Camas Daraich: A Mesolithic site at the Point of Sleat, Skye

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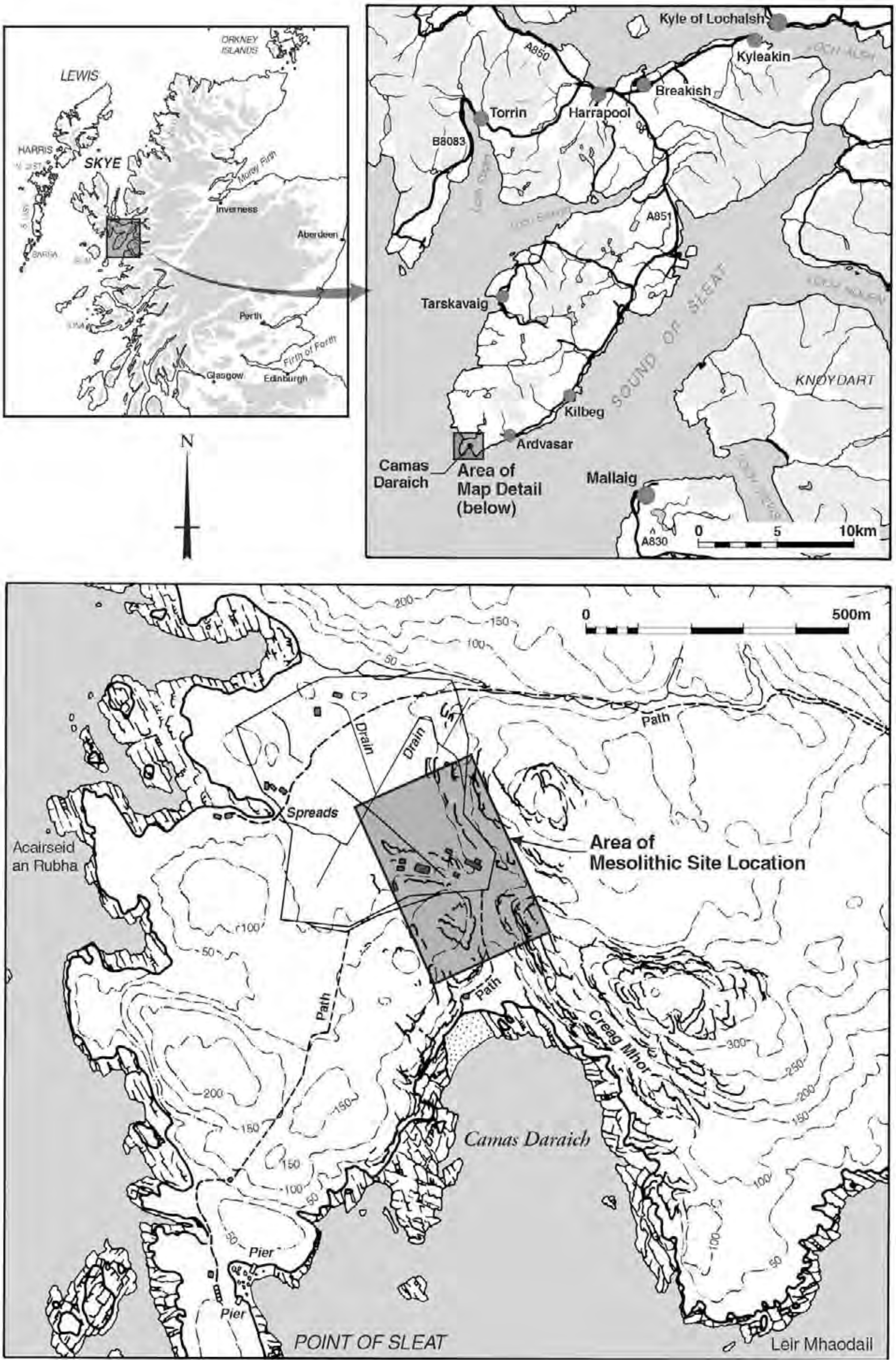
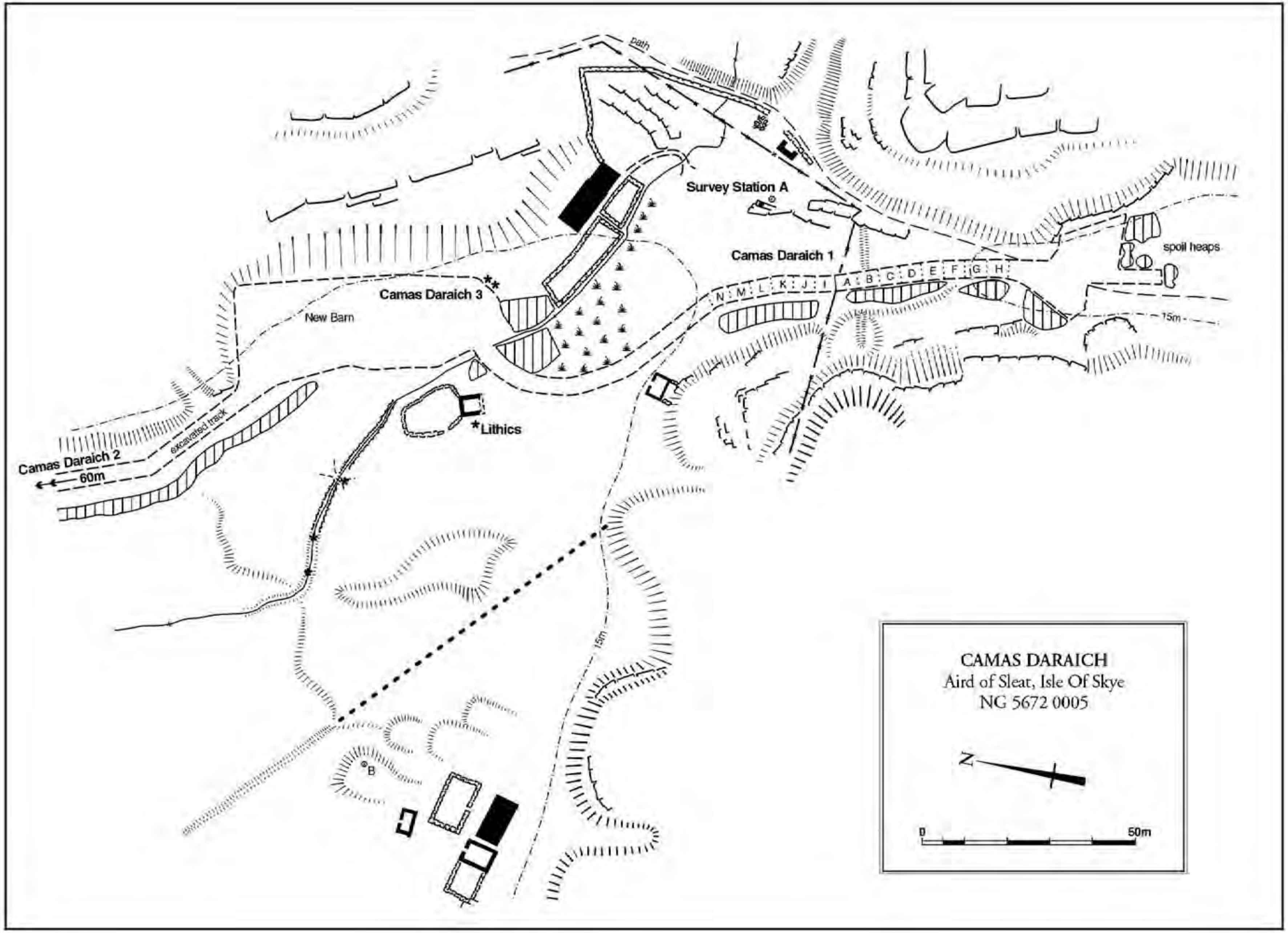
1 Summary

The archaeological site of Camas Daraich (on the peninsula of the Point of Sleat, in south-west Skye) was revealed in November 1999 when stone tools were discovered in the upcast from a newly bulldozed track. Excavation took place in May 2000, directed by the authors and under the auspices of Historic Scotland, the Centre for Field Archaeology and the Department of Archaeology, University of Edinburgh. The excavations were small-scale and brief, but they demonstrated the survival of stratified features (scoops and a possible hearth) as well as an assemblage of nearly 5000 flaked lithics, comprising both tools and debris. There was no organic preservation, with the exception of burnt hazelnut shell. The composition of the lithic assemblage suggested that the excavated site was Mesolithic and this was confirmed by the radiocarbon determinations, which place it securely in the mid 7th millennium BC. Surface material suggested that there was evidence for more recent prehistoric (stone-tool-using) activity in the vicinity.

Although the archaeological work at Camas Daraich was limited, the site is interesting for several reasons. First, it is one of a growing number of sites in the area with early dates for human settlement (until the mid 1980s dated Mesolithic evidence was lacking in the north of Scotland). Second, the lithic raw materials in use at Camas Daraich connect it firmly to a wider network of sites and provide conclusive evidence for human mobility. Third, further Mesolithic material is likely to survive at Camas Daraich so that the future well-being of the site is an important issue. Fourth, though there was no organic preservation, used pumice was recovered and this is rare on Mesolithic sites. Fifth, the lithics include both narrow-blade tools and conventionally broader/larger pieces and the relationship between these two traditions is still poorly understood in Scottish archaeology. Camas Daraich suggests that they may not be as clearly separated as previously thought.



Illus 1 Camas Daraich: location map



Illus 2   Camas Daraich: general plan of the croft showing main areas of lithic collection

2 Introduction *by C R Wickham-Jones and K Hardy*

The archaeological site at Camas Daraich (NGR: NG 567 000, Illus 1) was initially revealed when stone tools were discovered in the upcast from a newly bulldozed track across the croft of the same name (Illus 2 & 3). It was found in November 1999 by local archaeologist Steven Birch who was quickly joined in preliminary work by fellow Skye archaeologists George Kozikowski and Martin Wildgoose (Wildgoose 1999). Repeated visits in the spring of 2000 yielded a general spread of lithic artefacts across a wide area and these included several small, narrow-blade microliths. The presence of microliths suggested that the site was Mesolithic and so the authors, currently working on a Mesolithic project around the Inner Sound and the Sound of Raasay to the NE of Skye (Hardy & Wickham-Jones 2002, 2003), were contacted. Surface collection also suggested that there was stratified material preserved, though the site remained under threat from new developments on the croft. This made excavation both worthwhile and desirable; the present work took place under the auspices of Historic Scotland, the Centre for Field Archaeology and the Department of Archaeology, University of Edinburgh.

Camas Daraich does not comprise one discrete spread of lithic material, rather lithics may be collected wherever disturbance has taken place over the general area of the croft (Illus 2). Prior to excavation, archaeological fieldwork comprised mainly the stabilization of the area of the new track together with the collection of lithics where they were visible. This identified several archaeological 'hot spots' (Illus 2), though it was not possible to investigate all of these by excavation. Detailed excavation was only carried out in one small area across the track, trench 1 (Illus 3; Section 4.2.1), and in the six days over which work could take place only four squares, of 1 m^2 each, were investigated. Work was terminated abruptly, so that the bottom of the cultural deposits was not always reached.

Finds from the archaeological work comprise almost entirely flaked stone tools (lithics, Table 1) and associated debris (4913 pieces in total, see

Illus 3 Camas Daraich: photograph of the croft from the SE, showing the bulldozed track and trench 1. The 'cliffs' to either side of the raised beach may be seen in the bottom left and in the background lies the peat-filled embayment with the sea in the distance

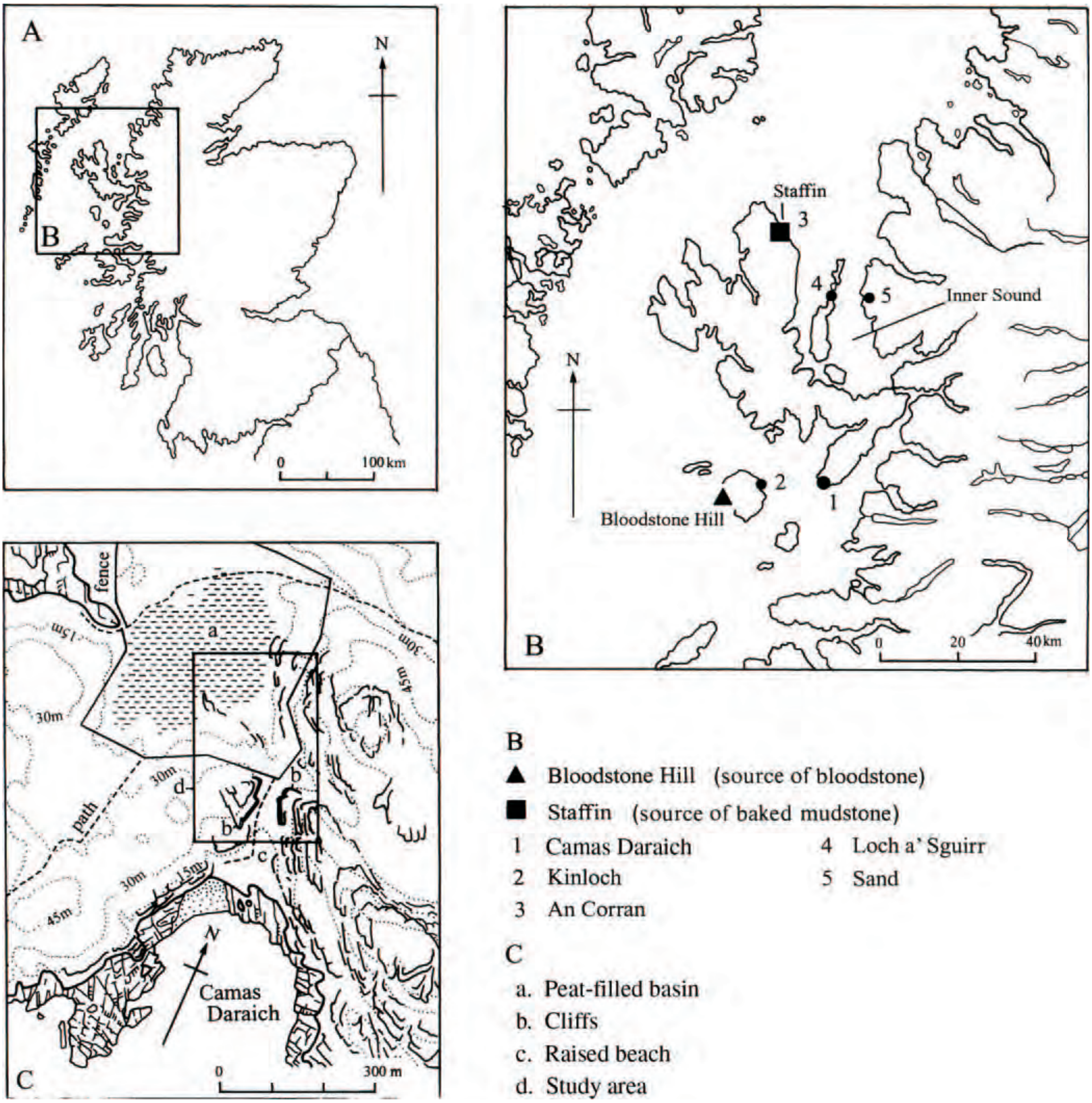
Section 5 and Section 18 – Catalogue of Flaked Lithic Material). There is a small coarse stone assemblage (Section 7), including minute burnt bone fragments (from a burnt area within the upcast of the track), a few pieces of pumice, one of which has been modified (Section 8), and several recent items such as fragments of glazed pottery (Section 9). There are few lithics from areas other than the main area of the site (the track across CD1, Table 2), where the general nature of the assemblage is supported by the radiocarbon determinations in providing evidence that the main activity dates from the mid 7th millennium cal BC. This places Camas Daraich in the early Mesolithic, towards the beginning of the human settlement of Scotland. The Mesolithic of Scotland is still poorly understood (Wickham-Jones 1994; Finlay *et al* 2004) and, despite the disturbed nature of the site and brief period of archaeological work, Camas Daraich is interesting because it falls within a geographical area of on-going Mesolithic research. Camas Daraich provides an important link between the island of Rùm, where Mesolithic settlement was excavated in the 1980s (Wickham-Jones 1990), and the Inner Sound to the north (Illus 4), currently the focus of the Scotland's First Settlers project (Hardy & Wickham-Jones 2002, 2003; http://moray.ac.uk/ccs/settlers.htm). In the north of this area, work at Staffin in the early 1990s yielded the midden site of An Corran (Hardy *et al* in prep) which has Mesolithic material at the base.

The Project Archive will be deposited in due course with the NMRS in Edinburgh. The location of the finds will be determined by Historic Scotland's Finds Disposal Panel (Museum of the Isles, Skye, 2003).

3 Location and pre-excavation information
by C R Wickham-Jones and K Hardy

3.1 Location

The croft of Camas Daraich occupies the eastern slopes of a shallow basin on the peninsula of the Point of Sleat, in south-west Skye (Illus 4 & 5). The sea is never far away: a small, sandy bay lies some 500 m to the south; while a rocky coastline bounds the west side of the peninsula. The site itself lies on the slope, just below the summit of the 20 m raised beach (Illus 6), facing north into a peat-filled basin that has at various times been part of a small, sheltered marine bay and a freshwater lagoon



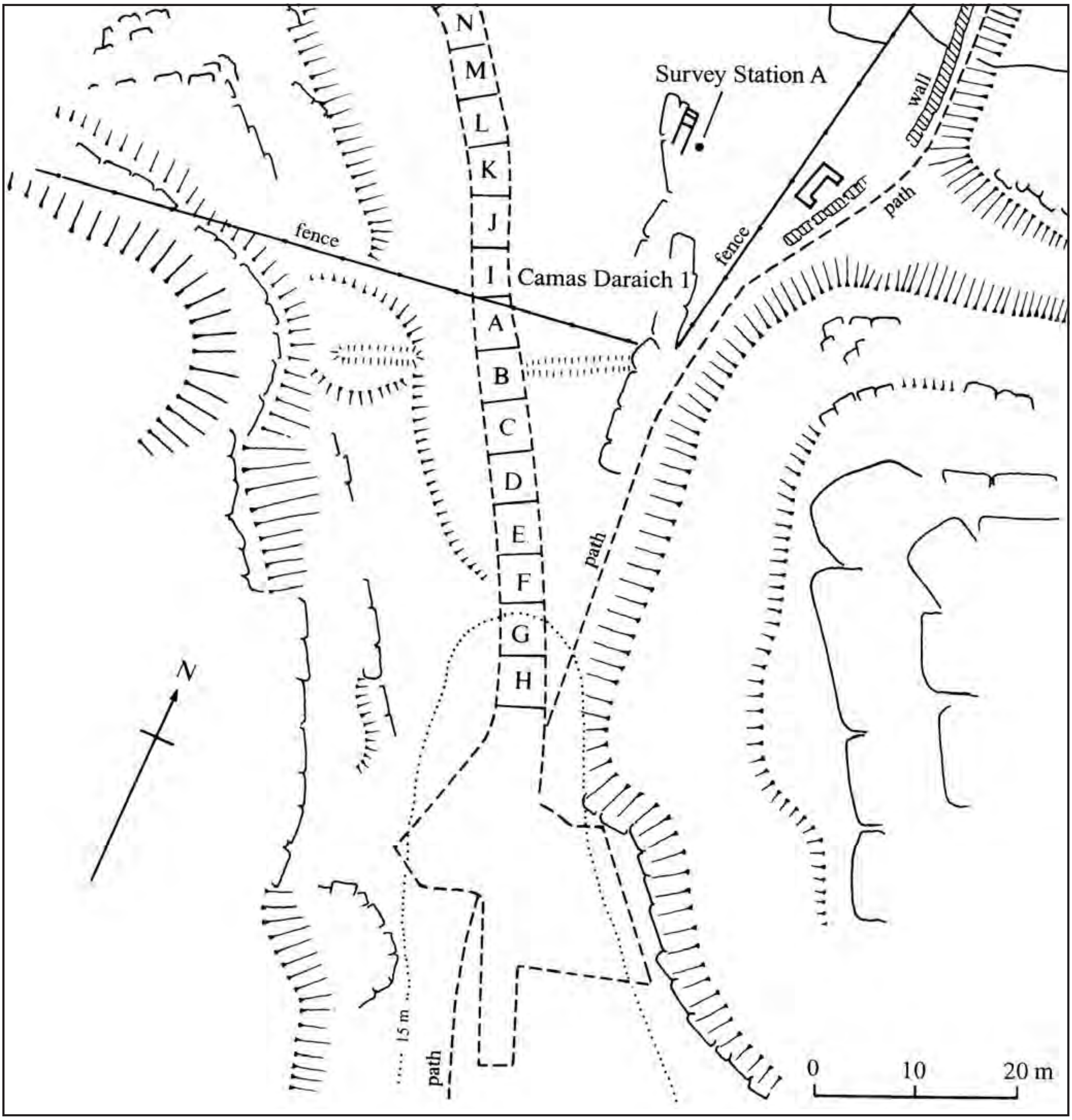
Illus 4 Camas Daraich: topographical location map showing the raised beaches, cliff lines and the peat-filled basin

Illus 5 Camas Daraich: general photograph of the site from the SE, showing the grass-covered raised beach with the track running across it and excavation in progress on trench 1

Illus 6 Camas Daraich: view across and up the raised beach from the N

Illus 7 Camas Daraich: view of the surface of the raised beach at its crest above the site, from the S

Illus 8 Camas Daraich: barrow pit cut into the raised beach above the site



Illus 9 Camas Daraich: division of the track into sections for lithic collection

(Section 10.2 – Geomorphology). The original crest of the raised beach lies uphill to the south (Illus 7 & 8), beyond which the land drops to the present shoreline. To the east and west of the site rise cliff lines that bound the raised beach, these provide considerable shelter for the site. To the north the land drops down across a series of younger raised beaches towards the peaty basin (Illus 4).

To the south and west the peninsula looks over the Sound of Sleat to the islands of Eigg and Rùm (Illus 4). To the east lies the Mainland of Scotland. To the north lies the rest of the island of Skye, easily accessible by boat or overland.

3.2 Pre-excavation information

Prior to excavation, Camas Daraich was visited on three occasions in November 1999. The newly bulldozed track was divided into sections of five metres each (CD1A–N; Illus 9) and lithic artefacts were collected by section. Visible features were recorded and lithics collected from three other exposures on the croft (CD2–4, Illus 2). In January 2000 the area of the track was covered with heavy duty Visqueen plastic in order to prevent further erosion, and repeated visits were made in the spring of 2000 in order to monitor the condition of the site.

Visible features included at least two patches of black material, apparently including charcoal. These both occurred along the length of the track. They were visible not only in the track upcast, but also along the central reservation and they suggested that *in-situ* archaeological material might survive.

The pre-excavation work resulted in the collection of 2908 pieces of flaked stone, including many very small pieces. Full analysis of these is provided with the rest of the stone tools from the excavation (Section 5). In brief, the presence of several narrow-blade microliths in this assemblage suggested that the site was Mesolithic. Further interest was provided by the use of various raw materials, including bloodstone from the island of Rùm to the south-west and baked mudstone from the Staffin area *c* 70 km to the north (Illus 4). These suggested a broad Mesolithic context within which the site might be placed. At the time two of the artefacts were tentatively identified as tanged points (a rare and potentially early Mesolithic-type fossil). These were re-classified during the post-excavation analysis, but initially the location of the site, on a late glacial raised beach was also of note. Both observations hinted that Camas Daraich might relate to a very early period of settlement indeed.

It was on these grounds, combined with the threat of further development to the track across the site, that the decision was taken to carry out a preliminary excavation, which was funded by Historic Scotland with support from the Centre for Field Archaeology and Edinburgh University.

4 Excavation *by C R Wickham-Jones and K Hardy*

4.1 Methods

Excavation took place in May 2000 over a period of six days. Work had originally been scheduled for a longer period, but was terminated before some of the deposits could be fully recorded.

A 6 × 2 m trench (trench 1, also known as Tr1) was laid out at CD1 across the track at the point where a patch of darker material had been noted during the initial work (Illus 10 & 11). Trench 1 ran to either side of the ground that had been disturbed by the bulldozing of the track and it was divided into metre squares (B1, B2, C1, C2, etc, Illus 12). These squares were sub-divided into quadrants (NE, SE, NW, SW). Excavation proceeded by context with the exception that contexts were divided into spits where it was not possible to be sure of the division between one context and another. Finds were recorded by quadrant. All residues were sieved through a 3 mm mesh and both artefactual material and carbonized material were removed on site. Individual samples were taken for specialist examination for plant remains (Section 10.3; Section 10.4). All sections were drawn and plans made of significant contexts as well as at the termination of excavation.

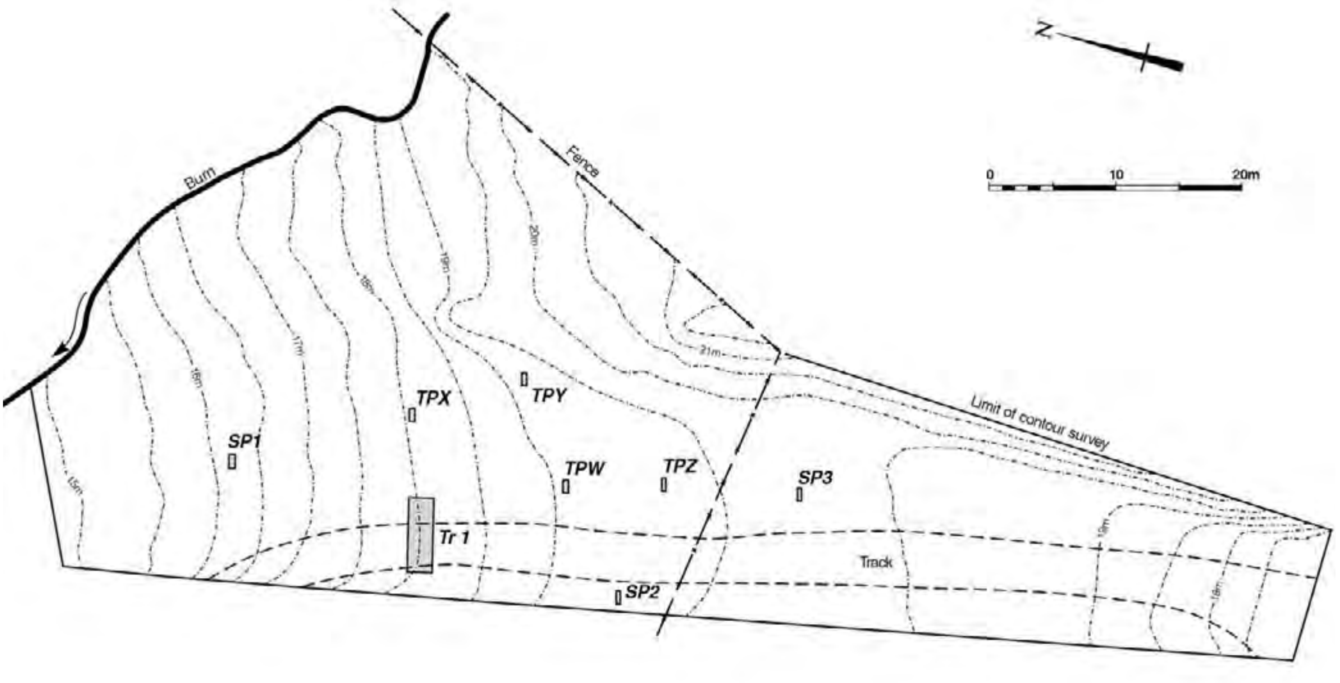
In addition, a series of four 1 m × 0.5 m **test pits** were dug on the grassy slope to the east of the track (Illus 10, 21, 22 & 23). These were numbered in reverse alphabetical order (TPZ, TPY, etc). They were excavated by context and contexts numbered by test pit (Z01, Z02, etc). Finds were recorded within their contexts in each test pit. All residues were sieved and significant material removed as for trench 1. Some sections were drawn but others were obscured when the site was unexpectedly backfilled by a local resident. No significant features requiring planning were uncovered.

Excavation also included the digging of three **soil pits** to characterize the nature of the local soils and underlying beach material (Illus 10, 41, 42 & 43). The size of the soil pits varied according to individual conditions. Soil contexts were recorded, residues sieved and artefacts removed. Sections and plans were drawn.

4.2 Results

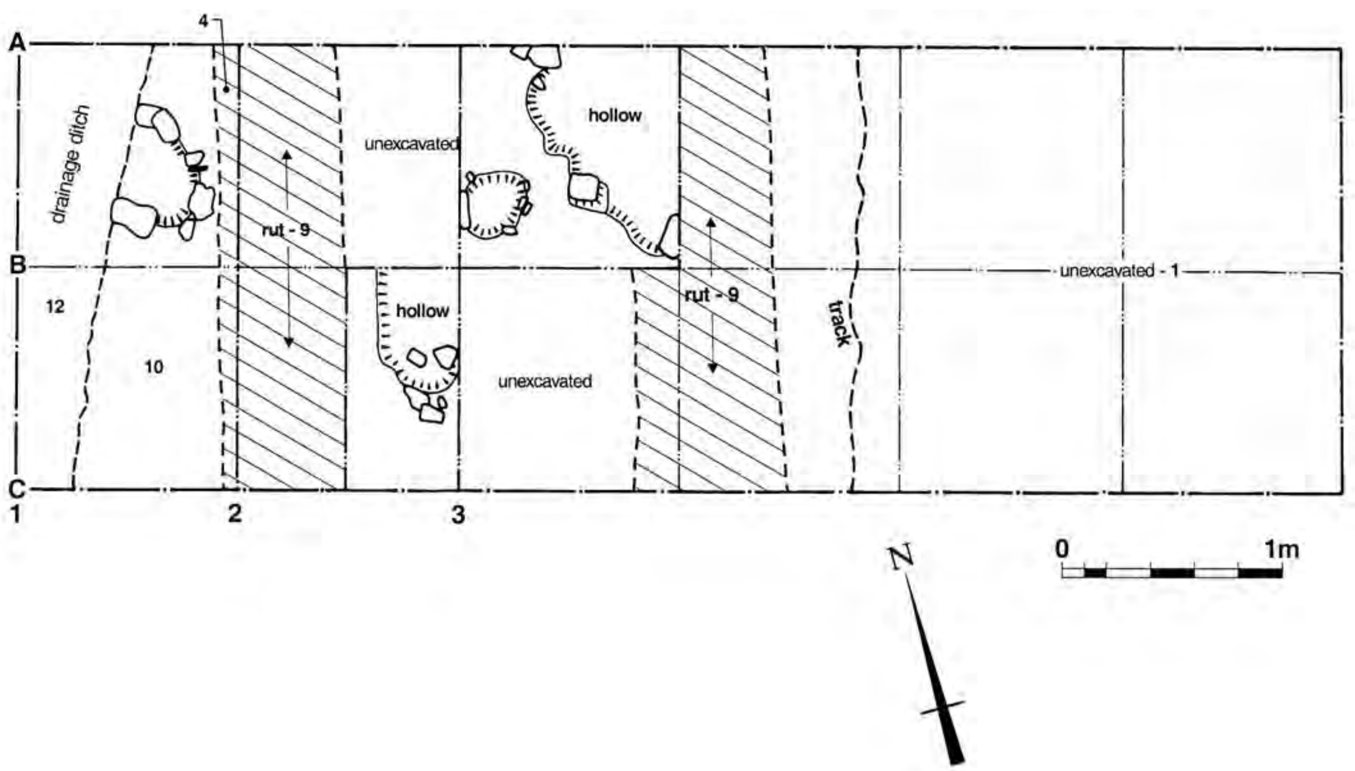
4.2.1 Trench 1

Not surprisingly, trench 1 was very disturbed by the new track (contexts 04, 06, 07, 09; Section 17 – List of Contexts) which cut through the archaeological layers. Four squares were selected for excavation (B1, B3, C1, C2; Illus 12) and this revealed a series of ploughsoil contexts (contexts 01, 02, 03) some 400 mm deep. Below this a spit

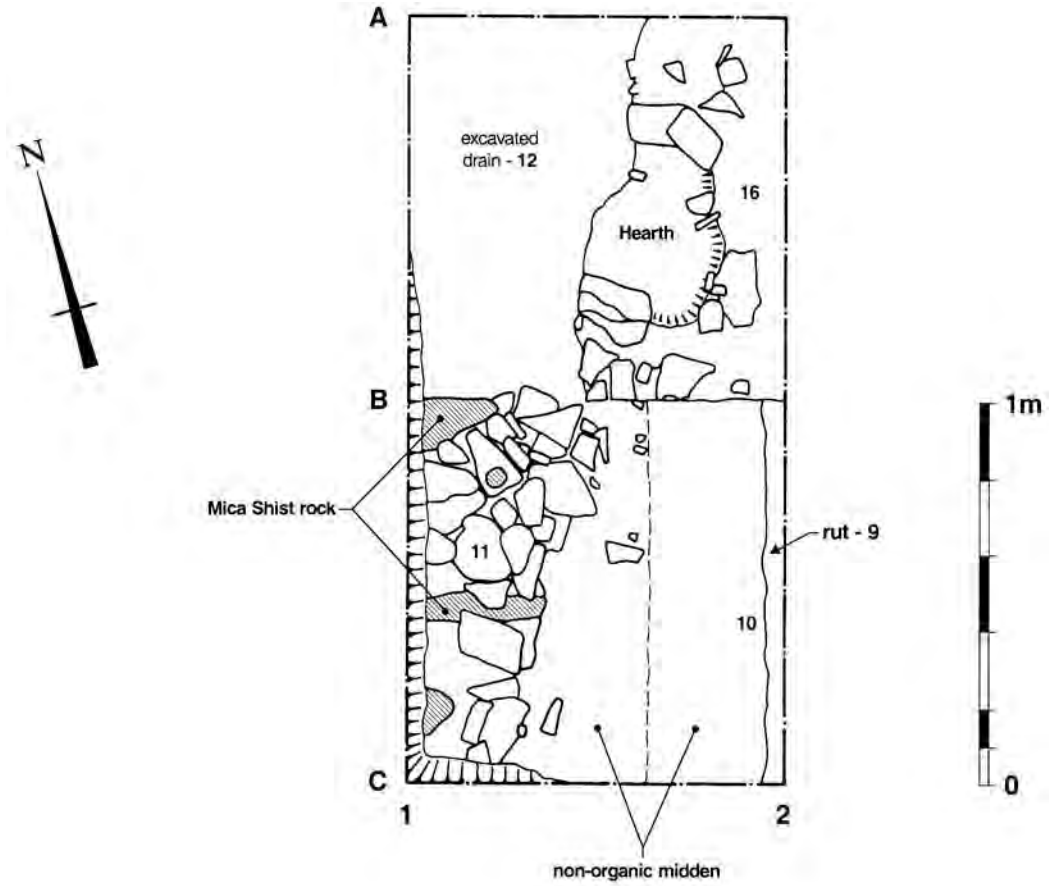


Illus 10 Camas Daraich: contour survey with position of main trench, test pits and soil pits

Illus 11 Camas Daraich: view of the track from the N showing the location of trench 1



Illus 12 Camas Daraich: overall plan of trench 1



Illus 13 Camas Daraich: trench 1, squares B1 & C1

Illus 14 Camas Daraich: trench1, squares B1 & C1 during excavation from the E

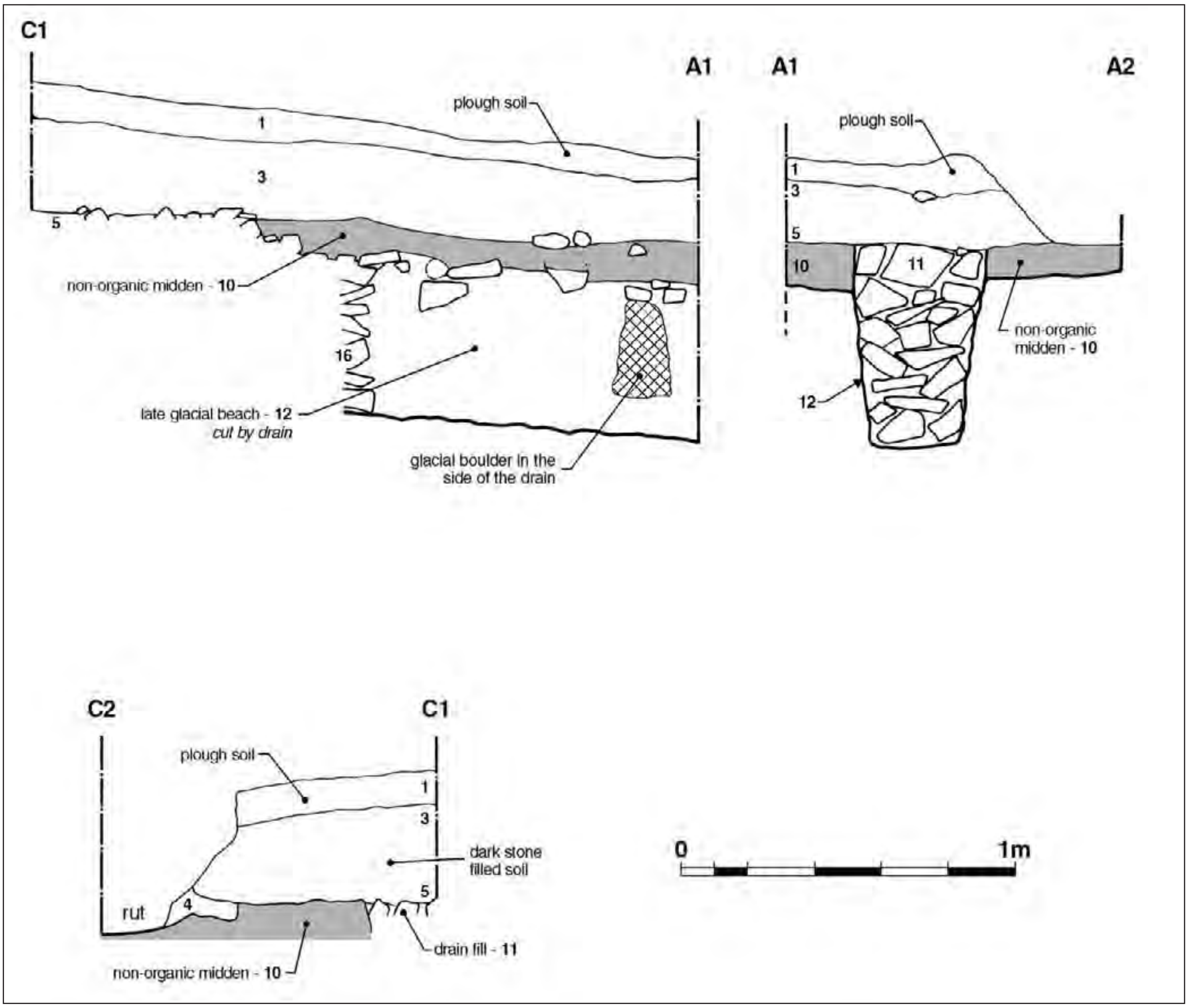
Illus 15 Camas Daraich: trench 1, square B1 hearth area, at abandonment of excavation, from the E

(context 05, 140 mm deep) was excavated to define clearly a black greasy layer (context 08 in B3 & C2; context 10 in B1 & C1). The black greasy material appeared to be a non-organic midden, which has been interpreted as a cultural deposit. It is likely that contexts 08 and 10 are the same and originally covered this area, but they were effectively separated by the rut of the track as it ran across B2 and C2. Both contexts contained flaked lithic material and charcoal as well as several stones. In square B1, the stones appeared to outline part of a hearth (Illus 13, 14 & 15). This was not given a context number as it was discovered just before excavation was terminated; however, it was planned (Illus 13). In square B1, context 10 was 187 mm deep (Illus 16) and, in square B3, context 08 was 170 mm deep; in B3 it appeared to fill a shallow scoop into the surface of the raised beach (Illus 17, 18 & 19). Where they were removed to the bottom, contexts 08 and 10 both lay directly on the surface of the raised beach (context 16). A second, smaller scoop lay in square C2 (Illus 17). In squares B1 and C1, a deep drainage ditch (context 12, filled with context 11) had been dug through context 10 and destroyed it in the western half of each trench (Illus 16 & 20). This ditch had cut through the western half of the hearth.

The halt to excavation work meant that the scoops and hearth could not be properly recorded or given context numbers, though they were hastily planned as part of the clearing-up exercise. The cultural material remains unexcavated in squares C1, B2 and C3, and there was not time to carry out excavation in squares B4–6 or C4–6.

4.2.2 Test pits (Illus 10)

TPZ was dug at the top of the raised beach (Illus 21). The plough soil (contexts Z01, Z02) gave way at a depth of 100 mm to a thin black greasy layer (Z03), 10 mm thick, which lay directly on top of the raised beach (Z04). Both the ploughsoil and Z03 contained a considerable amount of flaked lithic material (Table 2; Table 15). **TPY** was dug to the east side of the raised beach up against a natural bedrock rise (Illus 22). The plough soil here (context Y01) lay straight on top of the raised beach (Y02). A small assemblage of lithics was recovered (Table 2; Table 15). **TPX** was dug lower down the raised beach to the east of trench 1 (Illus 23). Once again the ploughsoil (contexts X01, X02) gave way straight onto the raised beach with no sign of a black cultural layer. There were, however, many pieces of flaked stone (Table 2; Table 15). **TPW** was sited further up the raised beach and, though it contained several flaked lithics, work here was terminated before it could be determined whether or not the cultural deposit was present.



Illus 16 Camas Daraich: trench 1, squares B1 & C1: N, W and S section drawings at end of excavation

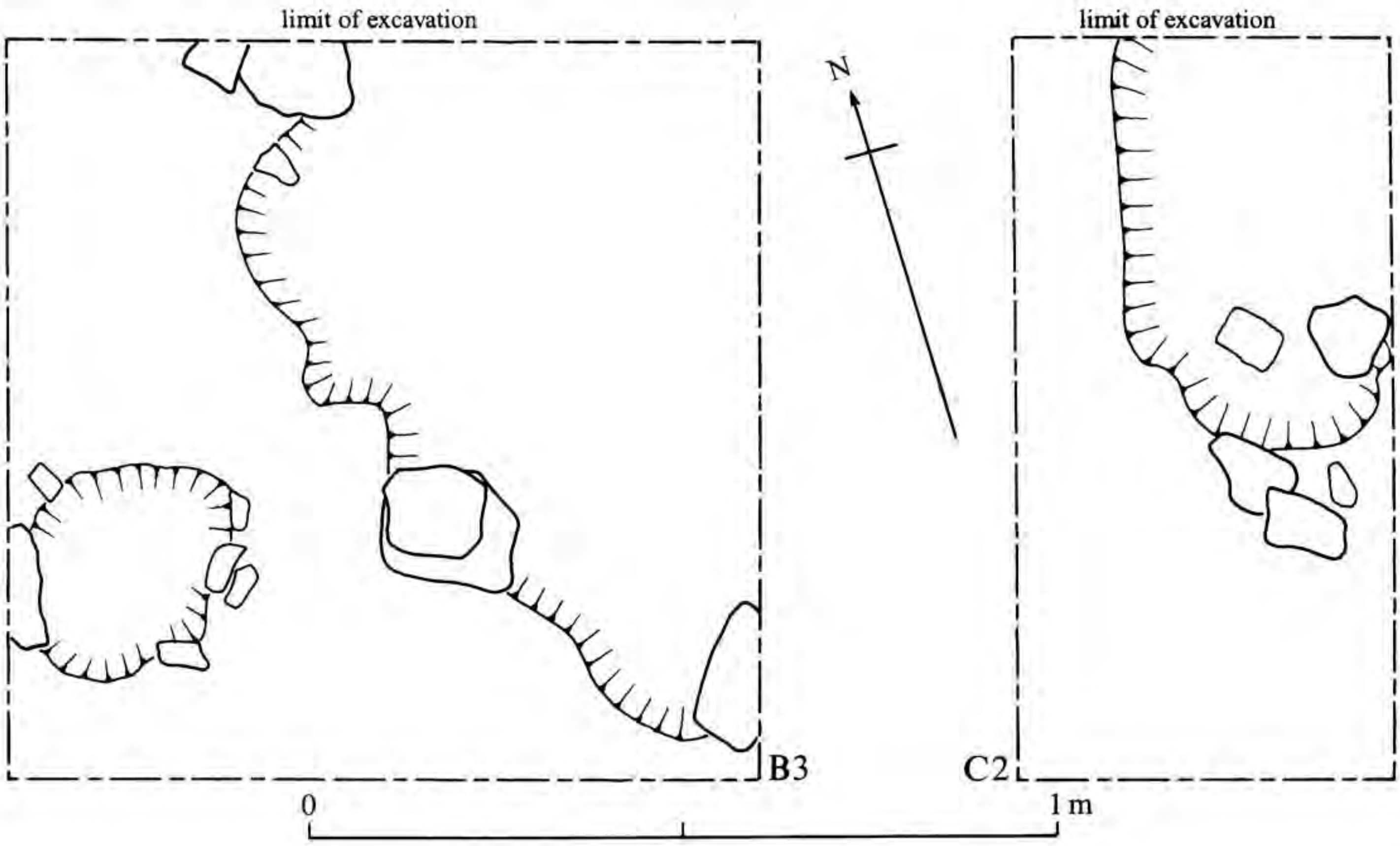
4.2.3 Soil pits (Illus 10)

The specialist results of the three soil pits (SP1–3) are presented below in the section on geology and soils (Section 10.1). **SP1** (Illus 41) was placed near a small bog about 20 m north of trench 1 and contained a ploughsoil (context SP1002) which lay below the turf (SP1001). The ploughsoil contained a few lithics and lay on top of a glacial till (SP1003). **SP2** (Illus 42) lay up-slope to the south of trench 1 towards the western cliff-line that overlooks the site. Below the sandy topsoil (context SP2001) lay the stones of a field drain (SP2002/2003) that had cut into the raised beach. There were a few lithics (Table 2; Table 15). **SP3** (Illus 43) was dug further to the south, outside the area of common grazing. Well-humified peat (context SP3001) lay directly on top of the beach deposits (SP3002). There were two pieces of flaked stone.

4.2.4 Other sites (Illus 2 & 24)

Site **CD2** lay along the access track into the croft, some 220 m to the north of CD1. It comprises an exposure of lithics along the path of the newly constructed track (Table 15). It also lies on the 20 m beach-line. No excavation was undertaken here, or at sites CD3 and CD4.

Site **CD3** likewise lies on the 20 m raised beach, and it is *c* 60 m north of CD1. Lithics were exposed at this spot by the bulldozing of an area in conjunction with work on the croft (Table 15). **CD4** comprises a stone-lined ditch, from three sections of which lithics were collected (Table 15). It lies *c* 100 m north of CD1, slightly below the 20 m raised beach. Nearby, to the southeast, one piece of flaked stone was found when a Christmas tree was planted out in the spring of 2000.



Illus 17 Camas Daraich: trench 1, square B3

Illus 18 Camas Daraich: trench 1, square B3 during excavation, from the S

Illus 19 Camas Daraich: trench 1, square B3 at end of excavation, after removal of context 08, from the S

Illus 20 Camas Daraich: trench 1, squares B1 & C1 during excavation of the drain (012), from the S

Illus 21 Camas Daraich: Test Pit Z

Illus 22 Camas Daraich: Test Pit Y

Illus 23 Camas Daraich: Test Pit X

Illus 24 Camas Daraich: general view of the croft from the S across the other areas of lithic collection (see Illus 2)

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

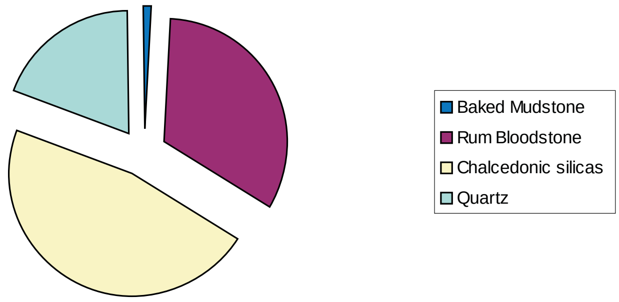
Note: The category of 'chalcedonic silica' includes a few pieces that appeared to be definitely flint or chert.

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

Illus 26 Camas Daraich: view of Bloodstone Hill, Rùm

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).

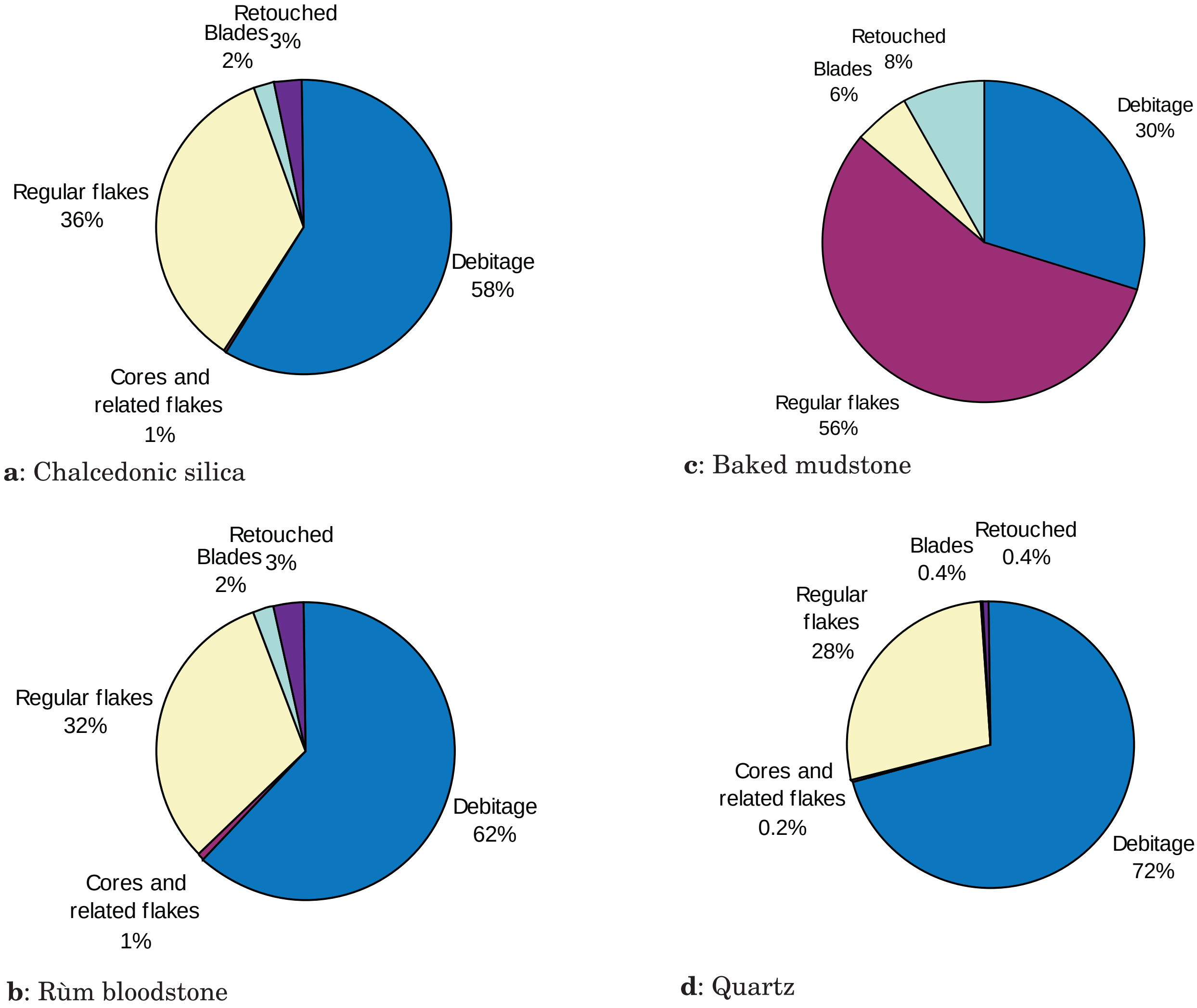
It is one thing to show the reach of raw materials, another to suggest the mechanism by which nodules reached Sleat. Surviving cortex suggests that most of the materials worked at Camas Daraich were derived from pebble nodules, and this is confirmed by the presence of a few pebbles in all main materials 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 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.

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

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.

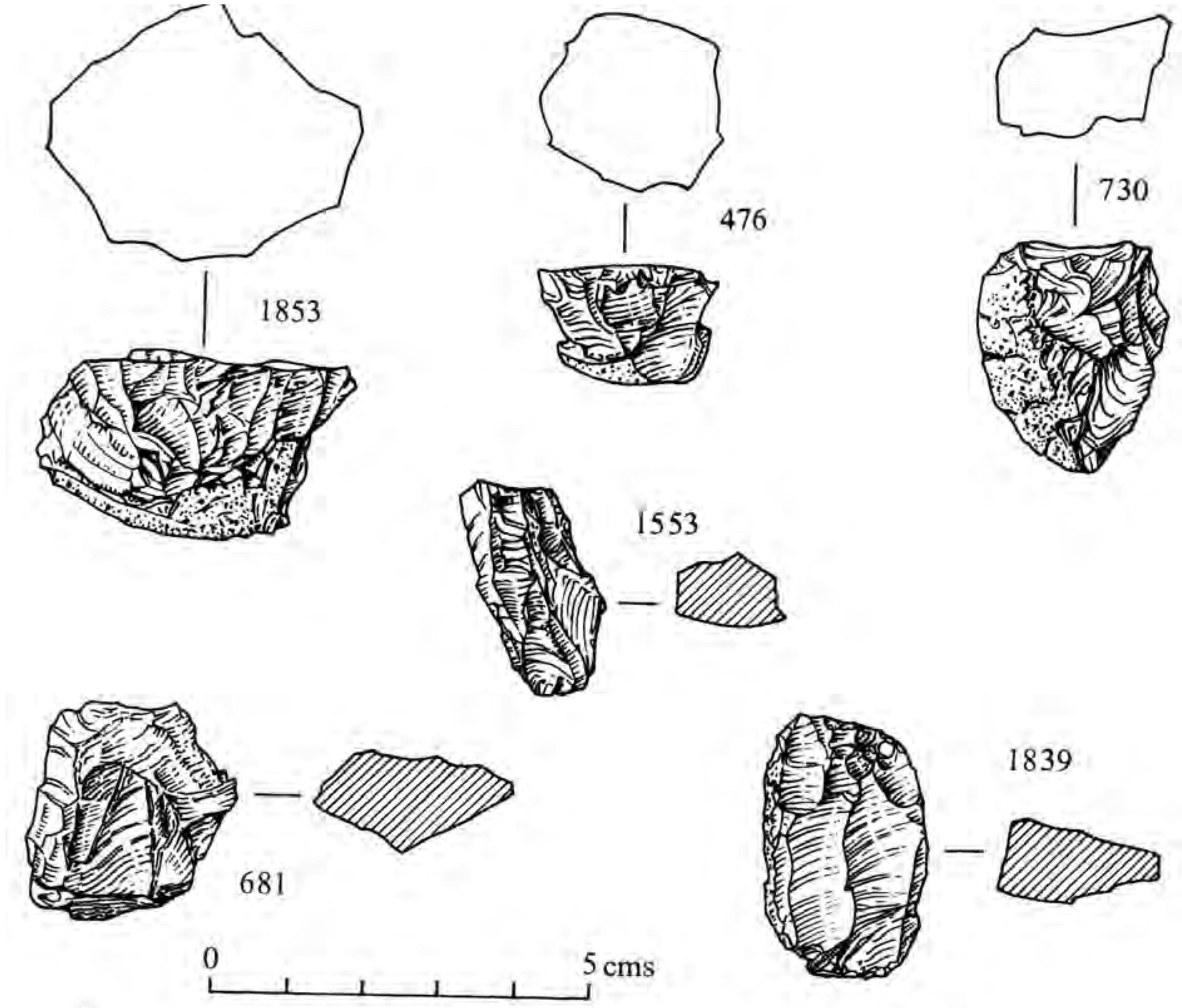
Half of the cores and related flakes come from the use of bipolar knapping, half from platform knapping. This is in contrast to the regular flakes, where only 7% showed signs of bipolar knapping. This may be partly due to the difficulties of recognizing bipolar knapping on many flakes, but it is also 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%

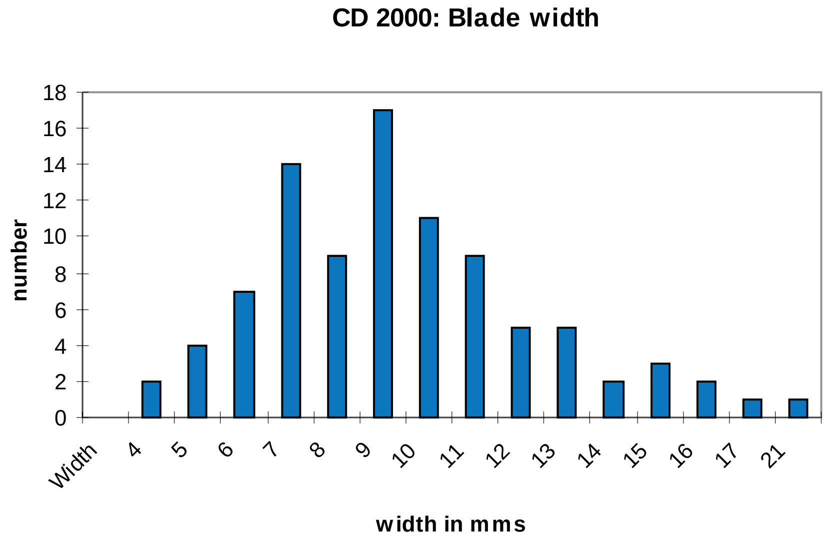
The knappers at Camas Daraich were obviously competent stone workers, but what were they making? It is now generally recognized that many of the products of knapping were quite suitable for use without modification (Knutsson 1988a; and see below Section 6.7; Section 6.7.1; Section 6.7.2). This applies 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.

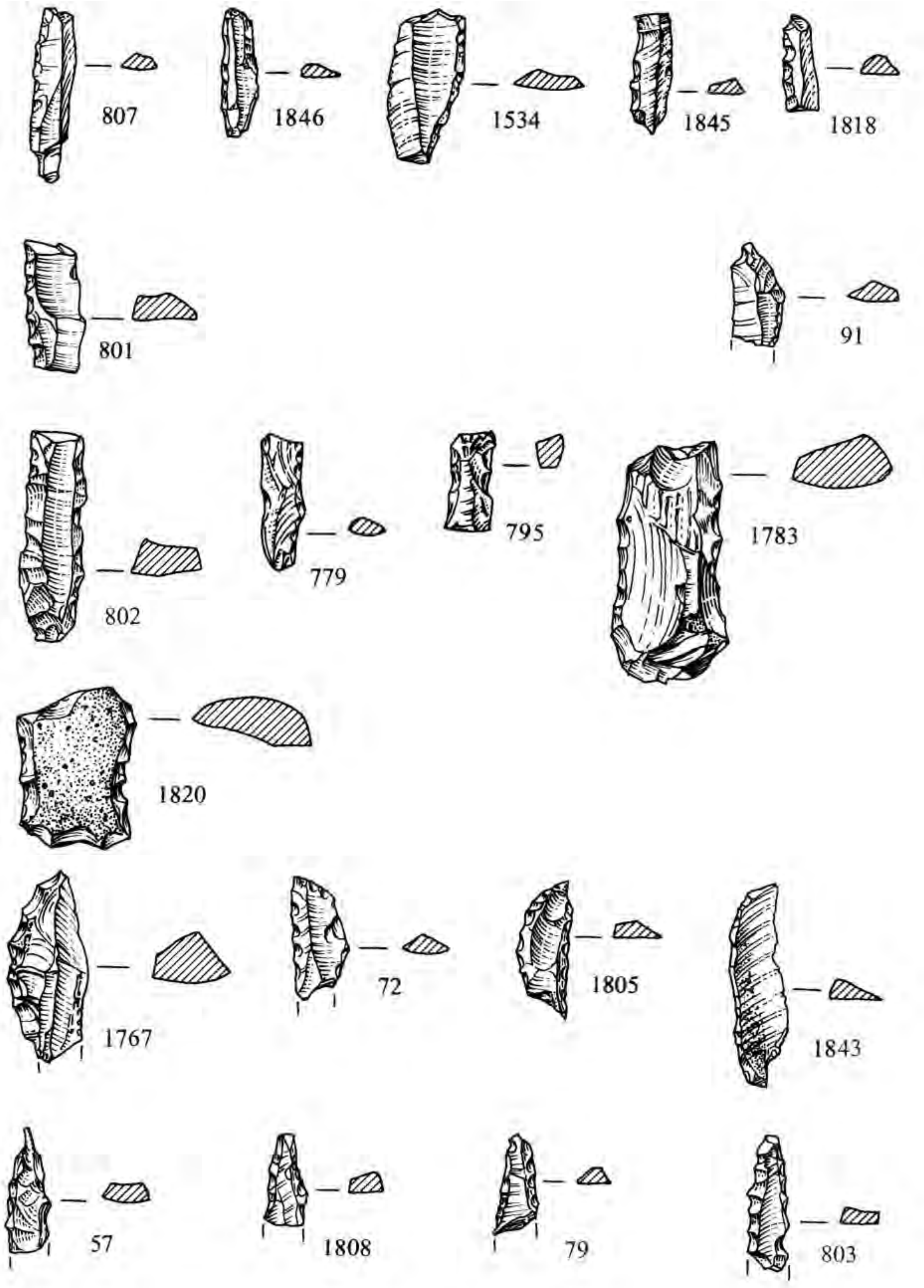
5.4 Secondary technology

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.

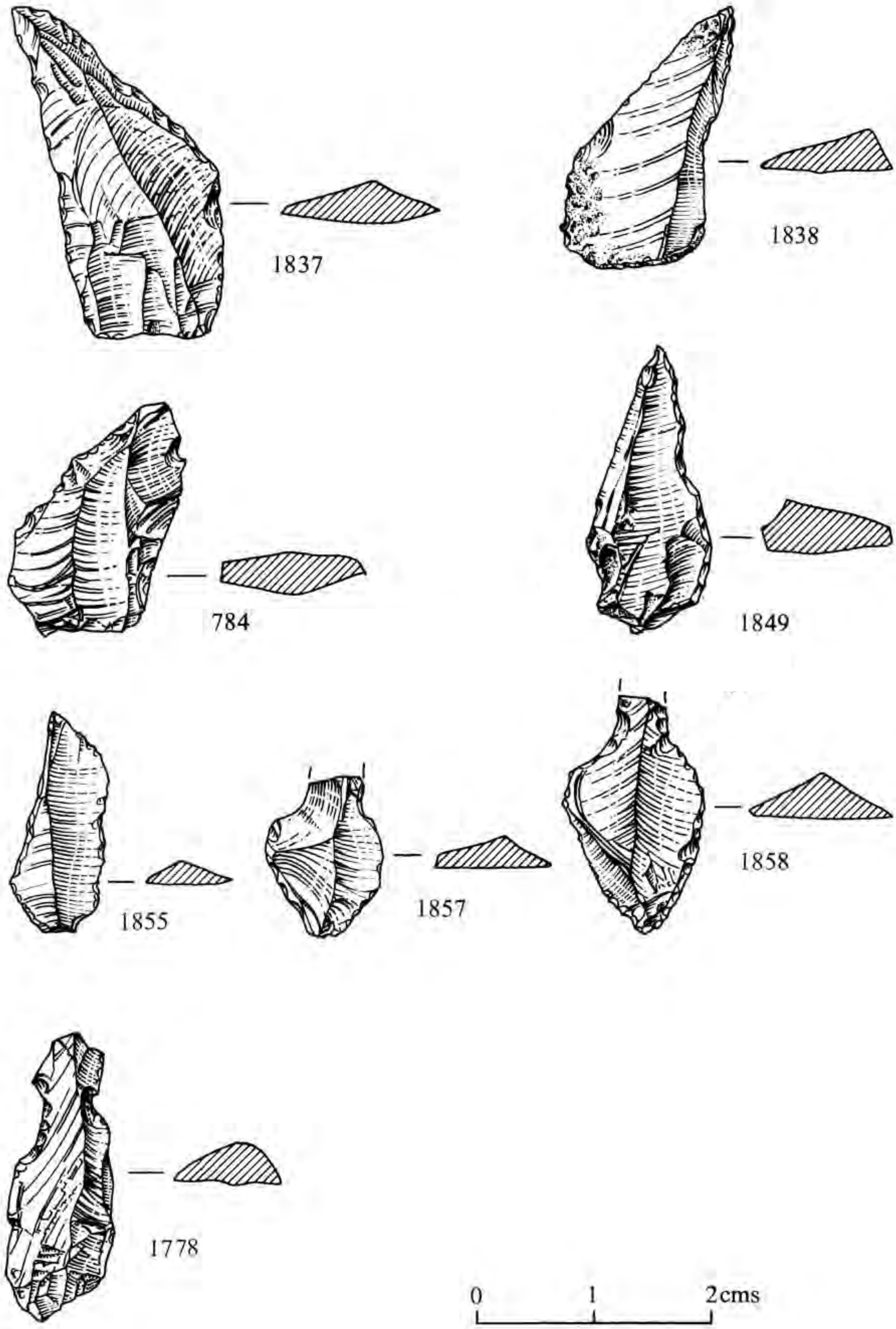
The most common type of microlith is the backed bladelet, of which there are 15 (Illus 32). One appears to have been made on a complete blade (cat:807), while most of the others are on middle segments (Table 12). It may be, of course, that some of these tools have snapped in use so that the lack of a 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.

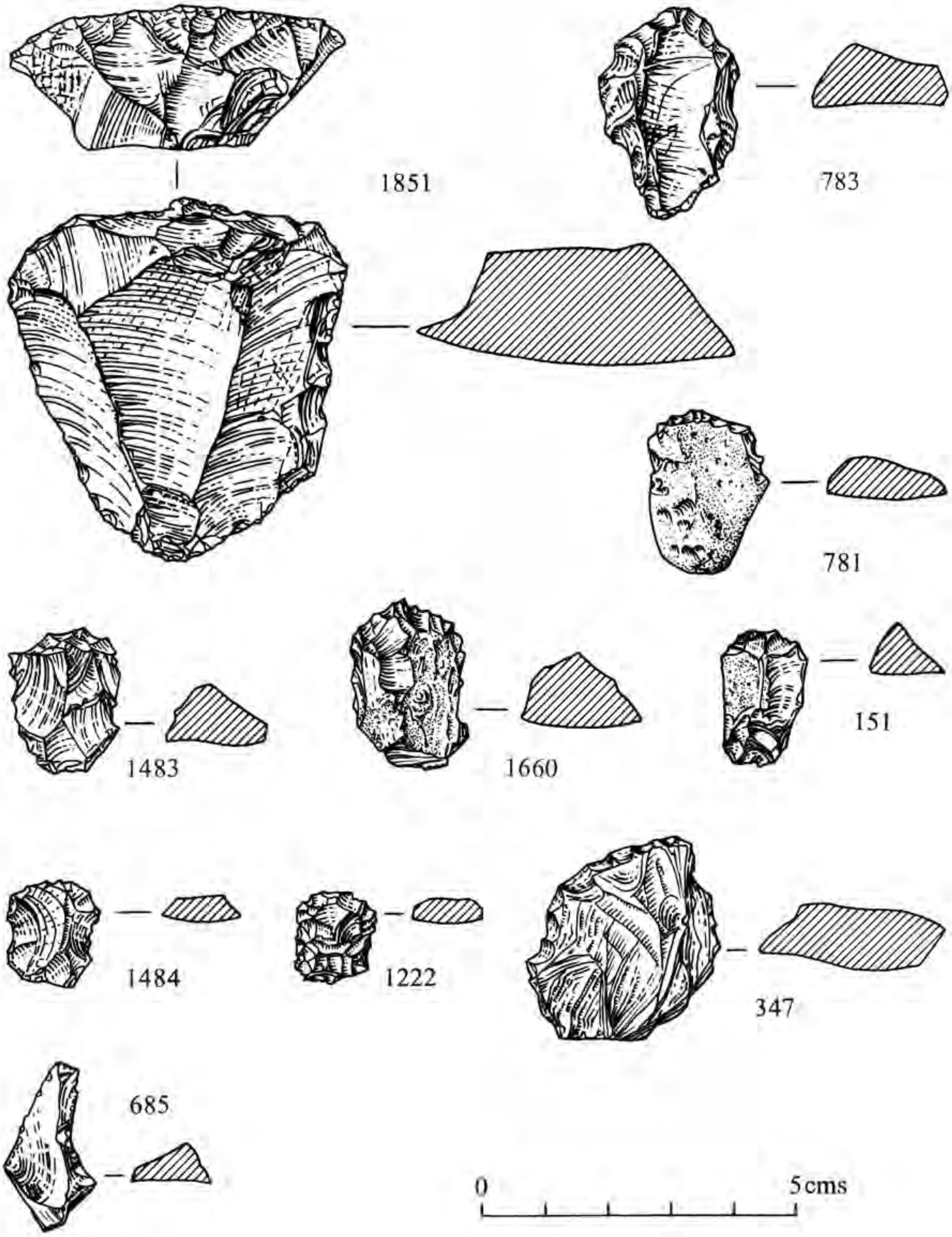
One of the end scrapers stands out from the rest and this is cat:1851 which is considerably larger than the rest (5 × 54 mm, Illus 34). It is made of an unusual siliceous material and is much larger than most flaked stone tools of the Scottish Mesolithic. There is nothing to distinguish the context of 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.

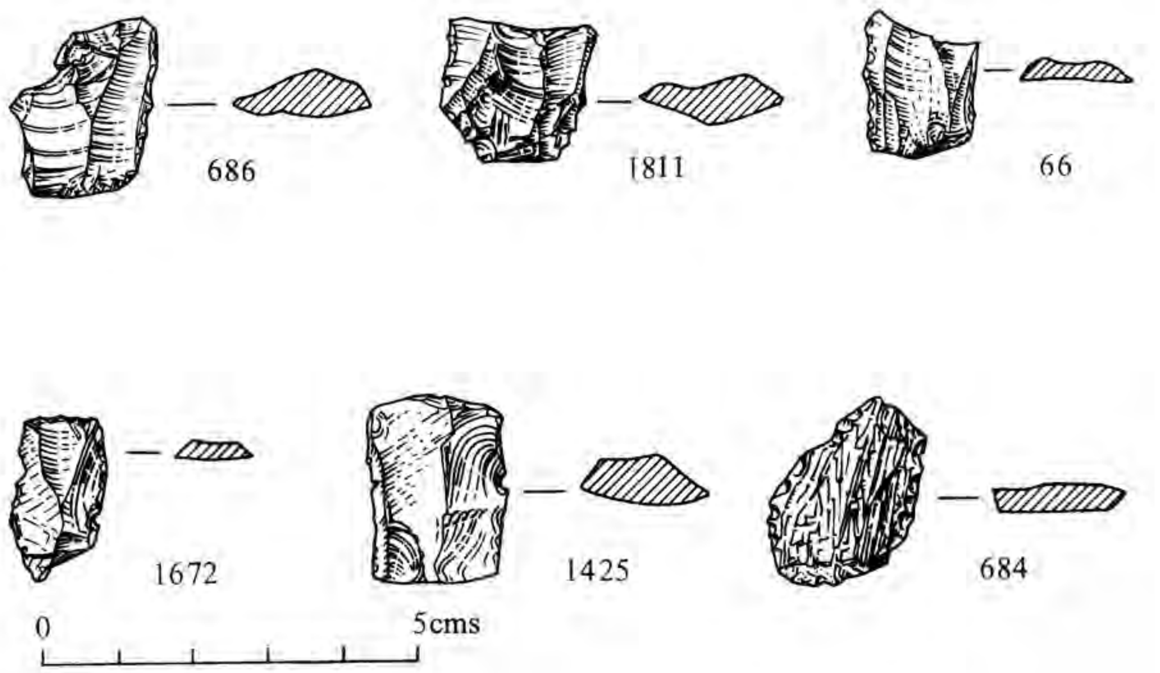


Illus 34 The lithic assemblage: scrapers (NB: numbers refer to the catalogue numbers). Chalcedonic silica: 151, 685, 781, 1222, 1483, 1484, 1851; Bloodstone: 1660; Baked mudstone: 783; Quartz: 347

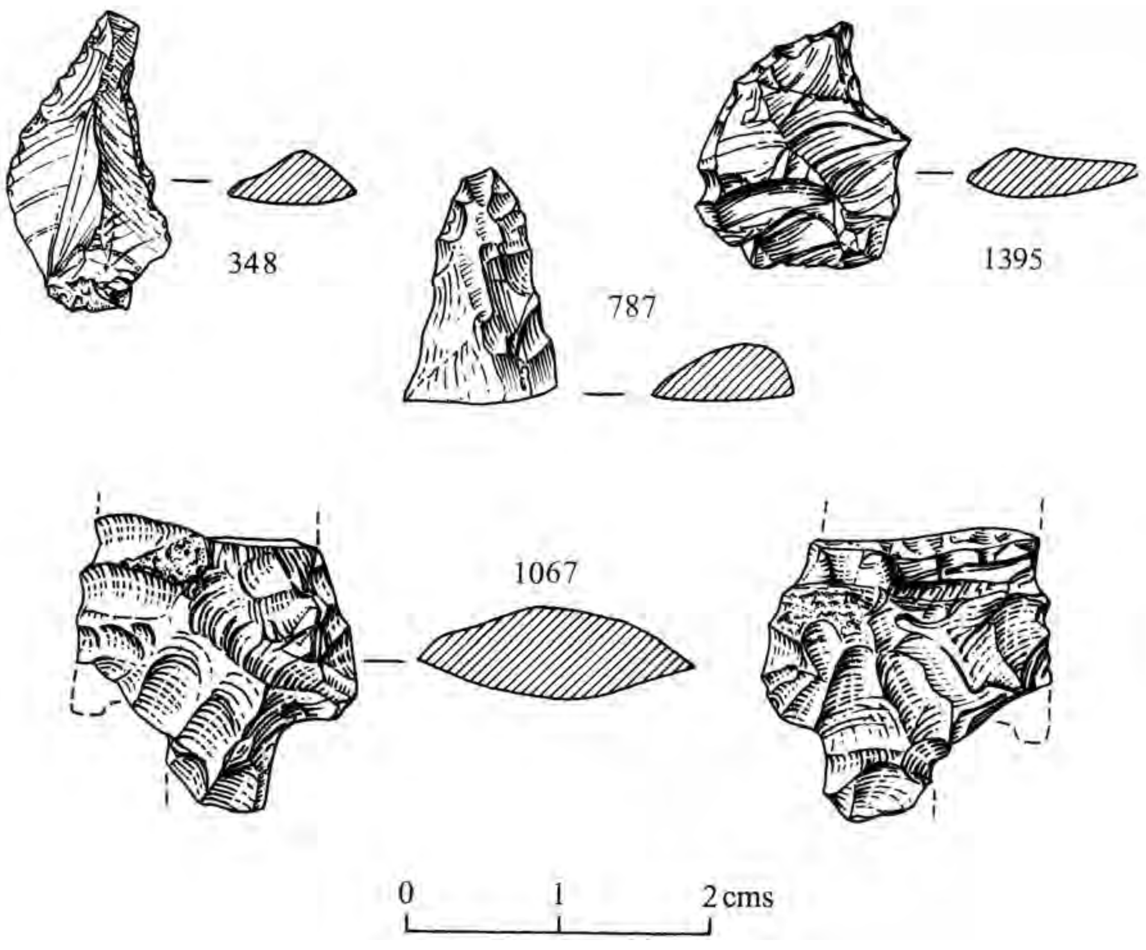
5.5 Nature of the flaked lithic assemblage

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.

6 Microwear analysis of a sample of flaked stone tools *by K Hardy*

6.1 Introduction

The microwear analysis of a lithic assemblage comprises the study of lithic artefacts under a range of magnifications in order to identify minute physical changes that have taken place as a result of the stresses to which artefacts are put during episodes of use or movement. It is something that has rarely been carried out in Scottish Mesolithic studies. When it has, there has been a tendency to concentrate on retouched artefacts, in particular microliths (Finlayson 1989, 1990; Finlayson & Mithen 2000). Based on ethnographic work, however (eg White 1968; White & Thomas 1972; Hayden 1979; Sillitoe & Hardy 2003), it is clear that modern conceptions of what may be deemed a useful edge or artefact rarely correlate with the perceptions of the manufacturer/users. This is supported by microwear evidence on archaeological specimens elsewhere (Knuttsson 1988a, 1988b, 1990; Fullager 1993; Hardy 1993a).

Microwear analysis is often regarded as a slow and expensive process, requiring extensive experimental work followed by detailed high power microscopic comparative work and analyses. This is not necessarily the case, and it can provide a wealth of information that contributes greatly to the general interpretation of a site. Microscopic analysis can shed light on elements such as: the use and aims of artefact modification (were artefacts broken or modified for use in specific ways?); the knapping process in general (which unretouched pieces are waste products and which are not?); and post-depositional processes of artefact movement. Microscopic examination of unretouched artefacts as well as retouched material is helpful in understanding much about the 'background noise' of a site, including why lithics are scattered the way they are, what concentrations of lithics may mean and how the lithic assemblage may have related to other artefacts, often not preserved.

The aims of microwear analysis have always been set high, attempting to determine how rather than whether pieces were used, the direction of movement and ultimately the materials on which they were used (wood, bone etc; eg Keeley 1980; Dumont 1985; Grace 1989; Finlayson & Mithen 2000). All of this is, however, difficult without experimental comparison and it does not address more subtle questions such as multifunctionality or complex patterns of discard. A particular problem in Scotland is that the wide range of different raw materials means that a detailed experimental programme is required for each individual raw material, as each may respond differently to pressure and movement. This is usually prohibitive. Nevertheless, similar raw materials respond to stress in similar ways. Fine-grained, silicious materials such as chert, flint and bloodstone tend to produce comparable wear patterns. These comprise microfractures, edge abrasion, particularly on thin edges, edge-rounding and polish, and much can be deciphered from their observation. It is the interaction between them and the buildup of polish that is impossible to interpret without experimental comparison thus preventing more precise results. Even so, lines of polish all lying in one direction point to the dominant direction of use, for example if they all lie perpendicular to an edge they indicate use in an up/down direction, rather than longitudinally. Polish that extends deep into an edge is likely to have been used on a pliable material, such as hide, and polish that is restricted to the limits of an edge is likely to have been used on a hard or brittle material, such as bone. Step fractures are more likely to be the result of a percussive motion while snap and flake fractures are more likely to result from cutting, whittling, or scraping.

Microscopic edge fractures are dependent on numerous factors other than use, including the nature of the raw material, the thinness of the edge and stress, which may range from being carried around in a pocket or pouch by the user, trampling, soil, or even post-excavation abrasion, for example bagging with other artefacts. However, if an artefact shows a concentration of fractures, often combined with unnatural straightening on one edge, or part of an edge, then it is likely to be due to use. By contrast, if an artefact, particularly a thin one, has inconsistent or random fractures around all or most of its edges, then it is more likely to be related to something other than use. Like edge fracture, polish may be due to many different factors. Spots of polish, or polish that occurs at random across a surface, are unlikely to have been caused by use. A consistent pattern of polish along an edge is more likely to have been caused by repeated motion, which usually signifies use.

Based on the criteria discussed above, and without an experimental programme, 62 lithic artefacts from Camas Daraich were examined microscopically to determine whether any traces of use wear or evidence of post-depositional movement were apparent. This work had several aims including an examination of the potential of the various raw materials for the formation of microwear, an examination of the selection of pieces for use and of the range of tasks involved, the recovery of information on retouched versus unretouched tools and any spatial variation in the assemblage. In addition, information on post-depositional stresses was also considered.

Table 18 Camas Daraich, microwear analysis: assemblage studied

Artefact type	Number of pieces
Blade	21
Flake	31
Chunk	3
Core	1
Microlith	6
Total	62

Table 19 Microwear analysis: raw materials

Raw material	Number of pieces
Rùm bloodstone	23
Chalcedonic silica	34
Baked mudstone	4
Quartz	1

Table 20 Microwear analysis: locations and contexts of studied artefacts

Square	Quadrant	Context	No of artefacts
B1	NE	13	6
B1	NW	1	1
B1	NW	5	1
B1	SE	3	1
B1	SE	10	4
B3	NE	8	16
B3	NW	8	8
B3	SE	8	9
B3	SW	8	7
C2	NE	8	4
C2	SE	8	2
TPX		2	3

6.2 Methods

Artefacts were washed by soaking in detergent. Where necessary, edges and surfaces were cleaned with alcohol. An Olympus BHM microscope was used. Magnifications employed ranged from ×50 to ×200. An initial scan of the artefact's surface and edges was carried out at 50 magnifications followed, where necessary, by a more detailed examination at 100 and 200 magnifications. If microscopic features were identified, the edge was then looked at in profile to determine whether any rounding or flattening had occurred. This is particularly useful in very thin edges where a small amount of use can result in rapid blunting, something which also leads to a detectable area of unnatural straightness and can be equated with use.

The microscopic features recorded include: micro-fractures, edge-rounding, breakage and polish development. Examination of all these features together has resulted in a well established method for undertaking microwear analysis which is followed here (Keeley & Newcomer 1977; Newcomer *et al* 1986; Unrath *et al* 1986; Grace *et al* 1985, 1988; Bamforth 1987; Grace 1989). This report is not a conclusive attempt to identify movement and interpret the use of artefacts, rather it provides a record of the presence or absence of microscopic features. From this it can offer a general interpretation of patterns of use and movement, including the characteristics that made an artefact more likely to be selected for use.

A range of artefacts was studied, including both retouched and unretouched pieces, pieces that looked 'likely' and those that appeared unlikely, incorporating pieces from secure Mesolithic contexts as well as some from the ploughsoil (particularly useful in identifying the effect and processes of soil movement). The majority of artefacts are made of fine-grained siliceous materials and have more readily identifiable traces. Some artefacts of baked mudstone were included to see whether similar traces might survive.

6.3 Results

The full results are set out in Section 19 and presented schematicall for selected pieces in Illus 37. Details of the pieces studied are presented in Tables 18 and 19. The contexts of the artefacts are presented below (Table 20). The variation in quantity of artefacts from different contexts reflects the contents of the contexts (Section 5).

6.4 Interpretation of use

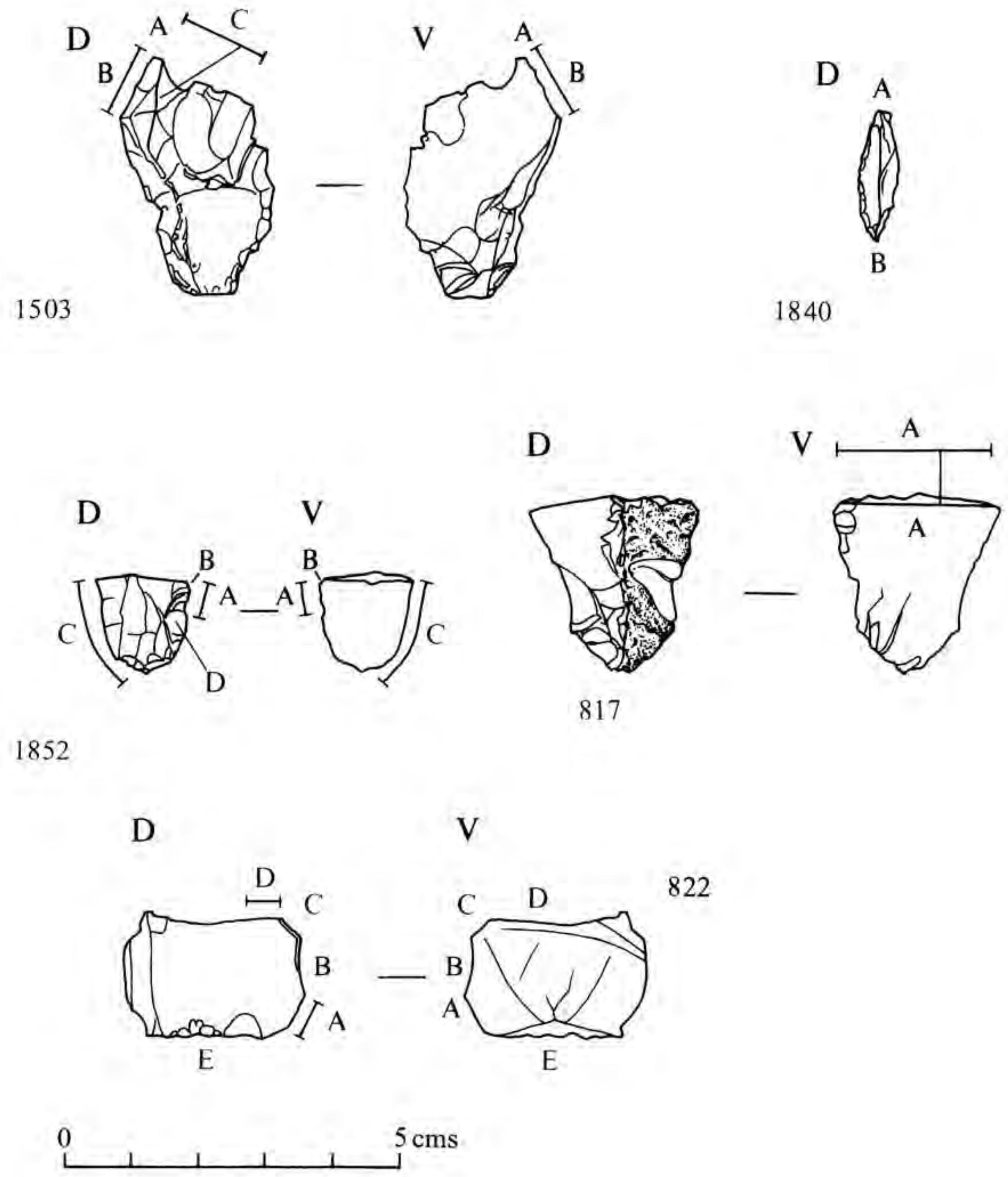
Of the 62 artefacts, 26 have traces suggesting use and 36 do not (Section 19).

6.5 Raw material

With regard to raw material and selection for use (Table 21), it is interesting that over half of the bloodstone pieces have visible traces of use while these were identified on just under one third of the pieces of chalcedonic silica. While this may mean that traces are more easily formed, or recorded, on bloodstone, it may reflect some selection on the part of the inhabitants of Camas Daraich and is worthy of further exploration. Mudstone did not figure as a large proportion of the study, but the presence of visible wear on one artefact suggests that it should be included in any future experimental work.

6.6 Selection by size

In an attempt to try to understand the factors that make an artefact more likely to be selected for use,



Illus 37 The lithic assemblage: sample of artefacts with microwear (NB: numbers refer to the catalogue numbers). Bloodstone flake: 1503; Chalcedonic silica, microlith – fine point: 1840; Chalcedonic silica, blade (one half of a refit): 1852; Quartz blade: 1817; Bloodstone flake: 822

Table 21 Microwear analysis: raw material and use

Raw material	Microwear present	Microwear absent
Rùm bloodstone	12	11
Baked mudstone	1	3
Quartz	1	0
Chalcedonic silica	12	22

the measurements of the longest dimension, thickness and edge angle were all compared to the presence of microwear (Table 22; Table 23; Table 24). In this way it is also possible to see whether different specific blank types stand out.

With regard to size, the initial results from Table 22 are unclear. Over one third of the 25 artefacts with microwear are less than 20 mm long. While

Table 22 Artefacts with microwear: the largest dimension

Largest dimension (mm)	Microwear present	Microwear absent
< 20	10	17
20–25	4	12
26–30	9	2
31–39	3	5

Table 23 Artefacts with microwear: thickness

Thickness (mm)	Microwear present	Microwear absent
2–3	4	13
4–5	10	10
6–7	4	5
8–10	5	5
> 10	3	3

Table 24 Artefacts with microwear: edge angle. NB: Not all edge angles were measured, notably those on broken microliths

Edge angle	Microwear present	Microwear absent
21–30	2	11
31–40	7	11
41–50	4	5
51–60	8	2
> 60	4	2

certain small tools, such as the microliths, undoubtedly fall into this group, it is also possible that this proportion is inflated by those pieces that snapped during, or after, use as five of the artefacts with microwear are broken. The presence of some artefacts with microwear in each of the categories indicates that there was no clear size template in use at Camas Daraich, though it is possible that the broken artefacts were originally larger when selected which would alter the proportions in favour of larger pieces.

With regard to thickness the same picture prevails. While over a third of the artefacts fall into the 4–5 mm range, there are both thinner artefacts and thicker artefacts, all with wear traces.

Edge angle measurements again demonstrate a range of sizes, perhaps with some preference for more obtuse edge angles.

While there is no apparent optimum usable size, this is in itself an interesting point. The fact that all size groups contain artefacts with wear traces suggests that the assemblage has resulted from a wide range of different needs and different uses by the people of Camas Daraich. Given the small size of the sample it is perhaps not surprising that specific groups of characteristics could not be isolated.

Table 25 Microwear on unretouched blades and flakes (Illus 37)

Blades/flakes	Microwear present	Microwear absent
Flakes/chunks	17	16
Blades	5	16
Total	22	32

6.7 Presence of microwear on unretouched pieces

A number of unretouched blades and flakes were examined for traces of use (Table 25).

Interestingly, many of the unretouched artefacts examined did bear microscopic damage. It is also interesting that more flakes and chunks than blades have microwear traces. Flakes were clearly as important, if not more so, as blades at Camas Daraich, and unretouched pieces were as important as retouched for use as tools.

6.7.1 Microwear on unretouched blades

Of the five blades, one (cat:1505) had a light concentration of snap and flake fractures on a small area on the left side, though no polish was detected. The microwear suggests very light longitudinal use. Two blades refit (cat:1850, cat:1852; Illus 37) and may only represent one working tool (see below). These and artefact cat:1854 had no visible use-related polish, though all had heavy fractures along their edges, suggesting heavier or more abrasive use, again in a longitudinal direction. Artefact cat:1365 had lightly fractured edges which were slightly rounded, again suggesting longitudinal use. It is interesting that no use-related polish was detected on any blades, this suggests that pieces were not used for long enough to build up polish. That four blades had heavy fracturing yet no polish suggests they might have been used on a harder material, such as wood, and the fact that one piece may have broken (cat:1850 and cat:1852) during use strengthens this interpretation. Artefact cat:1365, with lighter fractures and edge-rounding, may have been used on a less abrasive material such as hide. It is interesting, in the light of such tenuous wear traces, to note that Lewenstein (Lewenstein 1993) undertook a series of experiments to determine how long it took for identifiable wear to form on obsidian and chert artefacts while whittling wood. Only after intensive working for 30 minutes was the edge sufficiently altered, both with fractures and polish, to suggest use. Examination of tools after 10 minutes working showed light fracturing. This suggests that the expedient use of tools might not always be detected by microwear analysis though Hardy (Hardy 1993b) found that snap-fracturing did occur on flint flakes after only five minutes cutting root vegetables.

Table 26 Microwear on retouched artefacts

Type	Wear present	Wear absent	Broken
Microliths			
Obliquely blunted points (2)		2	No (2)
Rod (1)		1	Yes
Fine point (1)	(1) Fractured tip		No
Backed bladelets (2)	(2) Scratches and polish on edges about halfway up, one had polish and fractures on unretouched edge		Yes (2)
Scrapers (3)	(1) Rounded tip, thin line of polish along scraper edge	2	
Scraper resharpening (1)	(1) Fractures along old scraping edge, likely related to former use as part of scraping edge		No

6.7.2 *Microwear on unretouched flakes and chunks*

Of the 16 flakes and chunks, five had visible microwear only on sides and 11 on tips. Of these, five had microwear on tips and adjacent edges and six on tips. This suggests that flakes may have been predominantly selected for their usable tips or corners. Of the five flakes with microwear along their edges, one piece (cat:1823) had been used in a percussive motion along its distal edge, three pieces (cat:1250, cat:1352, cat:1607) had fractures along their sides, cat:1607 also had polishing on the fractured side, cat:1352 also had edge-rounding and cat:1250 had heavy fracturing though no polish. Their microwear suggests a longitudinal use such as cutting or grooving. Artefact cat:817 had a build up of polish and parallel lines of polish along its inner platform edge. This edge is too thick for cutting, and the thin line of polish suggests smoothing.

6.8 Presence of microwear on retouched pieces

Table 26 presents the retouched pieces examined for microwear.

Of the six microliths examined, neither the obliquely blunted points (cat:1849, cat:1855) nor the rod (cat:1841) had any microwear traces that could be related to use, though the rod was broken. The fine point (cat:1840, Illus 37) had no apparent wear traces except for a small snap-fracture at its distal end, while the two backed bladelets (cat:1845, cat:1846) were both broken and had similar scratches and areas of polish midway up their sides. This could be evidence for hafting. It is, of course, possible that cat:1841, cat:1845 and cat:1846 were all broken during or before use, or while being hafted, so that the breakage may, in itself, be a form of usewear. If they were used as projectiles this, together with no detectable microwear, might be likely. The work of Fischer *et al* (Fischer *et al* 1984) is important here as it suggested that projectile use rarely takes place over enough time for usewear to build up.

Alternatively, the microliths at Camas Daraich may not, or not all, have been intended for use as projectiles, and cat:1845 does have polish and fractures along its unretouched side. This would be supported by Finlayson & Mithen (Finlayson & Mithen 2000; Mithen & Finlayson 2000) who suggested that microliths had many other uses.

Of the two scrapers examined, only one (cat:1434) had any microwear. This occurred on the right distal tip, which is fractured and smoothed (Section 6.9). The use of this tip seems unrelated to a light line of polish that occurs along the scraping edge. It appears that this tool was used in two different ways, along the scraping edge and on the tip.

6.9 Points and tips

Twelve flakes, one scraper and one microlith have points, tips or corners with traces of use. Of these, eight were bloodstone, four were chalcedonic silica and one quartz. This does not correspond either with the proportions of raw material in the assemblage as a whole or with those pieces examined for microwear and suggests that pieces with microwear on corners or tips were, apparently, more likely to be made of bloodstone. These 'working tips' almost always occured on distal corners and edges – only two artefacts had tips on their proximal corners. This diversity suggests that the selection of artefacts was based on a known task and the presence of a suitable 'tip', rather than on a formal, preconceived, tool shape.

Of these artefacts, four (cat:1246, cat:1252, cat:1257, cat:1347) had tips which had snapped off and it is unclear what their movement directions might have been. One artefact (cat:1243) had many step fractures, suggesting a percussive or stabbing motion; two (cat:1361, cat:1434) were smoothed and blunted and contained many flake and snap-fractures, suggesting a boring motion; while one (cat:1503) had polish and fractures extending along the tip edges and up a ridge on the tip. The snap-fractures on the ridge suggests that it was used in a rotational direction and the buildup of polish may have occurred due to its use on a non-abrasive material such as hide. One piece (cat:868) had a

Table 27 Microwear analysis: distribution of points, tips, corners

Square	Quadrant	Context	Raw material	Type	Microwear
B1	NW	01	Bloodstone	Scraper	Tip
B1	NE	13	Ch. Silica	Microlith	Tip
B1	NE	13	Bloodstone	Flake	Tip and edge
B3	NE	08	Bloodstone	Flake	Tip
B3	NE	08	Bloodstone	Flake	Tip and edge
B3	NE	08	Quartz	Flake	Tip
B3	NE	08	Bloodstone	Flake	Tip and edge
B3	SE	08	Bloodstone	Flake	Tip and edge
B3	NW	08	Ch. Silica	Flake	Tip
B3	NW	08	Bloodstone	Flake	Tip
B3	NW	08	Ch. Silica	Flake	Tip
B3	NW	08	Ch. silica	Chunk	Tip
C2	NE	08	Bloodstone	Flake	Tip and edge
C2	NE	08	Ch. Silica	Flake	Tip

polished tip. Four pieces (cat:822, cat:1358, cat:1359, cat:1859) had tips or corners associated with used adjacent edges. These pieces are likely to have been used in a cutting or grooving motion. The last piece (cat:1840) is a microlith (fine point). A small fracture at its distal end suggests projectile use.

It is interesting that so many artefacts had well used corners or tips, but this is a logical and likely way for artefacts to have been used for many tasks including cutting and it is comparable to the way knives are sometimes used today. It is clearly possible to suggest many possible Mesolithic tasks that would require a sharply pointed edge.

Some flakes, no doubt, had naturally sharp corners, but in at least two cases the shaping of corners was enhanced with retouch. The lack of blades with this wear type suggests that they were made for a different purpose. This is supported by the microwear.

The location of these artefacts suggests a concentration in B3 context 08 where nine of the 14 pieces occur (Table 27).

6.10 Refits and usewear

Artefacts cat:1850 and cat:1852 refit. This is interesting in that both are blades with clear and comparable traces of use (see above Section 6.7.1). The microwear on cat:1852 suggests it may have broken either during or after use. Their location, in the same square and quadrant, means that both are possible.

6.11 Artefact distribution and usewear

Using context 08, artefact location was examined to determine whether any deposition patterns could be detected (Table 28). Context 08 was selected because it is a secure Mesolithic context with some spatial variation and contained 46 of the 62 pieces studied.

Obviously the numbers are too small to draw hard and fast conclusions, but it is interesting that less than one third of the artefacts from square B3 had visible traces of use, while all but one (a microlith) from square C2 showed traces of use. Nine artefacts had clearly polished edges and five of these were in C2.

Pieces with wear in C2 suggested a range of use – two suggested longitudinal motion using the sides, two had used tips and one piece had both a used tip and adjacent edge. In B3, in contrast, 10 of the 11 pieces with wear showed signs of the specific use of a corner or tip. Whatever led to the deposition of the material in B3 it would seem to have included some, possibly specialized, task that required a very specific type of tool.

6.12 Traces of movement

With regard to post-depositional movement, the results are more difficult to interpret. The main problem is that surface scratches and polish, while easily identifiable, could have resulted from a wide range of different causes, pre-deposition, post-deposition or post-excavation. In order to examine whether the microwear might be post-depositional, the distribution of artefacts with non-use-related surface damage was examined. Very few artefacts in trench 1 had any evidence for movement but two of the three artefacts from test pit TPX had indeterminate polish across their surfaces. This suggests that some movement may have taken place here.

6.13 Summary

This study has provided a wide range of information to show how, even without an experimental pro-

Table 28 Microwear analysis: location of used artefacts in context 08

Square, quadrant	Microwear present	Microwear absent
B3 NE	6	10
B3 NW	2	6
B3 SE	2	7
B3 SW	1	6
C2 NE	3	1
C2 SE	2	0

gramme, microwear analysis can make a major contribution to the interpretation of a site. Aspects covered include the types of artefacts selected for use (both with and without retouch), suggestions of how pieces were used and information on their distribution.

With regard to the raw materials, most of the artefacts studied were of fine-grained siliceous materials. The microwear was easily recognizable even without experimental comparison. The presence of wear traces on at least one artefact of baked mudstone is exciting and provides an indicator for future work. Raw material selection may have occurred for certain types of tasks and certain microwear traces appear to be more intensively present on bloodstone artefacts. This may suggest that bloodstone was preferred for certain tasks, such as those involving the use of flakes with a strong tip or corner.

Further work on the relationship between artefact thickness, edge angles and wear traces may assist in predicting those artefacts selected for use, thus providing a new dimension to the interpretation of the formation and technological variation within a lithic assemblage. The use of unretouched artefacts has been highlighted many times in the past (eg White 1967; White & Thomas 1972; Hayden 1979; Knuttsson 1988, 1990; Hardy & Sillitoe 2003) and it is not surprising that this analysis should confirm that they were important to the people of Camas Daraich.

What light is thrown on the actual tasks that were carried out at Camas Daraich? The lack of any clear proforma for use suggests that a range of tasks was undertaken and this is confirmed by the variability of the microwear traces. One of the patterns to emerge is the number of artefacts with points and corners showing microwear, all of which occurred on flakes or chunks. Some suggested cutting or grooving actions, while others suggested a rotational or stabbing action. The use of points for cutting gives some indication of the way in which many unretouched flakes may have been held and used and compares with the way some knives are used today. It is also interesting that so few blades showed evidence of heavy use, though all those with microwear had similar evidence of longitudinal cutting type motion. It would seem that blades, if used at all, were used lightly. Another group comprised two artefacts with microwear traces on the inner platform edges, suggesting a longitudinal edge smoothing motion. This suggests a second level of tool-working in that it suggests tool refinement rather than primary shaping. Of the retouched pieces, two microliths (both backed bladelets) have traces that suggest hafting, and one of these had fractures and polish along its unretouched side as well. The two obliquely blunted points and a rod had no evidence of usewear, and the fine point had a fractured tip. In all, the lack of use-related traces on five of the microliths studied might suggest they were used as projectiles. The fact that three were broken may in itself be a wear trace, but it is also possible that the microliths were, like many other artefacts, either so lightly used as to leave no trace, or unused.

It will be clear that a study such as this can rarely suggest precise tasks or worked materials. In this respect it is worth remembering that many studies, both of microwear on archaeological assemblages and of ethnographic material, have emphasized the role of lithic artefacts in the manufacture and maintenance of other tools (Hayden 1987; Clarke 1998; Hardy & Sillitoe 2003). It is generally accepted that the importance of stone tools is exaggerated because of their survival. Any prehistoric tool kit will no doubt have incorporated artefacts of many different materials of which stone was but a part (and possibly a minor one; Sillitoe & Hardy 2003).

One of the most exciting points to arise from the microscopic study is the fact that, even within the small area excavated at Camas Daraich, and within the confines of this small sample, some spatial differences have been observed. Square C2 contained a high proportion of artefacts with microwear showing a variety of use. Square B3, on the other hand, though with far more pieces, had an apparently much more specialized assemblage in which fewer than one third of the potential pieces had signs of use though those that did comprised most of the unretouched pieces with points or corners and little else. Square B1, in contrast, had far fewer pieces with microwear, and these comprised mainly retouched pieces with two microliths and one scraper. These suggestions of spatial diversity both alter and add considerably to the refinement of interpretation of the site (Section 12.3).

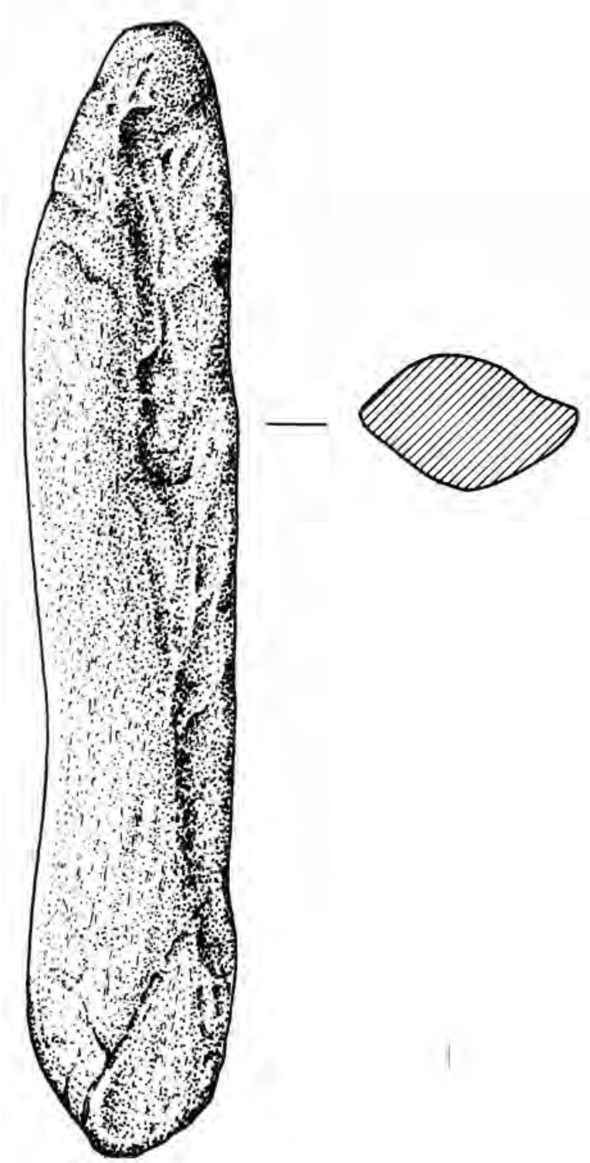
Taken across the site as a whole the information on tasks is interesting because it suggests that, over time, Camas Daraich was not a specialized site. Whatever went on, it involved a range of tools in a range of activities, some of which took place (or were discarded) in different locations. This is useful information in the light of current interpretations of the Mesolithic which tend to see smaller sites in terms of specialized activity sites, even in the absence of microwear analysis (Wickham Jones & Dalland 1998). Perhaps Camas Daraich is an example of a different kind of site, perhaps it is much larger than the work in 2000 could suggest. Only further fieldwork can tell, but the potential is clearly there.

7 Coarse stone tools *by A Clarke*

Seven archaeological pieces of coarse stone were recovered from the excavations (Table 29). Four are flakes, originally catalogued among the other flaked lithics, but probably relating to the breakage of hammerstones and other cobble tools.

One is a bevelled pebble (B111; Illus 38). This is a type found on other Mesolithic sites, for example Kinloch, Rùm (Clarke 1990), but the Camas Daraich bevelled pebble is lightly worn so that it bears only passing resemblance to similar tools. This is the only piece to come from a secure Mesolithic context.

The other two items are both fragments of beach cobbles. One (B101) has some indications of usewear, probably as a simple hammerstone. B103 has evidence of spalling through heat, suggesting that it was used as a 'pot boiler'.



Illus 38 Camas Daraich: the bevelled pebble, B111

Table 29 Catalogue of coarse stone (measurements given in mm; very fragmentary pieces not measured)

Bag no	Location	Context	Raw material	Description	Size (mm)
111	Tr 1: B3 SE	08	Long finger-like pebble of schist	Light wear traces on either end from light pecking or grinding. Lightly used bevelled pebble	15×29×7
101	Tr1: C1 NW	05	Fragment of a sandstone cobble	Heavy irregular flaking from the cortical face, possibly due to use as a hammerstone	
103	Tr1: C1 NW	05	Large fragment of a fine-grained metamorphic cobble	Much of the cortex has been removed by flaking which appears to be natural, probably due to heat. Pot boiler	
221	Tr1: NW	03	Coarse stone flake		5×42×14
36	Tr1: B1	04	Coarse stone flake		23×19×15
25	Tr1: NE	07	Coarse stone flake		77×26×10
20	Tr1: C1 SW	05	Coarse stone flake		45×21×10

8 Pumice *by A Newton*

8.1 Background

Pumice has been found in over 140 archaeological sites in Scotland (Newton 1999a). Recent research has demonstrated that most of this pumice was erupted, at different times, from the ice-covered Katla Volcanic System in southern Iceland. As well as occurring in archaeological sites and raised shorelines in Scotland, pumice also occurs at a small number of sites in Ireland, on raised shorelines in Arctic Canada, at Inuit archaeological sites and raised shorelines in western Greenland, raised shorelines in Svalbard and Iceland and raised shorelines and archaeological sites in Norway (Newton 1999a). The pumice found in archaeological sites in Scotland is mainly brown, grey or black in colour and has been retrieved from contexts dating from the Mesolithic to Modern. Geochemical analyses of pumice has shown that, wherever it is found, the pumice produced by Katla can be split into three distinct groups. These three groups can be correlated to tephra (volcanic ash) layers and pumice found around Katla (Larsen *et al* 2001).

Pumice deposits found on the southern flanks of Katla can be geochemically correlated to light brown pumice found at the Mesolithic site of Staosnaig on Colonsay (Newton 2000). The eruption which produced this pumice cannot be closely dated, but it probably occurred between about the 11th millennium BC and the late 8th millennium BC. Black pumice found at the Staosnaig site is geochemically distinct from the light brown pumice and can be correlated to a tephra layer dated to around 6000 BC (Newton 2000). Until the present study this was the only Mesolithic pumice analysed in Scotland. The younger brown to black pumice found at Neolithic to Modern archaeological sites in Scotland can all be geochemically correlated to a series of Katla eruptions (eg Newton and Dugmore 1995; Dugmore & Newton 1999; Newton 1999a, 1999b; Clarke and Newton forthcoming) which occurred between approximately 5700 BC and AD 400.

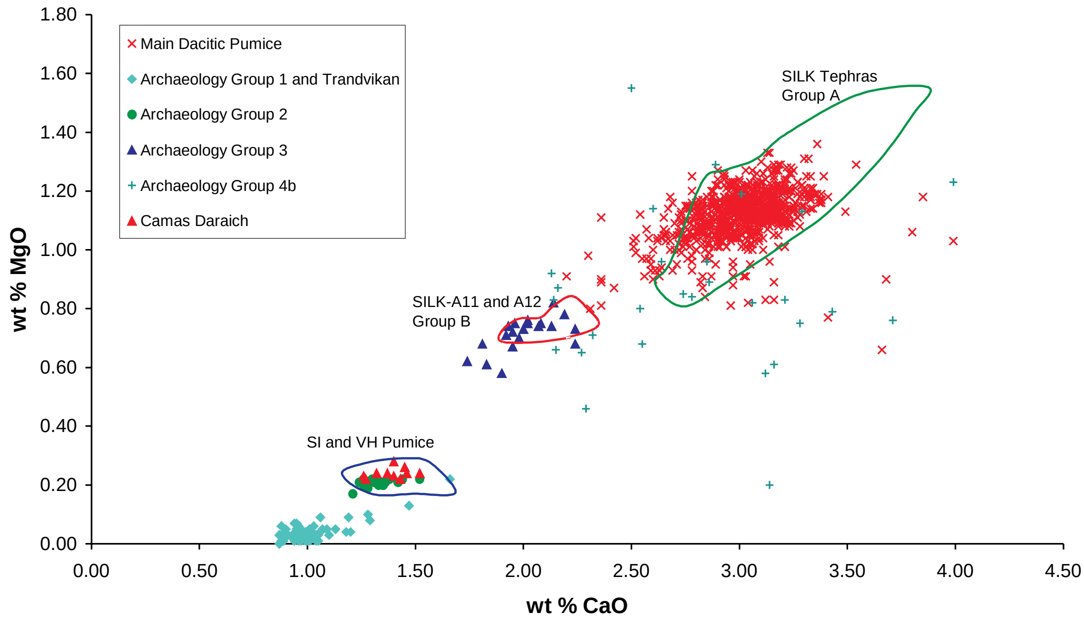
8.2 Pumice at Camas Daraich

Four pumice pieces were recovered from Camas Daraich. Three of the pieces are dark brown in colour and are particularly friable. These were recovered from trench 1 context 08 (B3 SW), where charred *Corylus avellana* seeds were radiocarbon dated to 7670 ± 55 uncalibrated ^{14}C years BP (calibrated 2 sigma range 6638–6424 BC). The largest pumice piece (65 × 35 mm) shows evidence of use, as there is a pronounced groove present along its length (see below). The other two pieces found in trench 1 context 08 were smaller and show no evidence of having been worked, though these may be fragments of a larger piece of pumice. A grey piece of pumice was also found in a surface sample and is, therefore, uncontexted and was not geochemically analysed. This pumice is harder than the brown pumice and has larger vesicles (up to 8 mm in diameter). All of the pieces are volcanic in origin and all are composed of volcanic glass with some mineral inclusions.

Ten electron probe microanalyses were undertaken on the large worked brown piece of pumice. The results of these analyses are shown in Table 30. The other two pieces of brown pumice were too small and fragile to be sampled. Visually these two pieces are identical to the large worked brown pumice. Illus 39 shows that the brown pumice has a different composition to the Group 1, 3 and 4 types of pumice identified by Newton (Newton 1999a). It is, however, geochemically similar to the Group 2 pumice. Group 2 also represents the brown pumice found at Staosnaig.

Table 30 The major element composition of the brown worked pumice. Total iron is expressed as FeO

SiO2	TiO2	Al2O3	FeO	MnO	MgO	CaO	Na2O	K2O	Total
71.01	0.27	13.35	3.68	0.13	0.23	1.40	5.29	3.49	98.85
70.34	0.29	13.29	3.75	0.24	0.22	1.27	5.07	3.56	98.03
70.23	0.29	13.33	3.86	0.16	0.24	1.46	5.40	3.38	98.35
70.18	0.27	13.26	4.03	0.13	0.24	1.32	5.06	3.45	97.94
70.15	0.24	13.28	3.64	0.14	0.24	1.52	5.01	3.45	97.67
69.80	0.27	13.18	3.95	0.20	0.22	1.43	5.18	3.46	97.69
69.73	0.34	13.16	3.89	0.15	0.23	1.26	5.18	3.42	97.36
69.72	0.26	12.98	3.65	0.28	0.28	1.40	5.09	3.41	97.07
69.37	0.29	13.08	3.82	0.12	0.26	1.45	4.95	3.51	96.85
68.72	0.32	13.12	3.64	0.15	0.24	1.37	5.05	3.59	96.20



Illus 39 Camas Daraich: graph to illustrate the relationship of the Camas Daraich pumice to other pumice deposits in Scotland and volcanic products from the Katla volcanic system

As well as being geochemically correlated to the brown pumice found at the Mesolithic site of Staosnaig, the pumice can also be correlated to the Vikurhóll pumice located on the southern flanks of Katla. The geochemistry of this and the archaeological pumice is also very similar to the Vedde Ash, which was deposited during the 11th millennium BC and is found throughout north-west Europe. At present it is not clear whether there were several geochemically similar eruptions from Katla or just the one. Activity of Katla during the Holocene suggests that there could have been a series of eruptions. For this reason it is only possible to date the eruption or eruptions which produced the pumice as having occurred before about 6800 BC and after the end of the last glaciation. This rough dating is nicely supported by the radiocarbon determinations from the archaeological context in which the Camas Daraich pumice lay.

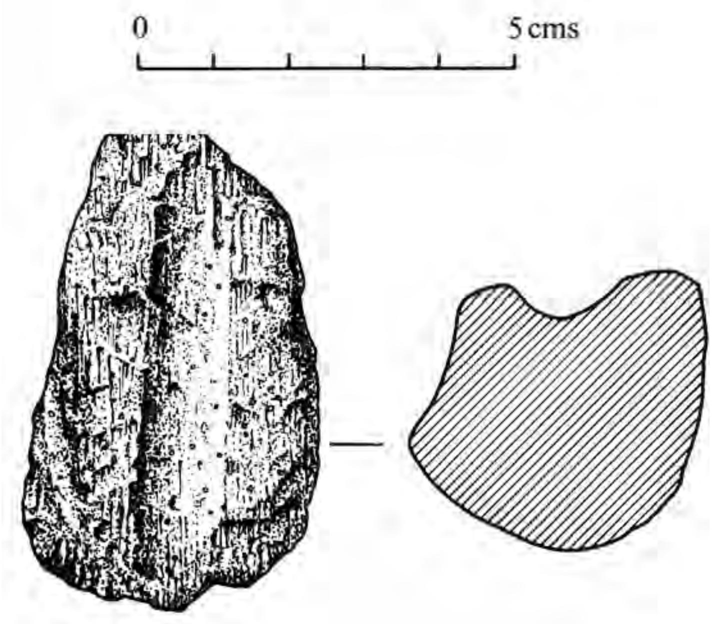
8.3 The worked pumice
by C R Wickham-Jones

As noted above, the largest piece of pumice has a broad groove running along its length (Illus 40). The groove is 12 mm wide and *c* 5 mm deep. It is semicircular in section. The pumice itself measures 66 mm long, but it is very friable and seems to be broken at each end: in prehistory it may well have been bigger. There is no obvious usewear apart from the groove itself, and it is impossible to say exactly how this pumice was used, though the groove does seem to be shallower at one end (Illus 40). Pumice like this would obviously have been of use in the manufacture of a variety of pins and points of materials such as bone and antler. In this respect this piece is an interesting reminder that much of the material culture of the inhabitants of Camas Daraich has not survived.

Grooved pumice has been found on other sites, notably at Kinloch on Rùm. At Kinloch, however, it was found in the ploughsoil and could not be securely dated to the Mesolithic. Another worked piece from Kinloch lay in a more recent context, dated to 2146–2573 cal BC, and relating to a more recent eruption (Clarke & Dugmore 1990). In this respect it is interesting that the Camas Daraich piece may be securely dated, by context, to the Mesolithic.

8.4 Summary

The brown pumice found at Camas Daraich was erupted from the Katla volcanic system sometime after the end of the last glaciation and before about 6800 BC. This pumice would have entered the sea either directly through the air or by a flood caused by the partial melting of the overlying ice-cap. The pumice would have then been carried by ocean currents across the North Atlantic before being deposited on beaches in the Inner Hebrides, including Skye. It is possible that people recovered the pumice either from a contemporary beach or from a raised shoreline. Although the pumice can be correlated to that found at Staosnaig, none of the latter pumice showed evidence of having been used. The pumice from Camas Daraich is only the second Mesolithic pumice find from Scotland to have been geochemically analysed and correlated to a source volcano. This and the evidence of use make it an important find. It is likely that pumice occurs at other Mesolithic sites in Scotland and hopefully



Illus 40 Camas Daraich: the worked pumice, B102

future excavation or the re-examination of past finds will produce new information. By increasing the sample size it should be possible to refine the dating of the eruptions which produced the pumice which provided Mesolithic people with a useful abrasive tool.

9 Other artefacts *by C R Wickham-Jones and K Hardy*

Very small quantities of recent glazed ceramics, metal and glass were recovered from the ploughsoil (Table 31). In addition, a small number of tiny fragments of burnt bone, all unidentifiable, was recovered from the surface of the track.

Table 31 Camas Daraich, finds of non-lithic materials.
NB: all of these materials are recent and come from the ploughsoil

Location	Bone	Ceramic	Metal	Glass
Track	13 frags			
Tr1		1		
TPZ		1	1	
TPY		1		
TPX				
TPW		1		
SP1				1
SP2		1		
SP3				

10 Environmental interpretation
by M Cressey and K J Edwards

10.1 Geology and soils *by M Cressey*

The solid geology of the area is dominated by metamorphic quartzite and feldspars attributed to the Tarskavaig Assemblage of the Moinian Series (British Geological Survey 1970, 1979). Numerous intrusive basalt dykes of Tertiary age run through the locality in a NW–SE direction. The region is characterized by a highly exposed and indented coastline with high cliffs overlooking rocky platforms.

The archaeological site is situated between two rock cliffs that rise to 100 m OD. In between the cliffs an area of grazing land slopes down to a peat-filled basin to the north. Behind the site, to the south, a small terrace forming the crest of a former shoreline falls gradually to a series of younger raised beaches. Recent removal of the beach gravels, for track building, has exposed the depth of the highest beach. Soils across the archaeological site are shallow, and mainly colluvial in origin, with an artificial component where cultivation has been possible.

Below the crest of the main raised beach the grassy turf gives way to a sorted ploughsoil. Local wisdom suggests that this has not been cultivated for many years and never with modern machinery. The ploughsoil contains abundant lithic material: evidence of Mesolithic activity that has been ploughed-out. The crest of the beach has not been cultivated in recent times and some peat development has taken place. In order to establish the character of the soils, a series of soil test pits was dug across and away from the central cultural area (Tr1).

10.1.1 Soil Pit 1 (Illus 41)

To determine the extent of slope-wash, Soil Pit 1 was placed near a small soligeneous bog about 20 m north and downhill of trench 1 (Illus 10). Three individual soil units were identified:

Illus 41 Camas Daraich: Soil Pit 1

Unit 1 1001	Turfline (0–0.10 m);
Unit 2 1002	Mixed plough soil (0.10–0.15 m). Compacted glacial clay with dark silt and occasional mottles, roots are rare. Occasional stones. Texture – compact clay with a fine consistency. Lithics present in the lower spit. Munsell SBG (gley) 3/1 dark greenish grey/7.5 YR 3/2 dark brown;
Unit 3 1003	Glacial till (0.15–0.55 m). Angular blocky fragments of sandstone intermixed with coarse orange–brown clay. Occasional patches of sand present. Roots rare, large stone at base with moulded edges.

Observations: a shallow mixed plough soil containing lithics overlies boulder clay with coarse angular fragments of sandstone. The soil profile is very wet owing to the poorly drained nature of the site. The fact that lithics are present within Unit 2 shows the degree of soil mixing due to past cultivation.

10.1.2 Soil Pit 2 (Illus 42)

Soil Pit 2 was positioned to define the character of the local soils up-slope to the south of trench 1 (Illus 10) and was placed approximately 10 m from the edge of the large cliff that overlooks the west edge of the site. Three units were recorded:

Unit 1 2001	Turfline (0–10 m);
Unit 2 2002	Re-deposited natural soil (0.10–0.30 m). Rounded beach pebbles intermixed with fine orange clay;
Unit 3 2003	Natural compacted beach pebbles (below 0.30 m). This layer had been cut by a field drain (Context 12 in Tr1) to a depth of 0.70 m. This was filled with tightly packed angular blocks of sandstone and gneiss and comprised a cut with a U-shaped profile.

Observations: Unit 2 consists of an accumulation of beach pebbles at the base of the cliff. The high stone content shows that this portion of the site was not cultivated, perhaps owing to its position close to the cliff. At some point in the 18th century (based on a fragment of white glazed pottery), a crude but effective land drain was constructed. This drain runs downhill and cuts the west edge of Tr1.

Illus 42 Camas Daraich: Soil Pit 2

10.1.3 *Soil Pit 3* (Illus 43)

Soil Pit 3 was dug to determine the character of the soils outside the area of common grazing, and to establish the extent of any cultural material such as lithics or areas of burning. It was positioned on the top of the raised beach, some 35 m to the south of the site (Illus 10). Only two units were recorded.

Unit 1	3001	Well humified peat with abundant roots (0–0.20 m). Stones absent. Consistency plastic. Munsell 5YR 3/1 dark reddish brown;
Unit 2	3002	Natural beach deposits (> 0.20 m). Poorly sorted rounded pebbles of varying size, in general below between 0.08 and 0.1 m in length.

Observations: blanket peat has formed over raised beach deposits. This poorly drained area has never been cultivated. Two pieces of flaked stone were recovered.

10.1.4 *Discussion*

The results from test pitting confirm that soil depth varies across the site. The soils are shallower on the crest of the raised beach but become slightly deeper towards the base of the slope to the north below trench 1. In Soil Pit 1 the soil cover rests on glacial till and possibly demarcates the limit of the beach deposit observed at the base of Soil Pits 2 and 3. More work is needed to define the precise limit of this deposit.

10.2 Geomorphology and palaeo-environment
by M Cressey

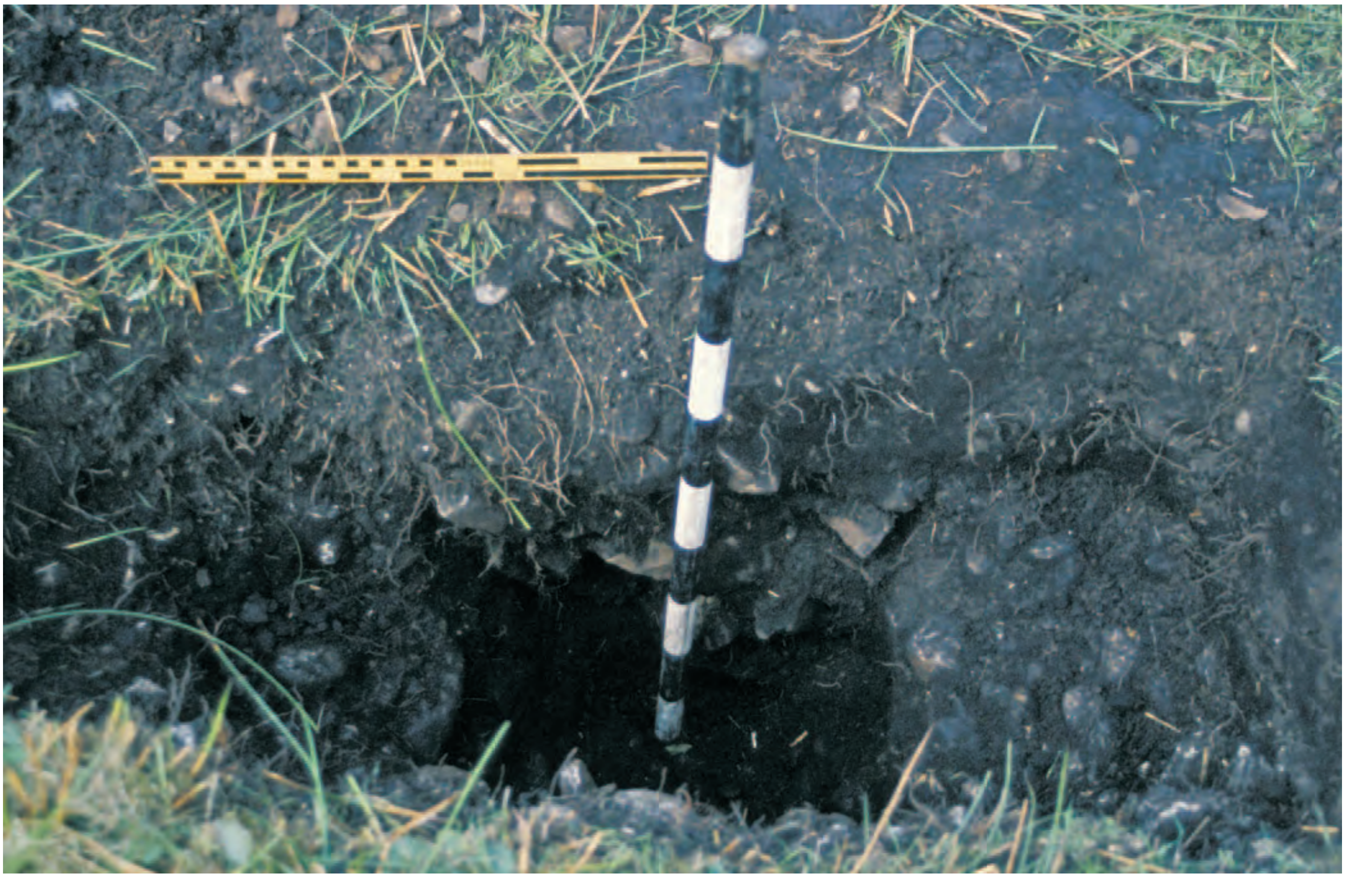
10.2.1 *Background*

Previous palaeo-environmental research near to the Camas Daraich site has been undertaken by Selby (Selby 1997) and included bio-stratigraphical analyses on a series of sediment cores obtained from the peat-filled basin less than 100 m to the north-west of the archaeological site (Illus 44, centre: NG 565 002). Although local relative sea-level changes formed the main subject of Selby's research, pollen, diatom and radiocarbon data are also available.

The peat-filled basin measures 250 m × 200 m and Selby's core reached a depth of –3.26 m. Four radiocarbon dates were obtained at critical horizons within the stratigraphic profile (Table 32).

10.2.2 *Results*

The Point of Sleat basin was formed as a result of glacial scouring. After de-glaciation, unconsolidated



Illus 43 Camas Daraich: Soil Pit 3

Table 32 Radiocarbon dates from the Point of Sleat basin (after Selby 1997). Calibrations at 95.4% probability using OxCal v3.4 (Stuiver *et al* 1998; Bronk Ramsey 2000)

Code	Depth (cm)	Altitude (m OD)	Conventional ^{14}C Age BP	Cal BC
Beta 93813	107–105	3.58–3.56	2850 ± 100	1400–800
Beta 098612	173–172	2.91–290	3830 ± 60	2470–2060
Beta 098613	196–195	2.68–2.67	10,460 ± 50	10900–10000
Beta 93990	319	1.44	12,570 ± 70	13600– 12300

Table 33 List of species recovered from the 4-mm flotation fraction

Context	Sample	Species	Number	Weight (g)
B3, SW, cxt 08	s.5	*Betula*	7 frags	0.03
B3, SW, cxt 08	s.5	*Corylus* nut shell	1 frag	0.05
C2, NE, cxt 08	s.7	*Corylus* nut shell	6 frags	0.4
B1, SE, cxt 10	s. 9	*Corylus*	5 frags	0.5
B1, NE, cxt10	s.13	*Betula*	6 frags	0.01
B1, NE, cxt 10	s.14	*Betula*	6 frags	0.05
B1, NE, cxt 10	s.14	*Corylus* nut shell	1 frag	0.01
TPZ, Z03	s.4	*Corylus*	1 frag	0.01

Illus 44 Camas Daraich: general view to the NW, showing the peat-filled basin and the general area of Selby's core

minerogenic material and weathering products from skeletal soils eroded into the basin where they accumulated as sand and fine clays. According to the diatom record a fresh-water environment was present at the time of initial in-filling. At 12,570 BP (corrected to 11,820 ± 70 for carbonate shell error) local land pollen was found to be of low abundance with hazel, sedges and grasses the most dominant taxa. An increase in marine conditions is indicated by the diatoms and is thought to be related to the re-advance of ice during the Loch Lomond Stadial (when downloading of fresh ice compensated for the isostatic recovery of the land allowing sea water to invade the area).

About 10,460 ± 50 BP, regression of the sea allowed the development of hazel scrub with a fern understorey. Information over the next few millennia was lacking (a probable hiatus in sedimentation unfortunately correlates to the period of Mesolithic activity), but around 3830 ± 60 BP the sea inundated the site. The basin finally became isolated at about 2850 ± 100 BP when sea levels fell to their present position. Based on the pollen evidence, after 2850 ± 100 BP the landscape is typical of open moorland with *Calluna vulgaris* and Sphagnum mosses dominating the non-arboreal vegetation.

In summary, two episodes of relative sea-level changes are present within the Point of Sleat bio-stratigraphic record. The first appears to have occurred within the Late Devensian at around 11,820 ± 70 BP or soon after. It is possible that this is related to isostatic loading by the Loch Lomond glaciers, which were thought to have temporarily halted, or slowed, isostatic recovery of the land. This allowed the sea to inundate the area. The second high sea-level stand (the culmination of the Main Post-Glacial Transgression) is recorded at 3830 ± 60 BP and sea then fell rapidly after 2850 ± 100 BP to the present day level.

10.2.3 Discussion

The position of the archaeological site on the high raised platform is probably due to the shelter afforded by the flanking cliffs on the eastern and western sides. The age of the raised beach on which it sits is probably Devensian (70,000–10,000 BP) with the storm beach to the south representing the main Late Glacial transgression. A lower shoreline to the north consisting of steepening ramps of beach boulders backed by a low terrace may be attributable to the Main Post-Glacial sea-level, which at 10 m OD (estimated) marks the culmination of the Main Post-Glacial Transgression of about 6000–6500 BP. Selby, however, suggests that the Main Post-Glacial Transgression in this area dates to between 8850 ± 170 BP and 7790 ± 100 BP, with a shoreline at about 5 m OD (pers comm, K Selby). There is certainly ample evidence of varying sea level in the vicinity of the site, though the precise dates have yet to be determined. With regard to the Mesolithic, although two marine transgressions are recorded within the peat-filled basin, these events did not impact directly on the archaeological site, which is considerably higher in altitude than the basin.

The fact that the in-filled basin examined by Selby (Selby 1997) has, at different times, been both inundated by the sea and has been a fresh-water lagoon, may have added to the attraction of Mesolithic settlement at Camas Daraich. Although access to sweet water would not have been a problem given the amount of streams and small rivers in the area, the complex history of the basin suggests that it would have provided varied resources in terms of both wildlife and plants as salinity varied and vegetation became established.

10.3 Macroscopic organic material *by M Cressey*

Samples taken during the excavation of trench 1 were examined for the presence of identifiable organic material. This work used routine identification techniques with reference to type material (Schweingruber 1990). Pieces greater than 4 mm were identified (Table 33), but fragments below this size were considered below the working limit for identification.

Identifiable charcoal was low in frequency in all samples. No plant macrofossil remains were observed. Both hazel (*Corylus avellana*) and birch (*Betula sp*) are represented, and hazelnut shell is also present (Table 33).

10.4 On-site pollen *by K J Edwards*

10.4.1 Pollen samples

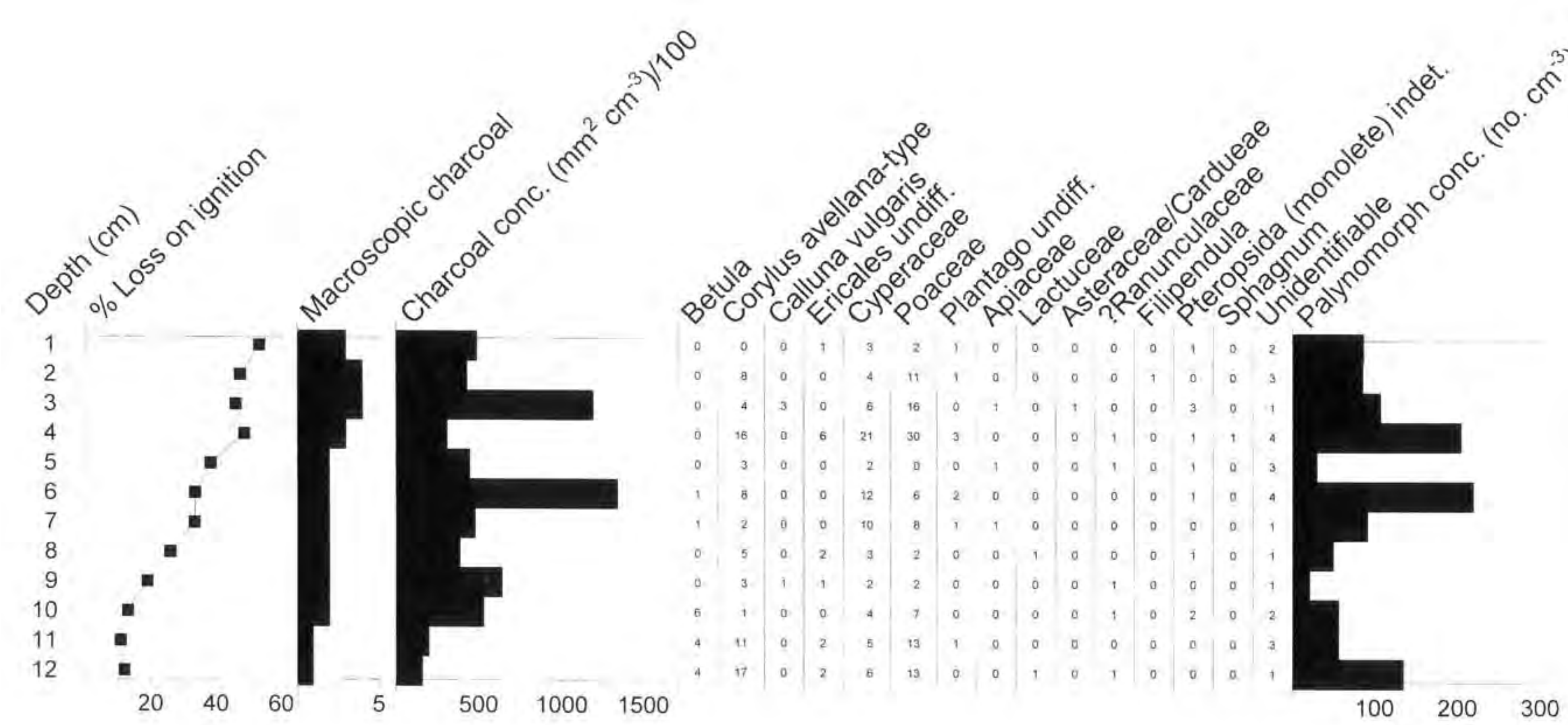
A short monolith ('sample 12': square B1 SE, context 10) was examined for its organic and palynological content. The monolith tin was obtained from context 10 at the edge of the drainage ditch (context 12) where it cut through context 10. The sample was clearly of interest as it was from an inferred cultural layer which overlay the raised beach and was possibly part of a hearth. The context contained microlithic material and produced radiocarbon dates on charred hazelnut shells (Section 11 – Radiocarbon Determinations). The possible effect of the drainage ditch is discussed below (Section 10.4.4).

10.4.2 Description

The monolith consisted of 120 mm depth of what appeared to be friable black peaty soil with inclusions of clay, stones and rootlets. The peaty matrix had a silty feel suggesting a minerogenic component.

10.4.3 Methods and presentation of results

The matrix was explored further by loss on ignition (LOI) of contiguous 10-mm thick samples (16 hours at 360°C). Parallel samples were prepared palynologically using standard NaOH, HF and acetolysis techniques (Faegri and Iversen 1989). The addition of tablets containing spores of *Lycopodium clavatum* enabled estimates of absolute palynomorph counts to be made (Stockmarr 1971). Samples were embedded in silicone fluid. The sieve retent (mesh



Illus 45 Camas Daraich: analysis of the on-site pollen sample

size 180 µm) from the NaOH wash was examined under a low-power binocular microscope.

The pollen content was exceedingly sparse (range 2106–21,868 total palynomorphs cm^{-3}), while microscopic charcoal was in great abundance. Consequently, it was impractical to carry out a normal pollen and spore count – they were simply noted and identified [pollen type nomenclature follows Stace (Stace 1997), amended after Bennett (Bennett 1994)] along with the charcoal counts [these all exceeded 500 fragments (range 522–998)]. Estimates were made of the area of individual charcoal fragments in two dimensions using a microscope eyepiece micrometer. The values (in 10 μm^2 units = 256 μm^2) are expressed as concentrations (mm^2 cm^{-3}). A qualitative assessment of the macrofossil charcoal content of the sieve retent was made and results are expressed on a 5-point scale (0 – absent; 1 – occasional; 2 – more frequent; 3 – frequent; 4 – abundant). All retents contained minerogenic material.

The computer programs TILIA and TILIAGRAPH (Grimm 1991) were used for presentation of the LOI, pollen and sieve retent data which are shown in Illus 45.

10.4.4 Discussion

The results (Illus 45) indicate that organic content decreased down-profile from 53.2% at the top of the monolith to around 11% in the basal two samples. This is consistent with the minerogenic component evident by feel and seen within the sieve retent. The matrix material is perhaps more akin to a soil than to a peat deposit. The friable nature of the matrix and the clay inclusions could support this inference as, of course, would the contained lithics and charred hazelnut shells which are frequent constituents of soils in Mesolithic locales. The irregular rather than smooth down-profile palynomorph distribution may indicate, however, that there were additions to the matrix (for example, material carried along the drainage ditch or on shoes).

Microscopic charcoal is present in considerable quantities (mean of 54,949 mm^2 cm^{-3}; range 15,882–134,032 mm^2 cm^{-3}) at all levels – even in the basal two samples which have least charcoal representation. The macroscopic sieve samples show most material in the >180 µm size range to be in the top 4 cm, though most of this was fairly small material in the <2 mm size category. This, and the fact that no charcoal fragments in the monolith were visible to the naked eye, would argue against the suggestion that the sample was itself part of a hearth, though a hearth may have been located close by.

Apart from the abundance of charcoal, the palynological results are disappointing. Not one sample yielded a pollen or spore count in the accepted sense, with total identifiable palynomorphs ranging from 8 to 79. All of the identifiable pollen and spores were heavily corroded or cRùmpled. This is not an uncommon occurrence in soils, although the degree of absence and damage may indicate a slow-forming deposit with constant oxidation of samples.

10.5 General environmental interpretation *by K J Edwards*

The site was well placed for both fresh water and shelter as well as wider resources. Given the constraints of the data it would be unwise to attempt any detailed interpretation of the Mesolithic environment. With regard to the pollen data, comment will be limited to saying that all taxa are common indicators of open ground [for example Poaceae (grasses) and Lactuceae (dandelion group)] or heath/marsh habitats [for excample *Calluna vulgaris* (heather), Cyperaceae (sedges)]. The only exception is the most frequently represented pollen grain on-site, that of *Corylus avellana*-type (cf. hazel), of which 78 grains were found, as well as some macrofossil material. Hazel was an abundant member of Skye's 8th millennium BP flora (cf. Birks and Williams 1983). The hazelnut shells from the excavation were thus probably collected locally.

11 Radiocarbon determinations

by C R Wickham-Jones and K Hardy

Four samples were assayed for radiocarbon determinations. These were chosen carefully to date uncontaminated cultural material (no easy task given the level of disturbance). Two samples came from context 08: the cultural material that lay in a scoop on the surface of the raised beach. The other two came from context 10: cultural material from within the 'hearth' area in B1. The results of the dates are presented below (Table 34).

These determinations place the site securely in the first half of the Mesolithic, at a time when there is increasing archaeological evidence for settlement in western Scotland (Table 36). The dates from context 10 are remarkably similar. Those from context 08 range more widely, but given the vagaries of radiocarbon dating these determinations may be taken together as a coherent series suggesting that activity on site is likely to have taken place around the mid 7th millennium BC. Neither the dates nor the available archaeological evidence give much clue as to the overall size and duration of the site.

Table 34 Camas Daraich radiocarbon determinations, with calibrations carried out by the lab using OxCal 3.5 (Bronk Ramsey 2000) and the 1998 calibration curve (Stuiver *et al* 1998)

Lab code	Sample	Sq and context	Age BP	dC13	Cal date 1 sigma	Cal date 2 sigma
OxA-9782	*Corylus avellana*, charred seeds	B3 SW, cxt 08 Centre of track, black material in scoop	7670 ± 55	–24.2	6590–6440	6640–6420
OxA-9783	*Corylus avellana*, charred seeds	B3 NW, cxt 08 Centre of track, black material in scoop	7985 ± 50	–25.1	7060–6820	7060–6690
OxA-9784	*Corylus avellana*, charred seeds	B1 SE, cxt 10 Side of track, black hearth-fill	7545 ± 55	–25.4	6460–6260	6470–6240
OxA-9971	*Corylus avellana*, charred seeds	B1 SE, cxt 10 Side of track, black hearth-fill	7574 ± 75	–27.2	6480–6260	6570–6230

12 Interpretation and discussion
by C R Wickham-Jones and K Hardy

12.1 Site location

The archaeological site at Camas Daraich lies on sloping land just below the level surface of a Devensian raised beach. It is well sheltered by high cliffs on either side, and near to both fresh water and the sea (Illus 4). To the south the land drops over a series of younger raised beaches to the current sea: the coastline today comprises a small sandy bay enclosed by rocky outcrops. To the north the land drops over similar raised beaches to a peat-filled basin that has, at various times, been inundated by both the sea and fresh, as well as brackish, water. There is a fresh-water burn to the east of the site. Soils in the vicinity of the site are shallow, mainly formed as a result of weathering, with a more recent artificial component due to cultivation.

With regard to the selection of the site, Camas Daraich offered both shelter and varied resources to its inhabitants. The staples of easy access and fresh water were both well catered for. Food could be provided using both local marine resources and the enhanced attractions of the damp, peaty basin. Although apparently restricted in its hinterland, it is likely that a variety of animals and plants, as well as local birds and fish, was available to those who set up home at Camas Daraich. There was ample local stone for stone tools, and contacts further afield are indicated.

Stone tools were found in the ploughsoil and, in addition, Mesolithic cultural material lies *in situ* in the western half of the site, up to a depth of 100 mm below the ploughsoil and on top of the raised beach. Mesolithic material was most obvious in Tr1 where contexts included *in situ* features, both negative (scoops) and positive (a hearth), and contained a classic narrow-blade lithic assemblage. A cultural layer was also observed in TPZ, but the abrupt termination of work in TPW meant that it was impossible to determine whether it was continuous between Tr1 and TPZ, though the evidence would seem to suggest that it is not.

The main focus of cultural material recorded to date lies in a spot that is very sheltered from the wind. This contrasts with the rest of the raised beach which is more exposed. The majority of the stratified material so far has been uncovered from Tr1, but it is likely that archaeological, probably Mesolithic, material extends both up-slope and down-slope of this.

Lithics occurred in the ploughsoil right across the site and not just around the location of the cultural material. This suggests that the archaeological site extends considerably further than the area of excavation and that there may well be more than one focus of cultural material. This would be supported by the observation of more than one black patch in the track as it originally cut down the beach.

The ploughsoil and surface lithics are interesting in that they differ slightly from the contents of the stratified contexts excavated in Tr1. Although classic Mesolithic stone tools are common within the ploughsoil, there is a greater proportion of material with bipolar characteristics, as well as a few small thumbnail scrapers and a barbed and tanged arrowhead. Taken together, these factors suggest that there may be later activity in the vicinity.

12.2 Human activity

The focus of excavation concentrated on *in situ* deposits containing an assemblage of Mesolithic stone tools. The archaeological work was limited, but the evidence points mainly to activity in the mid 7th millennium BC: the early Mesolithic of Scotland. There was a sizable assemblage of flaked stone tools in the soil across a wide area, with many pieces generally characteristic of this period. It is also likely, however, that later stone-using activity had taken place at Camas Daraich. Although no *in situ* cultural material was identified to later prehistory, the ploughsoil did contain lithic artefacts highly suggestive of this.

The Mesolithic assemblage comprised evidence for both the manufacture of stone tools as well as their use, though it was not possible to give precise information on use. Contextual information was limited to the four 1-m squares that could be excavated in Tr1, with some information from outlying test pits and soil pits. None of the latter yielded *in situ* archaeological features, though cultural deposits were recorded in TPZ. It is doubtful, however, whether the material in TPZ is a continuous extension of that in Tr1.

Cultural deposits, therefore, were more limited in distribution than the lithic assemblage, though limited excavation means that further deposits may await discovery. Nevertheless, the cultural material that could be examined does provide clear indication of humanly generated features, in the form of at least two scoops and a stone-ringed hearth. All three sit on (or cut into) the surface of the raised beach in one small area and all would seem to date to the same, Mesolithic, period. It is not possible, therefore, to provide much interpretation of the extent, duration, or overall nature of the activity that took place at Camas Daraich, but people were definitely there, and some information may be gleaned from the stone tools themselves.

Table 35 Comparison of raw materials between the securely Mesolithic and other contexts

Material	Securely Mesolithic	Mixed surface assemblage	Total
Baked mudstone	9 (3%)	42 (1%)	51
Rùm bloodstone	93 (32%)	1514 (33%)	1607
Chalcedonic silica	157 (54%)	2131 (46%)	2288
Quartz	29 (10%)	920 (20%)	46
Other	1	17	18
TOTAL	289	4624	4913

Some knapping was carried out on site, using Rùm bloodstone that had been transported, some 25 km, from the island of Rùm, as well as more local stones: chalcedonies and quartzes. In addition some stone was brought in from the Staffin area, further away, *c* 75 km, to the north: baked mudstone and possibly other chalcedonies, but these materials were treated quite differently from the more local stones, in that the baked mudstone was not worked locally to any great extent. It seems that tools of baked mudstone were brought in ready for use so that only maintenance had to be carried out on site. Interestingly, there is little difference between the raw materials used in the securely Mesolithic assemblage and those used in the mixed surface assemblage (Table 35). Table 35 shows a possible substitution of more local quartz as opposed to local chalcedonies, but the proportions of other materials are very similar.

Local knapping included a range of techniques that could be adapted to make the most of the raw material. Platform cores were carefully worked and the overall assemblage includes evidence of bipolar knapping which was frequently used to make the most of an exhausted platform core. Bipolar knapping is a feature of West Coast lithics, though it may be more common in later periods: at Camas Daraich there is very little bipolar material in the secure Mesolithic contexts (Section 7). In this way the people of Camas Daraich made many flakes and some blades. These were quite suitable for use without alteration and this is confirmed by the microwear analysis, but a few were worked further in order to produce more complex tools such as scrapers, edge-retouched tools and microliths. The microliths include a range of narrow-blade types such as backed blades, crescents and rods. Microwear analysis of a sample of flaked stone tools indicated that while not all had traces of prolonged use, those that did had been used for a range of tasks.

It is not possible to say whether the different tasks that took place at Camas Daraich were contemporary, or whether they represent repeated visits for different reasons. Some spatial variation was also suggested, and in this respect it is interesting that the microwear analysis has altered perceptions of the spatial differentiation within the site. Prior to microwear it might be assumed that square C2 contained mainly knapping debris with little evidence of use while square B3 had resulted mainly from the deposition of used tools. Work on the microwear showed that though B3 did contain a high percentage of apparently well used tools, less than half of those studied had wear traces and most of those that did had been used in one particular way. In square C2, in contrast, all but one of the pieces studied had wear suggesting use. This is not to diminish the relative importance of knapping debris in square C2, but clearly a more complex pattern of deposition had taken place here, so that used tools also played an important role.

Inasmuch as they can be used for dating, the stone tools indicate a date early in the Mesolithic for the main activity at Camas Daraich. The narrow-blade microliths are very similar to microliths recovered from several West Coast sites (Kinloch, Sand, An Corran: Wickham-Jones & McCartan 1990; Hardy & Wickham-Jones 2003; Hardy *et al* in prep). Most other tools from Camas Daraich may also be paralleled on these sites: the larger scrapers, the flakes and the blades. All of these sites have produced early to mid 7th millennium BC dates, and this is confirmed for Camas Daraich by the radiocarbon determinations on hazelnut shell from the black cultural material uncovered in Tr1. All four determinations point to activity in the mid 7th millennium BC.

It must be remembered, however, that it was not possible to examine the other lithic find spots across the croft and none produced microliths. At the same time there is an element of the general ploughsoil and surface material from CD1 that may be later. It is highly likely that Camas Daraich was also used at other times in prehistory – it is certainly a well favoured spot. The main period of activity excavated to date is, however, Mesolithic.

Though preservation at Camas Daraich was limited to inorganic materials, the piece of used pumice provides an important reminder that lithics were only part, probably a small part, of the suite of everyday artefacts of its inhabitants. Abrasive tools like pumice would have played a vital part in the manufacture of many tools of bone and antler. Surviving artefacts from other sites with better preservation, such as An Corran (Hardy *et al* in prep) and Sand (Hardy & Wickham-Jones 2002), give a good idea of the range of material that is missing from

Camas Daraich, even if the specific tools varied from site to site. Pumice would also have been useful as an abrasive in other ways, for example in the preparation of hides, in which case previously used pieces may well have been broken up. The presence of pumice, even apparently small and un-used pieces, is always an important indicator pointing to activities that may leave little trace in the archaeological record.

12.3 Nature of the Mesolithic and the role of the site

The Mesolithic was a time of great mobility when settlements tended to be transient and activity oriented. People lived in small, nomadic groups, and life in West Coast Scotland revolved around the tasks of the hunter-gatherer-fisher (Wickham-Jones 1994; Finlayson 1998). Excavated sites vary greatly in their nature (Mithen 2000). Unfortunately, neither the extent of excavation nor the preservation of artefacts provide any detail as to the size or nature of the site at Camas Daraich. There was no organic preservation, and the cultural material was neither bottomed nor fully revealed in its lateral extent. It is impossible, therefore, to provide much interpretation of the way in which Camas Daraich fitted into the Mesolithic world. Was it the site of short-lived activities as at Fife Ness? (Wickham-Jones & Dalland 1995). Or could it have been the site of a larger base camp, as, perhaps, at Kinloch on Rùm? (Wickham-Jones 1990). Or something in between? All that can be said is that a range of tasks was carried out on a variety of tools with no evidence of the tool specialization that was present at Fife Ness, and that there was, on balance, little evidence for the extent of occupation revealed at Kinloch. At the same time, it is unlikely that activity involved the harvesting of marine resources, especially shellfish, on the scale seen at Sand (Hardy & Wickham-Jones 2002), as there is no indication of a shell midden, despite the proximity of the sea.

The evidence that would fit Camas Daraich into the broad Mesolithic spectrum might be lacking, but the excavations have shown that considerable information may still be gained, even with limited excavation and relatively limited outlay. The people of Camas Daraich certainly looked out at a wider world than that afforded by their immediate environs at the Point of Sleat. One good indication of this lies in their use of stone resources that must have come from further afield, and the basis is now laid for further work on site, or in the vicinity, that would add greatly to the broader picture.

12.4 The wider Mesolithic world

Camas Daraich was discovered at a time when considerable research has been revealing much about the Mesolithic world of West Coast Scotland. Though little detail was available about the site itself, Camas Daraich is undoubtedly of interest in regard to its wider setting. The mobile world of the Mesolithic has meant that those who study it have moved away from considerations of any individual site to examinations of the wider Mesolithic world, and the location of Camas Daraich is crucial here. It lies at the tip of the Point of Sleat, right at the south-east corner of Skye, and it provides an important link between the island of Rùm some 25 km away and the enclosed marine area of the Inner Sound to the north, around which a number of Mesolithic sites are currently being studied by the Scotland's First Settlers project (Hardy & Wickham-Jones 2002, 2003). Seaborne transport is likely to have been crucial in the Mesolithic, and Camas Daraich lies at the centre of a web of routes, both sea-based and overland.

Rùm was the source of a useful raw material – Rùm bloodstone. Tools of Rùm bloodstone are found on Mesolithic sites around the Inner Sound and elsewhere (Clarke & Griffiths 1990; Hardy & Wickham-Jones 2003). As yet there is not enough detail to speculate on the ways in which bloodstone was procured and distributed, but Camas Daraich is an important first step in this study in that it shows that nodules of bloodstone were brought here to be worked locally. At the same time, the people of Camas Daraich were able to obtain tools of baked mudstone from Staffin to the north and these seem to have been brought in more often as finished goods.

There is now a series of 7th millennium BC, and earlier, dates for human activity from sites in the vicinity of Camas Daraich (Kinloch: Wickham-Jones 1990; Sand: Hardy & Wickham-Jones 2001; Loch a Sguirr: Hardy & Wickham-Jones 2000; An Corran: Saville & Miket 1994; Table 36) and more will, no doubt, follow. It is impossible to say how far afield the people of Camas Daraich ranged as part of their annual round, but comparison with other hunter-gatherers (both modern and ancient) suggests that a range of 70 km in any direction from the site would be conservative (Mithen 2000; Brody 2001). This would encompass the sources of all the raw materials found on site (and these must give a minimum distance) as well as the actual sites listed above themselves. There would, no doubt, have been many other sites in the Mesolithic round. Though the coast was undoubtedly important to the local economy at the time (Hardy & Wickham-Jones 2002), people also looked elsewhere for resources: the red deer of the high moorlands; the salmon and trout of the rivers; nuts and berries in woodland. Archaeology has been relatively successful at finding the coastal sites, attention must now turn to finding sites elsewhere (for example inland sites, as in work further south on the west coast; Mithen 2000). As an individual site Camas Daraich may not yet have yielded much, but as a part of a wider system it is invaluable.

Table 36 Radiocarbon determinations from the Small Isles, Skye and the Inner Sound relating to the 7th and 8th millennia BC. Calibrations taken from OxCal 3.5 (Stuiver *et al* 1998; Bronk Ramsey 2000)

Site	Lab code	Sample	Age BP	dC13	Cal date BC 1 sigma	Cal date BC 2 sigma
Camas Daraich	OxA-9782	hazelnut shell	7670 ± 55	–24.2	6590–6440	6640–6420
Camas Daraich	OxA-9783	hazelnut shell	7985 ± 50	–25.1	7060–6820	7060–6690
Camas Daraich	OxA-9784	hazelnut shell	7545 ± 55	–25.4	6460–6260	6470–6240
Camas Daraich	OxA-9971	hazelnut shell	7574 ± 75	–27.2	6480–6260	6570–6230
Loch a Sguirr	OxA-9305	charcoal (Betula)	7620 ± 75	–26.6	6590–6390	6640–6250
Loch a Sguirr	OxA-9255	bone, deer (bevel-ended tool)	7245 ± 55	–21.6	6210–6020	6230–6000
Sand	OxA-10152	bone, mammal (bevel-ended tool)	8470 ± 90	–22.1	7600–7370	7750–7200
Sand	OxA-10384	bone, mammal (bevel-ended tool)	7855 ± 60	–21.1	6980–6590	7050–6500
Sand	OxA-10175	bone, mammal (bevel-ended tool)	7825 ± 55	–21.1	6750–6510	7050–6450
Sand	OxA-9343	charcoal (*Betula*)	7765 ± 50	–24.6	6650–6500	6680–6460
Sand	OxA-9281	bone, deer (bevel-ended tool)	7715 ± 55	–21.3	6600–6460	6650–6440
Sand	OxA-9282	bone, deer (bevel-ended tool)	7545 ± 50	–20.8	6460–6260	6470–6240
Sand	OxA-9280	antler	7520 ± 50	–21.8	6440–6260	6460–6240
An Corran	OxA-4994	bone, red deer (bevel-ended tool)	7590 ± 90		6600–6230	
Kinloch	GU-1873	hazelnut shell	8590 ± 95	–24.9		8000–7350
Kinloch	GU-2040	hazelnut shell	8560 ± 75	–25.1		7780–7480
Kinloch	GU-1874	hazelnut shell	8515 ± 190	–23.8		8200–7000
Kinloch	GU-2150	hazelnut shell	8310 ± 150	–25.7		7650–6800
Kinloch	GU-2146	hazelnut shell	8080 ± 50	–25.0		7310–6820
Kinloch	GU-2039	hazelnut shell	7925 ± 65	–25.3	7060–6569	7050–6650
Kinloch	GU-2147	hazelnut shell	7880 ± 75	–25.1	7050–6493	7050–6500
Kinloch	GU-2145	hazelnut shell	7850 ± 50	–25.0	7026–6495	7050–6500
Kinloch	GU-2149	charcoal	7570 ± 50	–25.3	6554–6230	6500–6250

13 The future of the site

by C R Wickham-Jones and K Hardy

The excavations demonstrated that stratified Mesolithic deposits survive at Camas Daraich. Much of the site lies relatively undisturbed under the ploughsoil across the croft, and there is a high possibility that later deposits also occur. A small amount of archaeological material is threatened by natural erosion along the course of the new track and all is vulnerable to any further development in the croft area. It is to be hoped that Historic Scotland can implement measures to minimize further destruction and monitor any disturbance that might take place.

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Illus 46 Camas Daraich: Thanks to Steven, Martin and George!

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16 Glossary and notes to the lithic catalogue

by CR Wickham-Jones

The following notes are intended to clarify the author's use of specialist terms and definitions for those reading the text and using the catalogue of the flaked lithic assemblage from Camas Daraich.

Glossary

Backed bladelet: A microlith: a blade that has been truncated by microlithic retouch down one side. Backed bladelets have a rectangular plan and triangular cross-section.
Bipolar core: A flint knapping term: bipolar cores are cores that were worked on an anvil. They were commonly used when flaking poor quality stone or opening small pebble nodules. Bipolar cores tend to be of a characteristic 'scalar' shape.
Bipolar technique: A flint knapping term: a technique for the removal of flakes in which the core, or nodule, is seated on an anvil and struck from above. The force of the blow produces a countershock from the anvil so that flakes are frequently detached from both ends simultaneously. Bipolar flaking does not involve the preparation of platforms and the cores tend to be of a characteristic 'scalar' shape. There is less control over the shape of the flakes but it is a very useful technique, particularly where small pebble nodules form the only raw material.
Blade: A stone tool. Blades are long and fine with sharp edges and parallel sides and they were made using a specific reduction method, known as a blade strategy.
Blanks: Pieces (generally flakes and blades but occasionally cores and chunks) that have been selected for modification.
Bulb of force: A flint knapping term: the raised point on the ventral surface of a flake or blade, just below the platform. The bulb of force indicates the spot to which force was applied in order to make the flake. As a general rule, more pronounced bulbs of force suggest the use of harder stone hammers, while more diffuse bulbs suggest the use of softer hammers.
Calibration: Radiocarbon analysis tends to provide dates that are too recent, but this can be corrected by calibration. Dates are therefore quoted either in radiocarbon years (uncalibrated), or in human years (calibrated), and they are often said to be 'Before Present' (BP), which in fact means before 1950.
Chunk: A flint knapping term: chunks are larger irregular pieces of stone removed as a by-product of making stone tools. Chunks have neither platform nor ventral surface. They are generally the unintentional by-product of knapping. Most chunks were waste, but some may have been used.
Core: A flint knapping term: the core is the central block of material from which blades and flakes are removed. Cores from Camas Daraich are divided into two different types depending on the knapping process; see platform core and bipolar core.
Core trimming flake: A flint knapping term: core trimming flakes are removed from the platform edge of a core in order to get rid of irregular projections or blunted areas and maintain a suitable edge angle for the making of flakes.
Cortex: The outer surface of a stone nodule or pebble. Fresh flint nodules have a white chalky cortex; flint pebbles that have come from a secondary source such as gravels tend to have an abraded and rolled cortex and most of the original chalk may have gone. Other stones do not have chalky cortex: fresh nodules may have no cortex at all while pebble nodules have a rolled and abraded cortex.
Cortication: The matt discolouration, usually white or cream, that may cover the surface of a flint with time.
Crescent: A microlith: a blade that has been blunted by microlithic retouch down one side. The retouched edge is convex in outline so that the piece is crescentic in plan with a triangular cross-section.
Debris: A by-product of knapping: that material which inevitably results from the knapping process but which was not necessarily the goal of that process. Some debris may be suitable for use, with or without modification.
Debitage: A by-product of knapping: debris that was not apparently suitable for any further purpose. Material that would be discarded immediately at the end of the knapping process. Debitage includes much very small material.
Debitage flakes: Irregular flakes.
Decortical material: Primary or secondary removals used to open and shape a nodule.
Edge-retouched piece: A stone tool made from a flake or a blade which has had one (usually long) side modified by the removal of small flakes (retouching).
Fine point: A microlith: a blade with modification by microlithic retouch along one or both sides to form a narrow point at one end.
Flake: A stone tool: the finer pieces of stone that are removed from a core. Flakes tend to be more irregular than blades, but they have useful lengths of edge. Some may have been used unmodified, others were altered by retouching.
Flaking: The process used to break up a nodule or core into useful flakes and blades. Flaking involves either direct percussion, that is, using a hammer of stone, bone or wood; or indirect percussion via a punch.
Hammerstone: Stone used to provide force.

Hammerstones vary in size and hardness and this affects the blows that they will deliver. They were commonly used for flint knapping, but would have been useful in many other ways. Some were modified by pecking before use and many have wear patterns.
Inner material: Artefacts with no surviving cortex surfaces.
Irregular flakes: Removals with no regular edge. They may be large or small and are frequently chunky in aspect. This category includes all flakes of less than 10 mm maximum dimension.
Knapping: The process of making stone tools by breaking up a nodule or core. Good quality stone may be broken (or flaked) in a predictable fashion so that regular flakes and blades may be made.
Lamellar index: The ratio of blades to flakes in an assemblage helps to determine what the flint knappers were primarily aiming to make. When a site specialized in blade making then the ratio of blades to flakes should exceed 20%.
Late Glacial: The period towards the end of the last Ice Age. A time of great change during which barren glacial conditions were interspersed with warmer conditions when plants and animals returned to Scotland.
Mesolithic: A subdivision of prehistory: the 'middle stone age'. In Scotland, the Mesolithic refers to the settlement after the end of the last Ice Age by people who lived by hunting, fishing and gathering plant materials. Mesolithic settlers were generally nomadic.
Microburin: A microlith: microburins are the snapped ends of blades from which the 'useful' part has been removed for further working. They are characterized by a notch produced by microlithic retouch on one side of the blade; this was made in order to generate the snap and the notch is usually truncated by the snap. Microburins may well have been used, but they are generally recognized to be the waste from microlith making. They have been associated with particular types of microlith, but many microliths were made without using microburins.
Microfractures: Small removals from the used edge of an artefact. Microfractures are divided into three types: snap, step and flake, and they may be used to help to identify the type of use to which a tool has been put.
Microlith: A small stone artefact: microliths were made by blunting the edges of tiny blades. They were often made according to specific patterns: crescents, backed bladelets, fine points, obliquely blunted and so on. They were then hafted in groups to make knives, arrowheads and other tools. They are common on many Mesolithic sites and do not seem to have been used in later periods.
Microwear: Damage sustained by artefacts as a result of use or general wear. Microwear comprises traces of polishes, microfractures and striations upon the edges and surfaces of a tool. Most microwear is only visible under the microscope and it can be studied as part of an examination of the uses to which different tools were put. Some microwear may be caused by other pressures on a tool such as soil movement but this is easily distinguished from use-related wear.
Modified pieces: Artefacts that have been deliberately modified after primary reduction by the use of secondary knapping.
Obliquely blunted: A microlith: a snapped blade with microlithic retouch across the snap, which runs obliquely across the piece.
Orientation: During examination, artefacts are always held with the dorsal face uppermost and the proximal end towards the observer, and the illustrations follow this convention, with proximal ends pointing to the bottom of the page.
Pebble nodule: A nodule of stone that has come out of its original matrix and been transported elsewhere before deposition in a new site, such as in river or beach gravels. Pebble nodules are generally well worn and abraded on the outside.
Platform: A flint knapping term: the platform is the surface of a core or nodule that is struck during knapping. While any suitable surface will do, successful knappers will usually make a flat platform surface and spend some time maintaining a particular angle at its edge. Specific knapping techniques use different types of platform, and one core may well be worked from more than one platform.
Platform core: A flint knapping term: platform cores are cores that incorporate a flat, platform area, which is struck in order to remove flakes and blades from the side of the core. Platform cores were particularly used in blade making and they may well have several platforms.
Platform technique: A reduction technique used in primary technology whereby percussion is applied to the platform of a core.
Polish: Alteration on the surface of an artefact that is most commonly the result of use. Polish is only visible microscopically. It is the result of abrasion which causes flattening, smoothing and shining of the edge during use.
Pressure flaking: A flint knapping term: the application of pressure using a hard tool such as an antler tine, to the edge of a flake or blade. In this way, small flakes are removed and so the piece may be shaped into a more complex tool.
Primary technology: The first part of the systematic process of stone tool production: nodules of raw material are prepared into cores and then used for the manufacture of flakes and blades. Many blades and flakes may be used as functional tools in their unaltered form.
Primary material: Artefacts with cortex platforms and cortex over the dorsal surface. These are some of the first removals to be made from a nodule.
Radiocarbon dating: A method of dating archaeological material by calculating the amount of radioactive carbon (carbon 14) left in organic objects. The calculation tends to work out dates that are too recent, but this can be corrected by calibration.
Raised beach: A geomorphological term: a beach deposit laid down when the sea was at a higher level

than it is today and subsequently left in a position above the current shoreline as the sea dropped to its present level.

Raw material: The different types of stone that were selected for knapping into tools.

Reduction technique: The specific way in which force is applied to the raw material during tool manufacture. There are several different reduction techniques and knapping may involve a combination of several.

Reduction method: The overall process by which knapping is achieved. This may involve the application of several different reduction techniques.

Regular flakes: Removals with a minimum of 10 mm of regular acute edge. Regular flakes tend to be wider than blades, and their sides are not parallel. They do not require the use of a blade strategy.

Retouching: A flint knapping term: the removal of small flakes from a blade or flake in order to shape it. Retouching may also be used to create specific edges, for example the blunt edges of scrapers. Retouching is generally carried out by pressure flaking.

Scraper: A flaked stone tool: scrapers have a steep, blunt working edge. They may have been used for processing hides, but they would also be useful in many other ways.

Secondary material: Artefacts with flake platforms but some cortex on the dorsal surface.

Secondary technology: The second part of the tool production process: selected blades and flakes are modified into specific tool types. Modification usually comprises further flaking using either light percussion work or pressure flaking.

Size: Dimensions are given in millimeters in the order: length; width; thickness.

- **Length** is the measurement taken along a line at 90º to the platform of the piece;
- **Width** is the measurement taken across the widest part of the piece at 90º to the length and in the same plane;
- **Thickness** is the measurement taken from the ventral surface to the highest point of the dorsal surface along a line perpendicular to both length and width.

Tool: A subjective term reserved for pieces (whether modified or not) considered to be potentially of use as manipulated artefacts. This includes both retouched and unretouched pieces as well as cores.

Usewear: Damage to the edges or surfaces of a tool, see microwear.

Organization of the catalogue

The catalogue of flaked lithic material from Camas Daraich is organized by context within the individual sites.

Entry	**Description**
Lithic ref	Individual reference number for that catalogue entry
Bag no	Number of the bag in which material was placed on site
Quantity	Number of pieces in that entry. Like pieces from the same context were catalogued together
Material	Type of raw material
Type	Main type or 'group', for example flake; blade; core
Sub-type	Individual characteristics eg primary; secondary; inner.
Classification	Specific characteristics, for example regular flakes, debitage flakes,scrapers
Bipolar	Presence of bipolar traits (NB: their absence is not necessarily anindication of platform knapping)
Condition	Surface condition of the piece or pieces
Broken	Whether or not the piece is broken (recorded for individual entries only)
Size	In millimetres in the order length: width: thickness. Size is only recorded for whole flakes or blades, cores and retouched pieces
Notes	Free text

17 List of contexts

Context	No.	Square	Quadrant	Description	Interpretation
SP1	1001			Turf	Turfline
	1002			Compacted gleyed clay with dark silt and occasional mottles. Some stones.	Ploughsoil
	1003			Angular blocky fragments of sandstone intermixed with coarse granular organic–brown clay. Bedrock present	Till and bedrock
SP2	2001			Silty sand, 90% stone	Redeposited natural layer over drain
	2002			Cut into natural raised beach	Field drain
	2003			Large angular blocks	fill of drain
SP3	3001			Peat, very moist, stones rare	Peat
	3002			Rounded pebbles	Beach deposit
TPW	W1			Stone-free ploughsoil	Ploughsoil
	W2			Stony ploughsoil	Ploughsoil
	W3			Rounded pebbles	Beach material
TPX	X1			Ploughsoil	Ploughsoil
	X2			Stony ploughsoil	Ploughsoil (Tanged point found at the base of this context)
	X3			Sandy/gritty beach level, very degraded but with some intact pebbles	Beach
TPY	Y1			Light brown friable loam	Ploughsoil
	Y2			Dark brown loam	Ploughsoil
	Y3			Rounded pebbles	Beach
TPZ	Z1			Ploughsoil	Ploughsoil
	Z2			Mixed black and brown loamy ploughsoil	Mixed cultural material with ploughsoil
	Z3			Greasy black layer, penetrating into top of beach stones	Cultural layer
	Z4			Rounded pebbles containing some Z3	Beach deposit
Tr1	01	B1 & C1	–	Ploughsoil	Ploughsoil
	02	B5/6 & C5/6	–	Ploughsoil	Ploughsoil
	03	B1 & C1	–	Stony layer at base of Ploughsoil	Stony Ploughsoil
	04	B1 & C1	–	Dodded up black material at edge of track	Recently disturbed edge of track
	05	B1 & C1	–	Black greasy material with some ploughsoil mixed in	Definition layer between Context 3 and Context 10
	06	B3 & C2	–	Upcast in centre of track	Recently disturbed upcast
	07	B3 & C2	–	Black layer below Context 6, some modern admixture – cow pat	Recently disturbed archaeological material
	08	B3 & C2	–	Angular stones surrounded by black matrix, below Context 7. May be cut into Context 9: the beach material.	Cultural layer
	09	B3	–	Rounded pebbles with ginger matrix	Surface of Track
	10	B1 & C1	–	Black greasy layer below Context 5	Cultural layer
	11	B1 & C1	–	Loose stony fill (with voids) in long-cut Context 12	Ditch fill
	12	B1 & C1	–	Elongated cut filled with Context 11. Cut into Context 10	Drainage ditch

Context	No.	Square	Quadrant	Description	Interpretation
Tr1	13	B1	ne	Arbitrary spit of Context 10 removed to find the edge of Context 12.	Arbitrary spit in cultural material.
	14	B1	–	Grey clay at the edge of Context 12. Difficult to see on plan and photo	Silt at edge of ditch 12.
	15	B1	sw & nw	Grey/brown silt at base of Context 12, below Context 11	Primary silt in ditch 12
	16	B1 & C1	–	Stones	Beach material

18 Catalogue of flaked lithic material

Available as a downloadable Microsoft Access file (.mdb format) from:
http://www.sair.org.uk/sair12/sair12lithicscatalogue.mdb

19 Detailed results of the microwear analysis of lithic artefacts *by K Hardy*

Artefact no	Trench	Square	Context	Raw Material	Type	Size L W Th	Edge Angle	Observations	Interpretation	Illustrated
cat:817	1	B3 se	08	Chalcedonic silica	Flake	26×25×9	Inner platform edge: 83°	No fractures or polish around any outer edge. Strong, thin line of polish along inner platform edge (A) with parallel linear features of polish and small number of flake fractures.	Linear features and the fact that polish extends along edge suggests a longitudinal motion. Line of polish is thin, suggesting a non pliable worked material. Not many fractures, suggesting not very hard worked material, possibly wood or soaked antler. Most likely use was smoothing a shallow groove.	Yes
cat:818	1	B3 se	08	Chalcedonic silica	Flake	24×23×10	Right edge 45°	No edge damage.	Appears unused	
cat:822	1	B3 se	08	Bloodstone	Flake	17×26×5	Right edge 33°	Right side has flake and snap fractures along half its length (proximal) and may be artificially straight (A). Edge broken from half way up (B) as is distal tip (C). Fractures continue along part of distal edge (D). Inner platform edge, on dorsal side has many flake fractures (E). No polish detected.	Appears well used.	Yes
cat:823	1	B3 se	08	Bloodstone	Blade	23×10×5	Left edge 33°	No edge damage.	Appears unused.	
cat:824.	1	B3 se	08	Bloodstone	Blade	29×11×4	Right edge 32°.	No edge damage	Appears unused	
cat:827	1	B3 se	08	Bloodstone	Blade	11×7×2	Left edge 23°.	No edge damage	Appears unused.	
cat:828	1	B3 se	08	Chalcedonic silica	Blade	16×9×2	Left edge 24°.	No edge damage	Appears unused.	
cat:829	1	B3 se	08	Chalcedonic silica	Blade	14×9×2	Left edge 34°.	Area of polish on proximal ventral surface. Away from the edge so not consistent with use. No edge fractures.	Appears unused.	
cat:868	1	C2 ne	08	Chalcedonic silica	Flake	27×15×8	Right edge: 63°.	Spots of polish lie in a line across middle ventral surface terminating in large area of well developed, horizontally striated, polish at the right proximal corner.	Rubbed or has moved at some point, Corner used.	
cat:903	1	B3 sw	08	Bloodstone	Blade	18×8×3	Right edge: 26°.	No edge damage	Appears unused.	
cat:1243	1	B3 nw	08	Chalcedonic silica	Chunk	20×26×13	Proximal right edge: 63°.	A point at proximal right corner is heavily step fractured.	Probably used in a stabbing action.	

Artefact no	Trench	Square	Context	Raw Material	Type	Size L W Th	Edge Angle	Observations	Interpretation	Illustrated
cat:1246.	1	B3 nw	08	Chalcedonic silica	Flake	24.5×14×4	Left edge: 38°.	Top of distal tip is snapped off. Small tip at proximal may have been artificially created.	Tip broken possibly during use. No other evidence of use.	
cat:1250	1	B3 nw	08	Bloodstone	Flake	23×17×15	Left edge: 57°.	Left and right sides are well fractured. No traces of polish.	Both sides used.	
cat:1252	1	B3 nw	08	Bloodstone	Flake	23×16×7	Left edge: 57°.	Fracture at distal point but no other edge damage.	Possibly used.	
cat:1253	1	B3 nw	08	Baked mudstone	Flake	33×16×4	Left edge: 37°.	No edge damage	Appears unused.	
cat:1256	1	B3 nw	08	Chalcedonic silica	Flake	16×24×4	Right edge: 30°.	No edge damage	Appears unused.	
cat:1257	1	B3 nw	08	Chalcedonic silica	Flake	33×24×6	Right edge: 30°.	A small distal tip has been enhanced, end has snapped off. No damage on either side, apart from small area of snap fractures on proximal left side. Areas of polish on distal surface are likely to be modern.	Appears unused or broken during use.	
cat:1259	1	B3 nw	08	Chalcedonic silica	Flake	17×19×7	Left edge: 36o.	No edge damage	Appears unused.	
cat:1262	1	B1 se	10	Chalcedonic silica	Blade	22×17×4	Right edge: 21°.	No edge damage	Appears unused.	
cat:1265	1	B1 se	10	Chalcedonic silica	Flake	25×39×8	Left edge: 47°.	Polish and flake fracture are present at point of percussion possibly related to knapping process. Area of polish near ventral, distal edge with opposing small flakes on the dorsal side. No other evidence for use of this edge.	Unclear but appears unused	
cat:1341	1	B3 ne	08	Bloodstone	Flake	15×17×7	Left edge: 31°.	No edge damage	Appears unused.	
cat:1343	1	B3 ne	08	Bloodstone	Chunk	19×18×14	Left edge: 74°.	No edge damage	Appears unused.	
cat:1347	1	B3 ne	08	Quartz	Flake	14×8×2	Left edge: 23°.	Snap fractures on all edges. Distal point has been fractured.	Thinness of this piece suggests fractures are due to damage rather than use.	
cat:1351	1	B3 ne	08	Chalcedonic silica	Flake	21×20×5	Left edge: 27°.	No edge damage	Appears unused.	
cat:1352	1	B3 ne	08	Chalcedonic silica	Flake	18×18×4	Right edge: 50°.	Right and right distal edges are fractured and rounded.	Damage suggests light use.	
cat:1358	1	B3 ne	08	Bloodstone	Flake	28×18×16	Right distal edge: 31°.	Snap fractures on all edges. Right distal tip has snapped off. Right distal edge is rounded in profile and artificially straight. No polish.	Right side used at distal end.	

Artefact no	Trench	Square	Context	Raw Material	Type	Size L W Th	Edge Angle	Observations	Interpretation	Illustrated
cat:1359	1	B3 ne	08	Bloodstone	Flake	19×17×4	Left edge: 32°.	Distal and left distal edges have many snap fractures and are rounded. A point at left distal is blunt and rounded. Left distal edge is artificially straight. No polish on edges but polish visible along ridges on the surface.	Damage suggests use at distal. Surface polish may result from post-depositional movement or been caused during use, by being handled or carried around.	
cat:1360	1	B3 ne	08	Bloodstone	Flake	24×21×8	Right distal edge: 31°.	Small area of edge damage on right distal tip, inconsistent in texture and unlikely to be related to use. No other damage.	Appears unused.	
cat:1361	1	B3 ne	08	Bloodstone	Flake	26×25×10	Right distal: 37°.	Left distal tip smoothed and blunted with many flake and snap fractures.	Damage suggests use.	
cat:1362	1	B3 ne	08	Bloodstone	Flake	22×17×6	Right edge: 52°.	No edge damage	Appears unused.	
cat:1364	1	B3 ne	08	Bloodstone	Blade	11×9×2	Left edge: 25°.	No edge damage	Appears unused	
cat:1365	1	B3 ne	08	Baked mudstone	Blade	15×9×4	Right edge 34°.Left edge: 51°.	Snap fractures and rounding on both sides.	Damage suggests use.	
cat:1366	1	B3 ne	08	Baked mudstone	Blade	27×10×3	Left edge: 30°.	Small number of snap fractures along left side which is otherwise fresh.	Little used or not used at all.	
cat:1367	1	B3 ne	08	Chalcedonic silica	Blade	11×7×2	Left edge: 22°.	Numerous snap fractures along both sides which are otherwise fresh.	No evidence of use, the snap fractures may be the result of post-depositional or post-excavation movement	
cat:1368	1	B3 ne	08	Chalcedonic silica	Blade	10×9×2	Right edge: 27°.	Snap and flake fractures on right side.	As this blade is very thin, any use would quickly lead to wear. Appears unused.	
cat:1372	1	B3 ne	08	Baked mudstone	Retouched flake	23×14×5	Left edge: 43°.	No edge damage	Appears unused.	
cat:1434	1	B1 nw	01	Bloodstone	Retouched flake (scraper)	18×15×6	Right edge: 53°.Scraper edge: 78°.	Step fractures on right side which is slightly rounded. Distal tip is fractured and smoothed and has a spot of polish adjacent. Two areas of step fracturing present opposite each other half way up both sides. Distal scraper edge has a very light line of polish along its ventral surface.	Damage on tip and scraper edge suggest use.	
cat:1438	1	B3 sw	08	Chalcedonic silica	Flake	19×17×7	Left edge: 41o.	No edge damage	Appears unused.	
cat:1439	1	B3 sw	08	Chalcedonic silica	Flake	22×17×8	Left edge: 61°.	No edge damage	Appears unused.	
cat:1441	1	B3 sw	08	Chalcedonic silica	Blade	27×13×3	Right edge: 30°.	Small number of snap fractures along both sides. Polish present on prominent places on dorsal surface.	Both sides are fresh, suggesting use, if any, was light. Polish suggests movement or scratching.	

Artefact no	Trench	Square	Context	Raw Material	Type	Size L W Th	Edge Angle	Observations	Interpretation	Illustrated
cat:1442	1	B3 sw	08	Chalcedonic silica	Blade	25×15×8	Right edge: 54°.	Small amount of irregular edge damage: snap fractures along its one sharp edge. No edge rounding.	No evidence of use, snap fractures may be the result of post-depositional or post-excavation movement	
cat:1503	1	B1 ne	13	Bloodstone	Flake	35×20×8	Left distal: 60°.	Left distal edge is shaped to a point (A). Numerous flake and step fractures along edge(B) running up to point and on dorsal ridge which runs down to point (C). Area B is artificially straight. Small pockets of polish present on both edges near the tip.	Tip used probably in a rotational way.	Yes
cat:1504	1	B1 ne	13	Bloodstone	Blade	21×7×4	Left edge: 32°.	Some irregular snap and flake fractures along edges.	No evidence of use, snap fractures may be the result of post-depositional or post-excavation movement.	
cat:1505	1	B1 ne	13	Bloodstone	Blade	13×13×5	Left edge: 47°.	Small area of flake and snap fracturing on left side at proximal end.	Little used or unused.	
cat:1601	1	B3 sw	08	Chalcedonic silica	Flake	31×25×8	Left edge: 40°.	No edge damage	Appears unused.	
cat:1607	1	C2 ne	08	Chalcedonic silica	Flake	20×20×7	Left edge: 51°.	Left side has many flake and snap fractures, but is not rounded. Right (ventral) side has small number of fractures and polish with horizontal striations.	Damage on right ventral side suggests use.	
cat:1620	1	B1 se	10	Bloodstone	Retouched blade	9×7×4.5	Left edge: 37°.	Small number of irregular snap fractures along all edges.	No evidence of use, snap fractures may be the result of post-depositional or post-excavation movement.	
cat:1823	1	B1 se	10	Bloodstone	Flake	11×16×3	Distal; 56°.	Right distal edge is heavily step fractured.	Distal edge appears used in a percussive motion.	
cat:1840	1	B1 ne	13	Chalcedonic silica	Microlith, fine point	18×5×3	Point: 35°.	Left side is retouched. Neither side shows any damage. Both ends have fractured, the distal one (A) is blunted while the proximal end is partially fractured (B).	Blunting at distal could have happened during projectile use.	Yes
cat:1841	1	B1 ne	13	Chalcedonic silica	Microlith, rod (broken)	10×4×2	Both sides retouched, tip broken.	No edge damage	Appears unused, or broken during use.	
cat:1842	1	B1 ne	13	Chalcedonic silica	Flake(scraper resharpening)	9×5×3	Distal; 35°.	No damage except a few snap fractures along distal edge. Damage may have occurred while still part of a scraper edge.	Appears unused.	
cat:1845	1	B1 nw	05	Bloodstone	Microlith, backed bladelet(broken).	10×3×1	Unretouched side; 23°.	Small area of multidirectional scratches on lower ventral surface. Right edge has light polish and some large fractures.	Damage on a small area on the right side suggests use. May have broken during use.	

Artefact no	Trench	Square	Context	Raw Material	Type	Size L W Th	Edge Angle	Observations	Interpretation	Illustrated
cat:1846	TPX: 02		02	Chalcedonic silica	Microlith, backed bladelet (broken).	11×3×2	Unretouched side; 35°.	Two small areas of polish, one on dorsal and one on ventral surface. Polish on ventral contains scratches. Neither polished area seem related to use and the unretouched edge is still sharp.	Polish may be the result of movement, May have broken during use, no other evidence for use.	
cat:1847	TPX: 02		02	Bloodstone	Flake	17×14×4	Right edge; 46°.	Right distal has many snap fractures.	Appears unused.	
cat:1849	1	B3 se	08	Chalcedonic silica	Obliquely blunted point	22×11×6	40°.	Both ventral and dorsal surfaces have polish and scratches about one third of the way along. One polished area on ventral contains scratches parallel to polish line. Below this, area of polish with multidirectional scratches. Otherwise fresh.	May have been moved or hafted. Any use must have been light as it left no visible traces. Scratching and polishing very localized, unlikely to be use related.	
cat:1850	1	C2 se	08	Chalcedonic Silica	Blade	28×13×4	Left edge: 32o.	Substantial fracturing on left and right sides. Left side is lightly rounded. Small pockets of polish on ventral surface.	Light use. Refits with cat:1852.	
cat:1851	1	B3 sw	08	Chalcedonic silica	Retouched flake (scraper)	56×54×21	81°.	Small number of polish spots dotted over ventral surface. Small area of polish on ventral, distal edge.	Appears to have moved little since deposition. No traces of use.	
cat:1852	1	C2 se	08	Chalcedonic silica	Blade	14×13×4	Right edge: 51°; Left edge:39°.	Right side (A) has substantial fracturing and a thin line of polish at distal tip (B). Also lightly rounded. Dorsal surface has a large scratch (D), possibly related to excavation. Left side has many fractures and lightly rounded edge (C). Horizontally snapped, edge damage on both sides continues up to snap.	Used, possibly broken during or after use. Refits with cat:1850.	Yes
cat:1853	1	B1 se	03	Chalcedonic silica	Core	24×40×30	72°.	Only partly examined due to size. Two tiny scratches otherwise no traces of damage.	Appears unused.	
cat:1854	TPX		02	Chalcedonic silica	Blade	33×21×5	Right edge 42°.	Both sides heavily fractured with flake and snap fractures. At left distal, polished area with scratches perpendicular to edge. Small area of polish half way up right side and small pockets of polish across ventral surface. Left edge slightly rounded.	Polished areas not related to use. Both sides possibly used. Fractures and surface polish suggest movement.	
cat:1855	1	C2 ne	08	Chalcedonic silica	Obliquely blunted point	15×9×2	58°.	No edge damage	Appears unused.	
cat:1859	1	C2 ne	08	Bloodstone	Flake	17×30×7	Left distal edge: 46°.	Left distal has thin line of polish and is snapped at tip. Polish continues up to snap. Polish on dorsal is probably modern.	Damage suggests light use.	