under-represented in the assemblage.

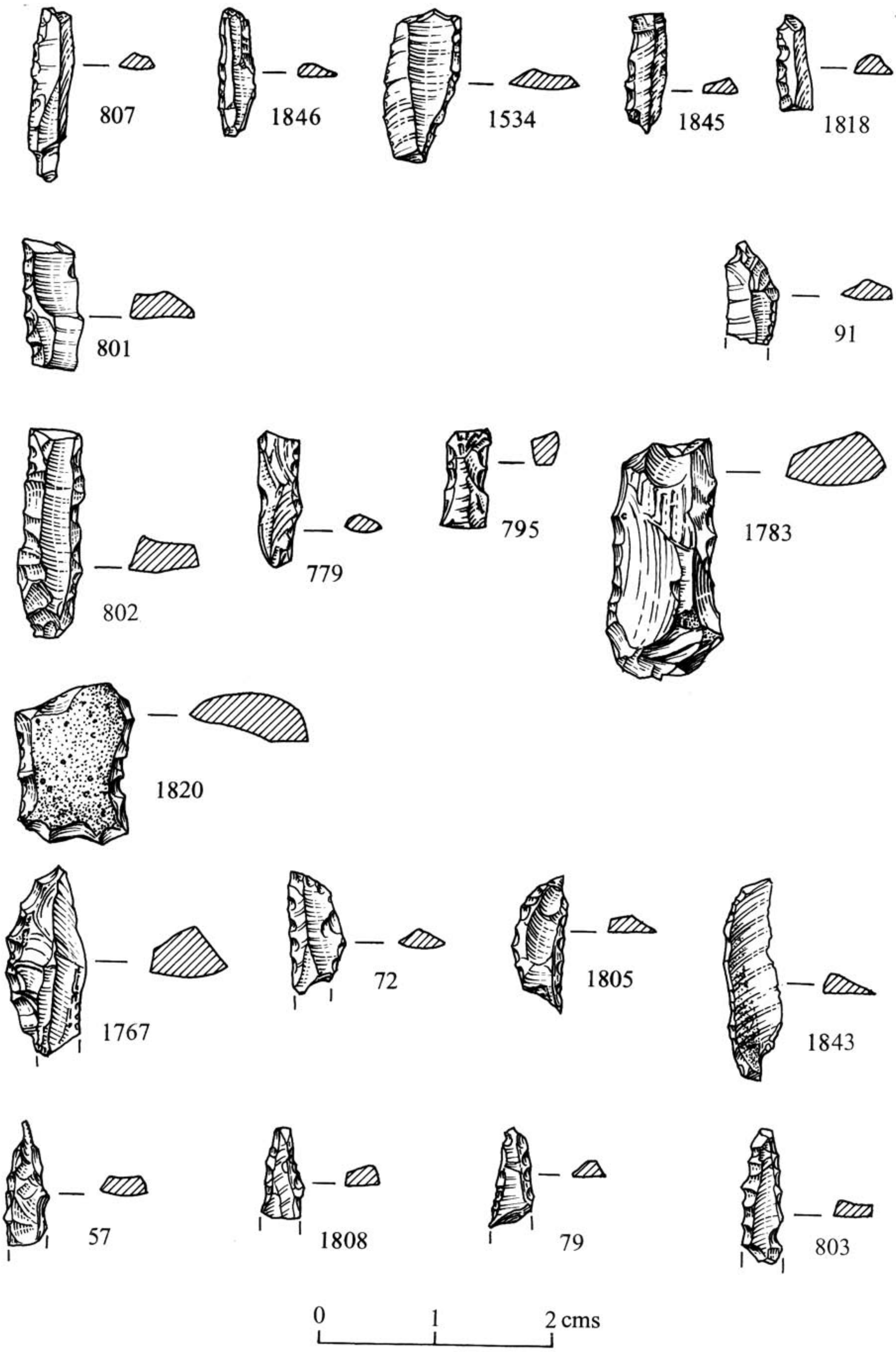
5.4 Secondary technology

While it is likely that the inhabitants of Camas Daraich were content to use much of the lithic assemblage unmodified, there were also instances where they had other things in mind for their stone tools. In general, modified pieces fall into two categories: microliths and larger artefacts. Each of these categories may be sub-divided into several conventional archaeological types (which quite probably bear no relation to how they were perceived by their makers and users; Knutsson 1988b, 11–16). Some conventional modified tool types fall into both categories, however, such as the obliquely blunted points which at Camas Daraich were made on both microlithic blanks and on flake-blanks. Furthermore, there is (for what it is worth) considerable debate over the classification of other types: do microburins qualify as microliths, for example? On these grounds, it seems worth questioning whether the general separation of microliths from other modified tool types is useful? Finlayson and Mithen (1997), for example, have explored the weaknesses in traditional considerations of microliths and their work has also emphasized the way in which the traditional types of microlith grade into one another (Finlayson *et al* 1996).

Microliths have been defined in various ways (Finlay 2000; Finlayson *et al* 1996). For the purposes of this study they are taken as: 'blades that have been modified by short, abrupt retouch in order to alter the shape of the original blank and to blunt the edges' (Wickham-Jones & McCartan 1990, 97). Concern over whether or not the bulb is present (Finlay 2000) has been restricted, as this can depend greatly on both the material and the knapping technique used, as well as on the skill and desires of the knapper. In the past microliths have been afforded great importance, as an indicator of both a Mesolithic presence (Finlay *et al* 2004), and of the nature of the Mesolithic economy (Smith 1992). Even this, however, has taken a body-blow in the recent years of archaeological deconstruction. Recent work has begun to look at the possibility of a non-microlithic Mesolithic at various times and places, something first raised by Woodman in 1989 (see Finlay *et al* 2004). Other work, meanwhile, has emphasized the varied roles of microliths within a whole suite of activities present on any Mesolithic site (Finlayson 1990; Finlayson & Mithen 2000), and it is unlikely

Table 10 Modified tools with microlithic retouch

Microliths	Quantity
Microburins	2
Backed bladelets	15
Crescents	5
Fine points	8
Rods	8
Scalene triangle	1
Microlithic retouch	10
Broken microliths	14



Illus 32 The lithic assemblage: microliths (NB: numbers refer to the catalogue numbers). Backed bladelets: 801, 807, 1534, 1818, 1845, 1846, Rods: 779, 802, 795, 1783, 1820; Crescents: 1767, 72, 1805, 1843; Fine points: 57, 1808, 79, 803; Chalcedonic silica: 57, 72, 79, 91, 795, 803, 807, 1534, 1783, 1808, 1820, 1846; Bloodstone: 779, 801, 802, 818, 845, 1767, 1805, 1843

Table 11 Modification by microlithic retouch, materials

	Rùm bloodstone	Chalcedonic silica	Baked mudstone	Quartz	Total
Backed bladelets	6	9			15
Rods	4	4			8
Fine points	1	7			8
Crescents	3	2			5
Scalene triangle		1			1
Microburin	2				2
Broken microlith	4	10			14
Microlithic retouch	4	5		1	10
TOTAL	24	38	–	1	63

Table 12 Backed bladelets, blanks

Backed bladelets	Quantity
Whole blank	1
Proximal blank	2
Distal blank	4
Middle blank	8
TOTAL	15

Table 13 Rods, blanks

Rods	Quantity
Whole blank	–
Proximal blank	5
Distal blank	–
Middle blank	3
TOTAL	8

that microliths were just used for hunting as once thought.

Mesolithic archaeologists should, perhaps, give up their reliance on microliths and explore wider fields of analysis and interpretation. It is, nevertheless, very difficult to leave behind old concepts. In this report, the term 'microlith' has been retained both as an indicator of a general style of secondary modification (see above) and as an indicator of part, at least, of the suite of modified lithic tools at one period in the Scottish Mesolithic. Sixty-three of the modified artefacts from Camas Daraich have microlithic retouch (Table 3; Table 10; Illus 32).

Though most of these are less than 5 mm in width, the two microburins show how they were made on broader blanks (Illus 33) and this would be in line with the fact that the locally produced blades were generally wider than 5 mm (Illus 31). Most microliths are made on blade blanks, with lengths of small abrupt retouch along at least one side. Although there is a general gradation between their shapes, there is a suite of formal types into which microliths have traditionally been classified (Wickham-Jones & McCartan 1990; Finlay *et al* 2000b), and in general the Camas Daraich microliths may be arranged into these conventional types. The materials used for microlithic retouch are shown in Table 11.

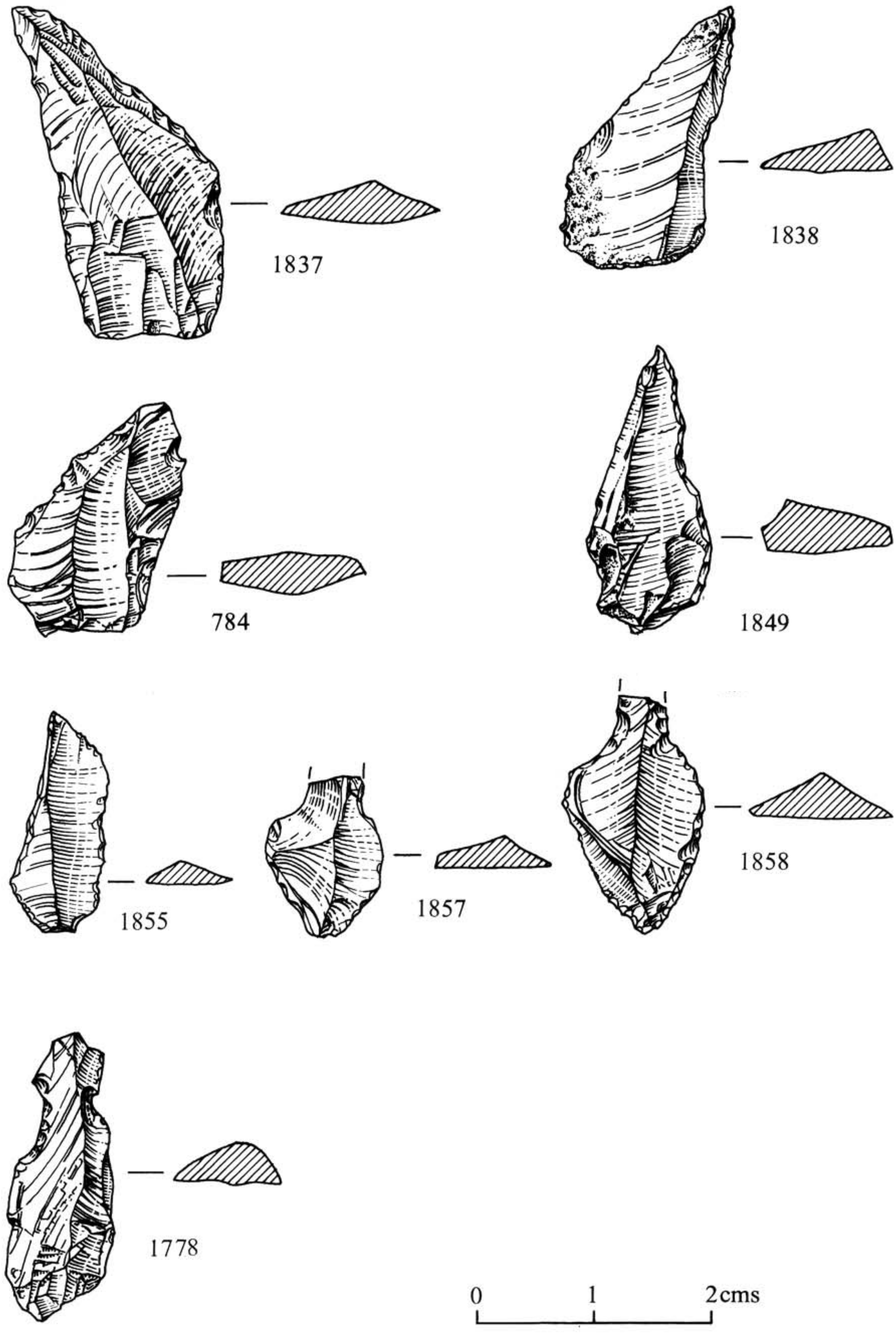
The most common type of microlith is the backed bladelet, of which there are 15 (Illus 32). One appears to have been made on a complete blade (cat:807), while most of the others are on middle segments (Table 12). It may be, of course, that some of these tools have snapped in use so that the lack of a distal or proximal end is not necessarily an indicator of manufacturing technique.

Rods are similar to backed bladelets, but they have a rectangular cross-section with two blunt sides unlike the backed bladelets which have a characteristic triangular cross-section. There are eight rods (Illus 32). Most have been retouched along both sides, but in one case a naturally blunt edge has been incorporated into the piece. On one rod the retouch along one edge is inverse. Interestingly, the rods differ from the backed bladelets in their blanks: rods show a preference for proximal blanks (Table 13). Although most of the rods are less than 5 mm wide, two are 10 mm wide (cat:1783 & cat:1820). These are very similar pieces to each other.

There are also eight fine points (Illus 32). All but one of these is made on chalcedonic silica. Because of the greater amount of modification to make the point it is hard to ascertain the nature of the blank, but only one has an obvious bulb surviving.

Five of the microliths are crescents (Illus 32) and there is one scalene triangle (Illus 32). Again it is difficult to tell the nature of the blanks, but one of the crescents bears the remains of the bulb. There are also 14 broken microliths. It is not possible to say what shape the original tool took, or the nature of the blank, but three have the remains of a bulb and four appear to be distal ends. The other seven are middle fragments, though it is important to remember that the original microlith would have been larger. Finally, there are 10 small fragments that bear microlithic retouch, suggesting that they were once part of a microlith.

The assemblage includes two microburins (Illus 33). These are both made of Rùm bloodstone and both are considerably wider than the standard microlith on site. This is interesting because microburins are generally considered to be a form of waste from the manufacture of microliths and it suggests that the ideal blade for some microlith manufacture was



Illus 33 The lithic assemblage: obliquely blunted blades and microburins [1857, 1858, 1778] (NB: numbers refer to the catalogue numbers). Chalcedonic silica: 1778, 1849, 1855; Bloodstone: 784, 1837, 1838, 1857, 1858

Table 14 Raw materials of the larger retouched pieces

	Chalcedonic silica	Rùm bloodstone	Baked mudstone	Quartz
Scrapers	14	10	1	2
Edge-retouched	8	6	2	1
Obliquely blunted	4	5	1	
Awls and points	1	2		
Barbed and tanged point	1			
Notched	1			
Broken	6	5		
TOTAL	35	28	4	3

much broader than the finished product. This makes sense in terms of ease of knapping and it is supported by work elsewhere (Finlay *et al* 2000b). One microburin preserves the distal end of the blade, the other the proximal end, but this means little in view of the relative scarcity of microburins to microliths. This scarcity itself is interesting, however, as it suggests that the knappers at Camas Daraich did not always use the microburin technique when making microliths, and this is something that has been observed elsewhere as well (Wickham-Jones 1990). A larger blade of chalcedonic silica (included in non-microlithic totals), with notches on either side, may be an unfinished microburin (cat:1778, Illus 33). Interestingly, the distal end, above the notches, is much narrower than the proximal end.

One artefact type crosses the traditional divide between microlith and non-microlith and this is the obliquely blunted blade (Illus 33). There are 10 of these: four of chalcedonic silica, five of Rùm bloodstone and one of baked mudstone. Five are on blade blanks, five on retouched flakes. Most have been modified by microlithic retouch, though in general they are much wider than the typical Camas Daraich microlith. All have been shaped by the deliberate snapping of the blank to provide an oblique truncation which has then been retouched.

Most common among the larger modified tools are scrapers, of which there are 26 (Illus 34) plus one flake from the re-sharpening of a scraper. The scrapers are made on retouched flakes (there is one blade blank) on a mixture of raw materials, mainly chalcedonic silica and Rùm bloodstone but with two of quartz and one of baked mudstone (Table 14). Most of the scrapers are end scrapers (13), with steep edge retouch at one end, usually the distal end. All but two of them have noticeably narrower butts at the proximal end. This may be a feature of the hafting of the tool; occasionally it is due to the natural shape of the flake but in other cases it has been deliberately enhanced by retouch. There is also one side scraper of quartz, one end and side scraper, a concave scraper (made on an irregular chunky flake), four broken scrapers and six thumbnail scrapers which vary in size from 13 mm to 26 mm long. Small regular scrapers, such as the thumbnail scrapers, might be considered to be later in date than the Mesolithic and it is interesting that all but one of these came from the upper layers or surface of the site, though there is no difference in terms of raw material.

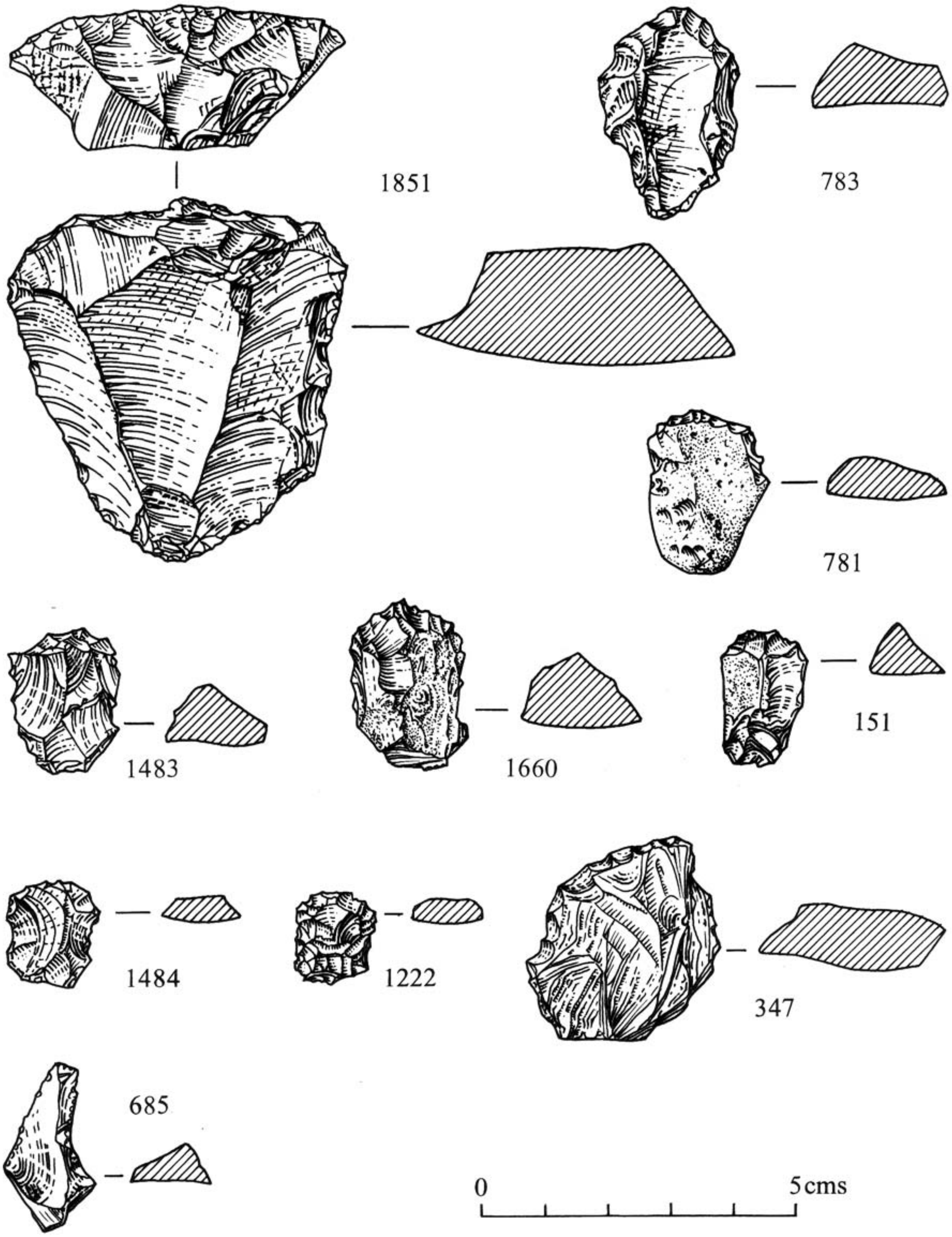
One of the end scrapers stands out from the rest and this is cat:1851 which is considerably larger than the rest (5 × 54 mm, Illus 34). It is made of an unusual siliceous material and is much larger than most flaked stone tools of the Scottish Mesolithic. There is nothing to distinguish the context of this tool from the rest of the flaked lithic assemblage however, and a few other pieces of this material were recovered from the site so that for the moment it must remain as a local anomaly.

Seventeen of the modified tools have retouch along one or more edges (Illus 35). Once again most of these are on either chalcedonic silica or Rùm bloodstone, but there are two of baked mudstone and one of quartz. In general, the edge-retouched tools are a disparate group with little in common beyond the nature of their retouch. Most are made on flake blanks and quite irregular in shape. Ten, however, are made on blade blanks, and these are all quite similar: most are broken, most have retouch along one side, usually the left side, and they are quite rectangular in shape (Illus 35).

Two of the pieces have been classified as awls (Illus 36): one of chalcedonic silica and one of Rùm bloodstone. Both have been retouched to form sharp points; one is a classic shape, the other more irregular. There is also a blunt pointed tool which appears to have broken from a larger piece (Illus 36).

Initial work on the site identified a number of possible tanged points. None of these were substantiated by more detailed examination. There is one bifacial point however (cat:1067, Illus 36), a broken piece with a small barb to one side suggesting that it was originally a barbed and tanged point.

Finally, there are 11 broken pieces, all with retouch but where it is not possible to deduce the original type of tool. All are made on flakes. Three have microlithic retouch but are larger and more irregular than the broken microliths. The rest have lengths of larger retouch on one or more edges.

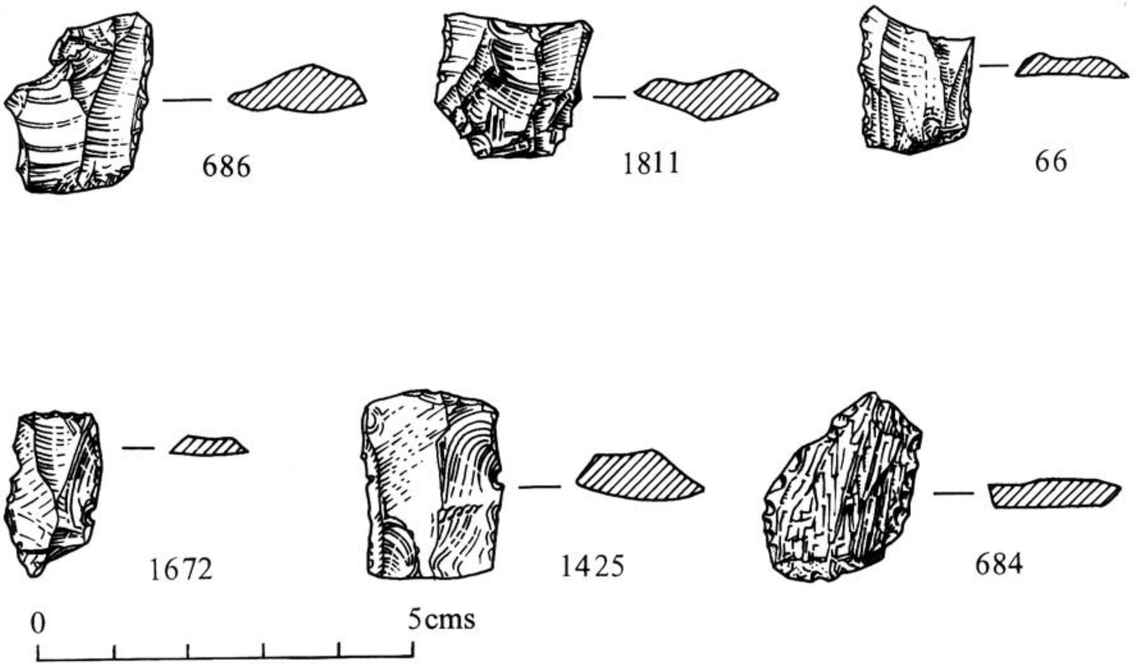


Illus 34 The lithic assemblage: scrapers (NB: numbers refer to the catalogue numbers). Chalcedonic silica: 151, 685, 781, 1222, 1483, 1484, 1851; Bloodstone: 1660; Baked mudstone: 783; Quartz: 347

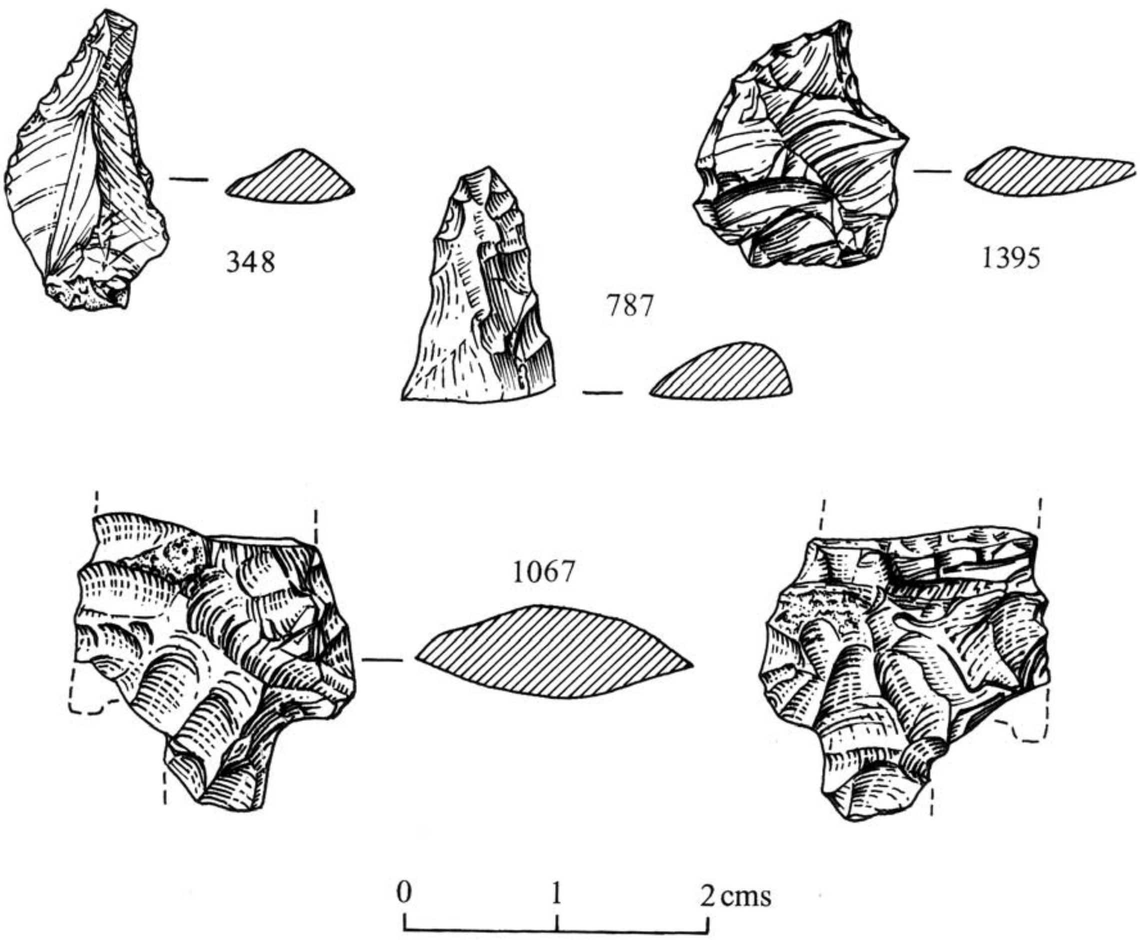
5.5 Nature of the flaked lithic assemblage

The assemblage includes a considerable amount of material that has resulted from the manufacture and maintenance of stone tools. This amount may originally have been greater, given that most of the material is derived from surface collections. Surface collection was uncontrolled, though it did result in the recovery of much small and irregular material as shown in Table 15: the percentage of debitage flakes and chunks from the surface of the track (61%) is little different to that from Tr1 (63%).

On-site knapping seems to have involved mainly Rùm bloodstone and chalcedonic silica, though there was some work with quartz and tools of baked mudstone were also present. Knapping is not the only process involved in the build up of the assem-



Illus 35 The lithic assemblage: edge-retouched pieces (NB: numbers refer to the catalogue numbers). Chalcedonic silica: 686, 1672; Bloodstone: 66, 1811; Baked mudstone: 1425; Quartz: 684



Illus 36 The lithic assemblage: awls; barbed and tanged point (NB: numbers refer to the catalogue numbers). Chalcedonic silica: 348, 1067 (the bifacial point); Bloodstone: 787, 1395

blage, however, as much of it has undoubtedly resulted from the discard of used and broken pieces.

It is now generally accepted that the prehistoric inhabitants of any site made great use of unaltered blades and flakes as well as of more specifically worked pieces. In this respect the large percentage of regular flakes at Camas Daraich is of interest: they comprise one third of the assemblage. It is not perhaps surprising that the microscopic analysis of a sample of artefacts, including unretouched pieces, indicated that many of these showed signs of prolonged use (Section 6.7; Section 6.7.1; Section 6.7.2).

Interestingly, the microwear analysis suggested that unretouched flakes were put to heavier use than the unretouched blades (Section 6.7.1; Section 6.7.2). In this respect, the lack of blades is surprising given the age and nature of the site. It would have been reasonable to expect a higher proportion of blades on a Mesolithic site of this date than the 2% recovered. Is it possible that blades were selectively removed from the site? One hint is given by the retouched pieces: of the 133 retouched pieces, 54% were made on blade blanks, 45% on flake blanks and 1% on chunks. If blades were more popular than flakes for secondary work then this would have reduced their number, though not, apparently, by much. Another clue may be given by the state of the pieces: but while 84% of the blades are broken, the broken proportion of the flakes is 74%. If blades were used and broken prior to deposition, then it would seem that flakes too were important. In conclusion, while the inhabitants of Camas Daraich were clearly used to making and using blades, the evidence suggests that blades were not as important to them as on other sites of the early Mesolithic. This is not just due to the raw materials in use because these do not differ much from those used at Kinloch, for example, so some other factor must have come into play.

Finally, the pieces with secondary alteration must be added to the 'working' tools from Camas Daraich. These include both tiny microlithic pieces, which are likely to have comprised the working elements of composite tools, and a variety of larger types which may have been used, with or without hafts, as tools in their own right. Microliths have in the past been almost exclusively identified with hunting activities, though recent work has emphasized that they are likely to have played a much broader role in a range of composite tools well suited for many different tasks (Finlayson 1990; Finlayson & Mithen 2000). At Camas Daraich, in contrast, the microwear analysis suggested that the microliths studied were used predominantly for hunting (Section 6.8).

The assemblage, therefore, contains considerable evidence for the use of tools. It is not, so far, possible to identify precisely the individual tasks that took place around the site, but the great variety of 'tools' suggests that a variety of chores were involved and this is supported by the microwear analysis (Section 6). Furthermore, it is important to remember that many tools may have served several functions. Not only can one type of tool serve different needs (much as today), but also individual tools may well have served varying uses through time as they were altered by wear and attrition. The life-history of any artefact is complex.

5.6 Distribution of the flaked lithic assemblage

Though the assemblage comprises nearly 5000 pieces, it comes from several locations within the Camas Daraich croft (Table 15; Illus 2).

Though there is little to distinguish the material from each location, there are one or two small differ-

Table 15 Breakdown of the assemblage by location and type

Site	Pebbles	Debitage	Cores	Reg. flakes	Blades	Microliths and obliquely blunted	Other retouched pieces	Total
CD1: Track	9	1703	20	910	44	58	31	2775
CD1: Tr1	10	875	6	424	40	14	14	1383
SP1	–	38	–	32	2	–	4	76
SP2	–	7	–	16	1	1	–	25
SP3	–	1	–	1	–	–	–	2
TPW	1	49	–	26	–	–	–	76
TPX	2	65	–	33	1	1	1	103
TPY	2	7	–	3	–	–	–	12
TPZ	1	105	–	78	4	–	4	192
CD2	–	127	1	89	–	–	3	220
CD3	–	8	–	7	–	–	2	17
N Sondage	–	1	–	5	–	–	–	6
CD4	–	10	–	15	–	–	–	25
Xmas tree hole	–	–	–	1	–	–	–	1
Total	25	2996	27	1640	92	74	59	4913

Table 16 CD1: Lithics from secure Mesolithic contexts

Pebbles	Debitage	Cores	Reg. flakes	Blades	Microliths and obliquely blunted	Other retouched	Total
2	162	–	99	18	4	4	289

Table 17 Contexts 08, 10 and 13 combined: broad composition of the lithic assemblage by square

Square	Debitage	Regular flakes	Blades	Retouched	Total
B1	25 (64%)	7 (18%)	3 (8%)	4 (10%)	39
B3	71 (42%)	82 (48%)	13 (8%)	3 (2%)	169
C2	68 (84%)	10 (12%)	2 (2.5%)	1 (1.5%)	81

ences which may be significant. The traditional Mesolithic-type fossils – microliths and blades – come mainly from the main track and area of trench 1. Although their value as chronological indicators may be limited, it is likely that they do hold some general significance. It may well be, therefore, that the collections from the other locations have picked up on other prehistoric activity at Camas Daraich that did not fall within the earlier Mesolithic period represented by the main assemblage. It is a well-favoured location, and other use in prehistory is likely. It is worth mentioning here that bias due to collection technique is unlikely to have affected the relative assemblages from the different parts of the site. All field collection was carried out by the same, experienced, team and the recovery of microlithic material from some parts of the site and not from others is likely to be a true reflection of the inter-site variation.

Within the main area of CD1 (track and trench 1) the majority of the finds is derived from unstratified material. Unfortunately the nature of disturbance to the site was such that only three contexts – C08, C10 and C13 – could be identified as secure cultural material. This problem is exacerbated by the small amount of excavation that could be undertaken. The result is that of a total assemblage of 4913 pieces, only 289 pieces can be securely contexted as Mesolithic (Table 16). The context of these pieces is enhanced by the association of the radiocarbon determinations with contexts C08 and C10 (Section 11 – Radiocarbon Determinations).

This consideration of the securely stratified Mesolithic material is interesting for it throws a slightly different slant on the assemblage. Blades are proportionately much more numerous at 6%, and the lamellar index is 18%. The traditional Mesolithic production of blades can be seen more clearly. It is also interesting to note that clearly bipolar material is lacking in these contexts: only three of the 289 artefacts have bipolar characteristics. Bipolar knapping is, of course, not conducive to blade production, but some archaeologists would consider it to be a technique that increased in popularity in later, post-Mesolithic, periods. So far the picture is not clear: at Kinloch, for example, there was some, though not much, evidence of bipolar knapping in the Mesolithic material (Zetterlund 1990); and at Camas Daraich the 'un-stratified' track and surface deposits also include many classically Mesolithic artefacts such as the microliths. The possibility must remain, however, that this 'surface' material includes remains from more recent stone-using activity and that this has become mixed over the Mesolithic site. This argument is lent weight by two other possible pointers to later activity on site: the small thumbnail scrapers, all but one of which came from the 'un-stratified' layers, and the barbed and tanged point found from the surface of the track in Sector E. Thumbnail scrapers such as these tend to be more common on later sites, and barbed and tanged points are conventionally dated to the Bronze Age.

The 289 pieces from secure Mesolithic contexts may be divided between squares B1, B3 and C2 and, though numbers are not great, some difference is suggested between the assemblages from each square (Table 17) and this is supported by the microwear analysis (Section 6.11).

More of the material in square C2 is derived from knapping than in the other two squares but, interestingly, the microwear analysis showed that many of the retouched pieces and regular flakes in this square had been subject to prolonged use. The wear traces suggested that a range of tasks had taken place. In square B3, in contrast, there is a higher proportion of regular flakes, blade and retouched pieces, but microwear analysis showed that many of these had not been used to any great extent. All but one of those that had been used, however, showed a very great similarity in wear traces, suggesting that a single task had taken place. The assemblage from square B1 is much smaller than either of the other two, it contains a mixture of knapping debris and regular pieces and no patterns are observable here.

Initial observation at the end of excavation suggested that there might be two lithic traditions at Camas Daraich, a broad-blade tradition on the excavated site and a narrow-blade tradition in the ploughsoil. This has not been borne out by the detailed analysis. There is no difference in blade type between contexts and there were narrow-blade microliths (albeit only two) in the stratified material. There does not appear to be any significant difference between the lithic material from the different areas of CD1.

With regard to the pre-excavation field collection, the track was divided into sections of 5 m (Illus 2) so that the lithics could be recorded as to their approximate location along its length. There is, however, little difference between the general components of the assemblage from each track section. Blades, retouched pieces (including microliths) and cores occur in most sections. The most notable feature is that lithics are most abundant as the track runs downhill towards and across the area of trench 1. Uphill, and across the surface of the high raised beach, the lithics peter out.

5.7 Cultural and chronological connections

The assemblage includes several pieces that would conventionally be regarded as of cultural and chronological significance and most point to one period: the Mesolithic. Foremost among these are the microliths. There has in recent years been a general equation between the presence of microliths and the recognition of Mesolithic sites. Archaeologists now, however, recognize that the situation is not as simple as that and that parts of the Mesolithic, especially perhaps the later Mesolithic, may not have used microlithic tools. There is, furthermore, still much debate over the meaning of the broadly different groups into which microliths fall: broad and narrow (Finlay *et al* 2004). The microliths from Camas Daraich are uniformly narrow, with the exception of the obliquely blunted blades which might elsewhere be regarded as broad. Obliquely blunted blades occur on many 'narrow-blade' sites, however (for example Kinloch, Rùm), and it cannot be argued that they are out of place or that they represent a separate tradition on site at Camas Daraich. In general, the assemblage from Camas Daraich is typically narrow-blade and, happily, this is supported by the radiocarbon determinations.

As discussed above, blade assemblages are also generally regarded as Mesolithic in date. Discussions of blade material also focus on width, but the unworked blades at Camas Daraich are not out of place with narrow-blade microliths. Though they tend to be somewhat broader than the microliths themselves, it was common for blades to be worked into smaller, narrow pieces – as has been seen above. It has been noted, however, that blades are not perhaps as frequent at Camas Daraich overall as might have been expected. One possible explanation of this might be that the surface material includes elements from some later stone-using activity in the vicinity and this argument is lent weight by the differential occurrence of bipolar material which is much more common in the surface layers and which may be indicative of later period knapping (pers comm, A Saville). There was, however, little clearly later material at Camas Daraich, with the exception of a single barbed and tanged point, and possibly the thumbnail scrapers.

Barbed and tanged points are conventional indicators of Bronze Age activity, probably hunting, and there are of course many scenarios in which a later arrow may have been discarded at Camas Daraich. (A flippant aside might note the presence of a single barbed and tanged point in the topsoil on other early Mesolithic sites in the area such as Kinloch and Sand: Wickham-Jones 1990; Finlayson *et al* 1999.) So far, the picture remains cloudy: there were hints of later activity in the lithic material that was recovered but archaeologists are increasingly aware that for much of prehistory (and perhaps for different types of site) the traditional type fossils may be lacking. It is clearly time to reconsider the means by which stone tools are assigned to particular periods, the previous overemphasis on artefact type should perhaps give way to a more rounded consideration of the ways in which stone tools were made, used and deposited on individual sites.

Any lithic with secondary working is open to consideration by archaeologists today as a type fossil. As such, the larger retouched pieces at Camas Daraich are not generally out of place in the Mesolithic. Scrapers dominate and most, especially the end scrapers, are of types that are commonly found on other Mesolithic sites such as Kinloch. Conversely, some types, such as the angled scrapers that were identified at Kinloch (Wickham-Jones & McCartan 1990), were not present at Camas Daraich. Edge-retouched pieces are also commonly found on Mesolithic sites. It has to be said, however, that many of these retouched pieces are very general types that might well fit in to assemblages of other periods. There are many factors behind the presence of particular tools on any site, especially when the constraints of raw material, site function and local preferences and skills are taken into account. In this way, the bifacial point is the only traditionally non-Mesolithic tool present and this was, conveniently, found in the spoil from the track on the surface of the raised beach well above the focus of Mesolithic finds.

One other piece is more different to conventional prehistoric lithics, of whatever period, in Scotland. This is the large scraper, cat:1851. It is the size of this piece, not its type, that makes it stand out. Smaller scrapers like this are common throughout prehistory, but this piece is much bigger than usual. It is not made of a common material either, though there are a few other pieces of this material from Camas Daraich. This was a raw material that clearly lent itself to the production of large tools in a way that other local materials did not, but it is hard to be certain whether this tool should have some additional significance. Large scrapers such as this are known on other Mesolithic sites [for example at Bolsay Farm, Islay (Mithen 2000, 71) and at Forvie, Aberdeenshire (pers comm, G Warren)], but it is hard to draw much significance from isolated artefacts. It is unlikely that the knappers at these sites were merely experimenting with big tools because they had the opportunity, but the lack of large tools generally throughout the Mesolithic is notable.

5.8 Summary

The lithic assemblage from Camas Daraich includes evidence for both the manufacture and use of a range of stone tools. The knappers used a range of raw materials, including both very local stone and stone from slightly further afield. Most of the materials – chalcedonic silicas, Rùm bloodstone and quartz – were brought to site as nodules ready for working, but baked mudstone seems to have come to Camas Daraich mainly as ready-made tools. Knapping techniques included both platform and bipolar knapping.

Though much of the assemblage would be at home on any earlier prehistoric site, there are many pieces indicative of a Mesolithic date. These include a range of narrow-blade microliths and the blades.