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# Rhum

## Mesolithic and Later Sites at Kinloch, Excavations 1984–86

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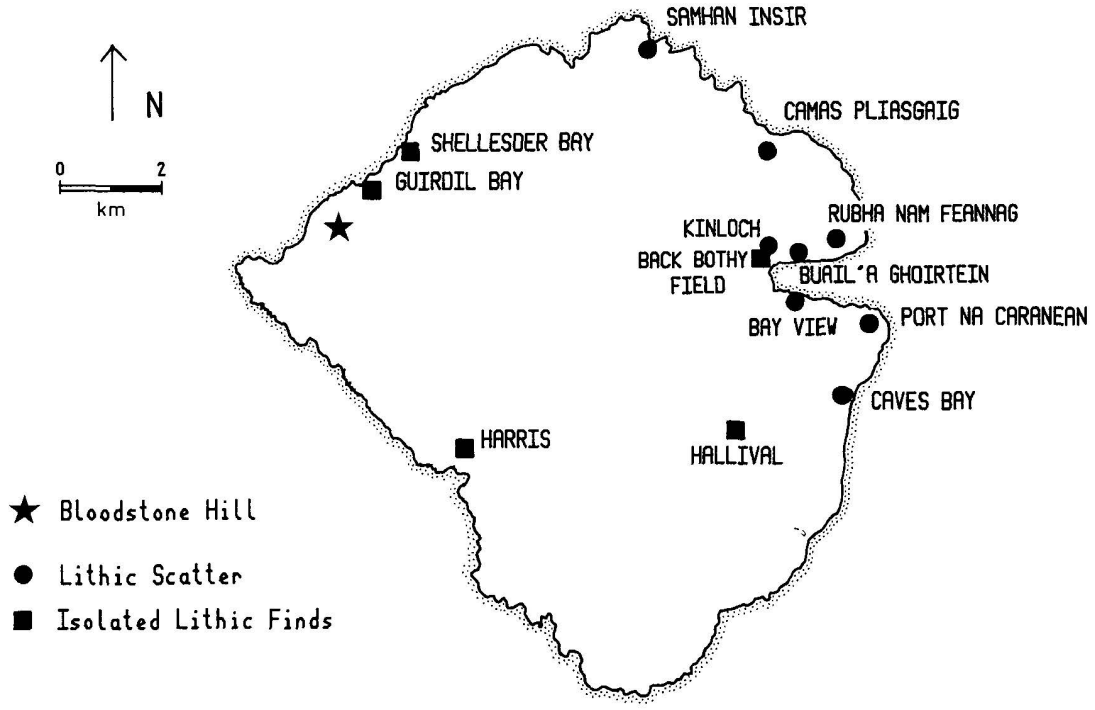
# 13 THE USE OF BLOODSTONE AS A RAW MATERIAL FOR FLAKED STONE TOOLS IN THE WEST OF SCOTLAND

A CLARKE & D GRIFFITHS

## OTHER LITHIC SCATTERS ON RHUM A CLARKE

In addition to the excavated site at Kinloch there are twelve other lithic scatters on Rhum (Ill 93). Four were known when excavations commenced (RCAHMS 1983; Love 1983), the rest were located during fieldwork in 1984 (Clarke mf, 1:E6–E9).




ILL 93: Rhum: location of Bloodstone Hill and other lithic scatters.

## THE ASSEMBLAGES

Although flint is present, bloodstone is the major lithic component on all of these sites (Tab 26). Knapping debris dominates the assemblages, but cores are only present at Buail a' Ghoirtein. Retouched artifacts are scarce (six artifacts only), and only three barbed-and-tanged arrowheads (two from Samhan Insir; one from Hallival), give any indication of period (bronze age).

| SITE | TOTAL | BLOODSTONE | FLINT | INDETERMINATE | OTHER | RETOUCHED |
|---|---|---|---|---|---|---|
| Camas Pliasgaig | 17 | 11 | | 5 | 1 | |
| Rubha nam Feannag | 47 | 47 | | | | |
| Samhan Insir | 34 | 28 | | 6 | | Retouched Blade<br>2x b & t Arrowhead |
| Bay View | 25 | 19 | 4 | | 2 | |
| Port na Caranean | 264 | 131 | 5 | 116 | 12 | |
| Caves Bay | 43 | 15 | 10 | 17 | 1 | Scraper |
| Buail'a Ghoirtein | 632 | 403 | 28 | 195 | 6 | Scraper |
| Guirdil Bay | 20 | 17 | 2 | | 1 | |
| Harris | 4 | 4 | | | | |
| Shellesder Bay | 3 | 3 | | | | |
| Back Bothy Field | 6 | 6 | | | | |
| Hallival | 1 | 1 | | | | b & t Arrowhead |

Table 26: Rhum, lithic scatters: materials composition of the lithic assemblages across the island.

## DISTRIBUTION

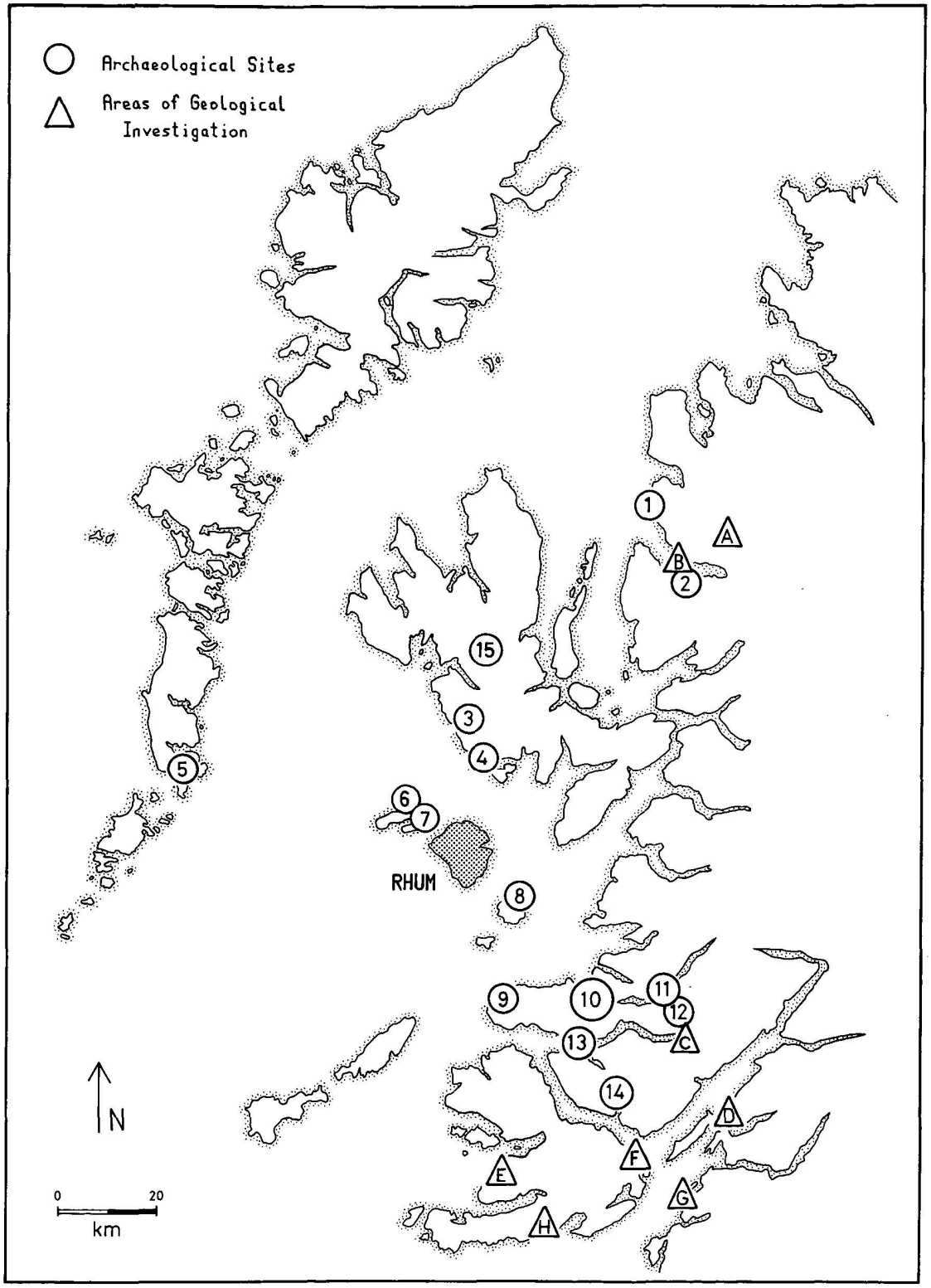
The peat cover of Rhum has sealed much of the prehistoric land surface, and prehistoric sites were only found in areas of natural erosion or artificial disturbance. Ploughing, in particular, both for forestry and crop cultivation, has resulted in the discovery of five of the sites (Clarke mf, 1:E6–E9). Hence, the coastal distribution of sites (Ill 93) does not necessarily reflect the prehistoric settlement patterns, but it probably indicates the impact of modern development. Despite this, there is considerable evidence for prehistoric activity around the north shore of Loch Scresort. In addition to the main site at Farm Fields, lithics are present in the fields adjacent and along the slopes to the NE of the site. In particular, the site at Buail a' Ghoirtein has produced a large assemblage of lithics from several concentrations exposed along a modern track. In 1985 a part of this area was excavated (Trench AN), and over 600 lithics were recovered although no archaeological features were found (Chapter 3). An examination of the lithic artifact types present in Trench AN shows that they are essentially similar to those from the Farm Fields (Tab 27).

| TYPE | NUMBER |
|---|---|
| Pebbles | 5 |
| Scalar Cores | 16 |
| Platform Cores | 3 |
| Disc Cores | 1 |
| Amorphous Cores | 2 |
| Blades | 14 |
| Flakes | 273 |
| Debris | 343 |
| Chunks | 7 |
| Retouched | 4 |
| Microliths | 3 |
| TOTAL | 671 |

Table 27: Trench AN: composition of the lithic assemblage.

## CONCLUSIONS

The spread of lithic artifactual material around Rhum indicates that prehistoric activity was widespread. The analysis of the assemblages confirms the role of bloodstone as a major resource, but it adds little to the interpretation of the prehistoric settlement of the island. It must be remembered, however, that these assemblages all result from surface collection only (with the exception of Trench AN), and many comprise few pieces.




ILL 94: The location of the areas of geological investigation and of archaeological sites with bloodstone artifacts. Areas of geological investigation: A Kinlochewe; B Shieldaig beach; C Strontian; D Port Appin; E Gribun, Mull; F Torosay Castle, Mull; G Kerrara; H Carsaig, Mull. Archaeological sites (see table 28): 1 Redpoint; 2 Sheildaig cairn & Sheildaig mesolithic site; 3 Kraiknish; 4 Rubh'an Dunain cave and cairn; 5 Glendale; 6 Isle of Canna; 7 Isle of Sanday; 8 Isle of Eigg (one isolated find and a lithic scatter); 9 Sanna Sands; 10 Cul na Croise, Drymen Sands, Kentra, Arivegaig & Bruach na Maorach; 11 Polloch; 12 Allt lochan na Caraidh; 13 Risga; 14 Acharn; 15 Tungadale.

# SITES OFF RHUM A CLARKE & D GRIFFITHS

## INTRODUCTION A CLARKE

The use of bloodstone as a raw material for the manufacture of flaked tools is not restricted to Rhum, and assemblages containing worked bloodstone occur on the neighbouring islands and the mainland, but bloodstone is not a major component of the assemblage at any site. The sites where bloodstone was used have been documented and mapped (Ritchie 1968), but their contents were not examined in detail, nor were the possible mechanics of the distribution of the raw material. At that time little was known about the prehistoric occupation of Rhum, but with the excavations at Kinloch and the analysis of the lithic industry, which was known to contain large quantities of bloodstone, it is felt an appropriate time to reappraise the prehistoric distribution and use of bloodstone. Furthermore, a number of unrecorded sites incorporating bloodstone artifacts have been identified since the publication of Ritchie's work and these could be added to the picture.

The overall aim of the reappraisal was to assess the prehistoric use of bloodstone as a raw material for flaked stone tools. The study was divided into two parts:

- the location and examination of potential sources of bloodstone;
- the location of sites making use of bloodstone, and the examination of their lithic assemblages.

## METHODS

### DOCUMENTARY SEARCH

Museum catalogues and relevant publications were examined for references to the sources of bloodstone and to collections of bloodstone artifacts.

### ARTIFACT EXAMINATION

Sites containing worked bloodstone were first listed, then the lithic assemblage from each site was examined. It was considered important to look at the whole range of lithic materials used at any site, but unfortunately access to complete assemblages was not always possible. Some assemblages rest in private hands, and surface collections are not always fully representative of a site. The examination of the assemblages was designed to provide a basic catalogue of the types of raw materials used and of the artifacts present within each assemblage. As a result of the problems inherent in the recognition of bloodstone (Chapter 4), this study is concerned only with those pieces of a green colour (with or without red inclusions), and with pieces containing vesicules whatever their colour. These pieces are certainly of bloodstone, but the exclusion of the more doubtful pieces (those of a grey or cream colour, and those with much abrasion), means that the amount of bloodstone recorded for any site represents only a minimum quantity.

### FIELD WORK

#### Sources D Griffiths

Although Bloodstone Hill on the west coast of Rhum has long been considered to be the primary source of bloodstone, other possible sources are cited in geological texts (Ritchie 1968), and it was considered important to ascertain their potential as sources of raw material in prehistory. To this end the sources were visited, where possible, and the raw material at each was examined. The survey was particularly concerned with the abundance and type of material to be found at these sources, and samples were collected to assess the potential for source characterisation using Electron Spin Resonance spectroscopy (see below this section). Finally, the extensive geological collections of the Royal Museum of Scotland were searched for examples of bloodstone from sources that might otherwise have been missed.

#### Sites A Clarke

All of the archaeological sites from which bloodstone had been recorded were visited. Both the sites and their surroundings were checked for potential sources of raw bloodstone (eg nodules in beach or river gravels). During the course of this work a search was also made for new sites with bloodstone artifacts.

| | SITE | SITE TYPE | EXCAVATED | PERIOD | BLOODSTONE % | RETOUCHED BLOODSTONE | REFERENCES |
|---|---|---|---|---|---|---|---|
| | Shieldaig, Wester Ross | Occupation | X | Meso | 1.1 | X | Walker (1973) |
| | Risga, Loch Sunart | Midden | X | Meso | 0.5 | X | Lacaille (1954) |
| | Polloch, Sunart | Lithic Scatter | | Meso | 4.1 | | D & E (1983) |
| | Acharn, Morvern | Lithic Scatter | | Meso | 0.4 | | Ritchie et al (1975) |
| | Arivegaig, Ardnamurchan | Lithic Scatter | | Meso | 7.0 | | |
| | Allt Lochan na Caraidh Sunart | Lithic Scatter | | Meso | 6.0 | | D & E (1983) |
| | Cul na Croise Ardnamurchan | Lithic Scatter | | Meso ? | 3.5 | | Lacaille (1954) |
| * | Rubh'an Dunain Cave, Skye | Cave Midden | X | Neo/BA ? | ≥4.1 | X | Lindsay Scott (1934 b) |
| * | Canna | Lithic Scatter | | Neo/BA ? | 40.0 | X | |
| * | Rubh'an Dunain Cairn, Skye | Chambered Cairn | X | Beaker | 50.0 | X | Lindsay Scott (1932, 1934 a) |
| | Eigg 1 | Single Find | | BA | 100.0 | X | |
| * | Shieldaig Cairn, Wester Ross | Kerb Cairn | X | BA | 10.0 | | Hedges (1978) |
| | Glendale, Uist | Lithic Scatter | | BA ? | 11.0 | X | |
| * | Tungadale, Skye | Souterrain | X | IA | 100.0 | | D & E (1989) |
| | Redpoint, Wester Ross | Lithic Scatter | | ? | 2.7 | X | Gray (1960) |
| * | Eigg 2 | Lithic Scatter | | ? | 5.0 | | Clarke (1976) |
| | Kentra, Ardnamurchan | Lithic Scatter | | ? | 6.2 | X | Lacaille (1954) |
| | Bruach na Maorach, Ardnamurchan | Lithic Scatter | | ? | 2.8 | | Lacaille (1954) |
| * | Kraiknish, Skye | Single Find by Chambered Cairn | | ? | 100.0 | | |
| | Drymen Sands, Ardnamurchan | Lithic Scatter | | ? | 7.0 | X | Lacaille (1954) |
| * | Sanna Sands, Ardnamurchan | Lithic Scatter | | ? | 12.5 | | |
| * | Sanday | Lithic Scatter | | ? | 100.0 | | Lacaille (1954) D & E (1983) |

* Sites not included in quantitative analysis

Table 28: The use of bloodstone in prehistory, sites off the island of Rhum: site type and period.

# RESULTS

## THE LOCATION AND EXAMINATION OF SOURCES D GRIFFITHS

Nine locations were examined to determine whether they might provide a source of raw material for the archaeological assemblages (Ill 94). Whilst the raw materials used in the Kinloch assemblage are not (for the most part) bloodstone in the strict geological sense, they are the sort of material generally found in geological association with bloodstone (Chapter 4). Thus, the examination of sources of bloodstone is justified as a starting point in looking for the raw material sources of prehistory.

With the exception of the source at Bloodstone Hill, none of the other locations yielded material at all similar to that used in prehistory (Griffiths mf, 1:F8–F13). Bloodstone was only found at two sites: a few pebble nodules were found on a beach on the west coast of Mull; and the collections of the Royal Museum of Scotland contained one pebble nodule from Machrihanish, Kintyre. Neither of these finds, however, could be said to provide evidence for viable alternative sources of raw material in prehistory, and the nature of the pebbles and their association with beach deposits at both sites suggests that *in situ* sources are not represented at either location. It seems likely that past research has used the term 'bloodstone' loosely, to identify a variety of green or red coloured rocks.

The evidence from fieldwork, therefore, suggested that Bloodstone Hill was indeed the only source of bloodstone exploited in prehistory. The next step was to verify this with an attempt to provenance some of the archaeological artifacts. A number of techniques have been used to source other microcrystalline siliceous rocks (eg thin-sectioning, trace element analysis, and microfossil composition), but all of these techniques posed special problems when applied to bloodstone. A recent pilot study (Griffiths & Woodman 1987) has shown that the non-destructive technique of Electron Spin Resonance (ESR) spectroscopy may also be used for such work, and this was the analysis pursued.

The ESR spectrum of a geological sample is a function of its composition and the conditions of its formation. The spectrum may subsequently change due to the chemical or physical processes that affect the atomic environments or the numbers of unpaired electrons, such as re-crystallisation, heating, or irradiation. The effects of gamma irradiation and heat on the ESR spectra of flint have already been investigated (Griffiths *et al* 1983 & 1987), and similar behaviour may be expected in hydrothermal silica rocks. Geological provenancing depends on finding some property of the raw material that is characteristic of samples of that material from a given region, and serves to differentiate them from samples from other regions. The use of ESR spectroscopy for reliable provenancing is dependant on having a thorough knowledge of the range of variation that is present in the ESR spectra of each of the geological sources under investigation. This requires comprehensive sampling which is both time consuming and expensive. In order to investigate whether the effort and expense of such a programme might be justifiable, the ESR spectra of a preliminary batch of 29 samples of micro crystalline siliceous rocks from western Scotland were recorded and examined. A particular question that needed to be answered was whether or not the samples showed a significant variation in their ESR spectra, for if all of the spectra were similar, it would be less likely that features characteristic of provenance could be discerned. The preliminary batch of samples (all of bloodstone), comprised one geological sample from Fionchra, Rhum; ten geological samples from Bloodstone Hill, Rhum; four geological samples from Mull; and fourteen archaeological samples from various sites in western Scotland (Griffiths mf, 1:F8–F13).

Although the sample numbers were small, the results of this analysis suggested that there might be distinct differences between the nodules from Mull and those from Rhum. The results suggested that this technique might be applicable to the provenancing of bloodstone, but there was a major problem in the considerable variation present within the geological material from Bloodstone Hill itself. This variation meant that it would be difficult to match the spectra of material from Kinloch to the spectra of material from the island sources. For this and other reasons, the investigation of the application of ESR spectroscopy to the sourcing of bloodstone was not pursued. As the survey stands, the small sample size used means that the detailed provenancing of the archaeological material is not possible (Griffiths mf 1:F8–F13).

## THE LOCATION AND EXAMINATION OF ARCHAEOLOGICAL SITES AND THEIR ASSOCIATED ASSEMBLAGES A CLARKE

Twenty-two sites were found to include worked bloodstone in the lithic assemblage (Tab 28; in addition it has recently been reported amongst the assemblages from Mercer's excavations on Jura, Finlayson *pers comm*). All the sites lie within 70km of Rhum; they are to be found on the neighbouring islands and peninsulas of the west coast of Scotland; none of the sites are far inland. The sites comprise most (but not all), of the lithic scatters known in the area. However, the distribution of material seen today owes more to the *ad hoc* collecting practices that have taken place across the area than it does to the likely spread of prehistoric activity. Thus, it reflects both the existence of active collectors, particularly in the Ardnamurchan peninsula, and the locations of recent ground disturbance, as on Eigg. Nevertheless, it is likely that the distribution of these sites does represent the area within which bloodstone was considered to be a resource in prehistory. In the future targeted fieldwork must be used to determine whether the lacunae, seen on Ill 94, represent true gaps in the prehistoric settlement of the area and in the use of bloodstone.

Only five of the sites have been excavated; the assemblages from the remainder of the sites result from the surface collection of material, and, as such, they reflect all of the biases usually present in surface collections. The associated data suggest that the majority of the sites are mesolithic, although both neolithic and bronze age sites are included. Eight sites comprised such small assemblages that they were not considered in the quantitive analysis of the catalogued data (Tabs 28, 29).

Tables 28 and 29 both illustrate that the bloodstone artifacts comprise only a small percentage of the total lithic assemblage from any site. All the assemblages are dominated either by flint or by quartz, supplemented by small quantities of other raw materials; on half the sites less than 5% of the assemblage is of bloodstone. All the materials are local; both flint and quartz are available throughout the area (Wickham-Jones 1986), the other materials may be more restricted and were used only within their immediate source area. Many local rocks were more or less suitable for stone tool manufacture, and they were used at individual sites on an *ad hoc* basis, eg the mudstones of Redpoint, or the chalcedonies of Ardnamurchan. On two

| | SITE | MATERIAL | TOTAL | CORES % | DEBRIS % | BLADES % | RETOUCHED % | % WITH CORTEX |
|---|---|---|---|---|---|---|---|---|
| ① | Redpoint T = 1356 | Bloodstone | 37 | | 97.2 | | 2.7 | 8 |
| | | Flint | 35 | | 97.1 | | 2.8 | 4 |
| | | Mudstone | 197 | 1.0 | 97.4 | 0.5 | 1.0 | |
| | | Quartz | 1087 | 1.2 | 97.1 | 1.2 | 0.4 | |
| ② | Shieldaig T = 6001 | Bloodstone | 68 | | 86.7 | | 13.2 | 3 |
| | | Flint | 655 | 3.6 | 90.9 | 1.0 | 4.2 | 17 |
| | | Chalcedony | 8 | | 87.5 | | 12.5 | |
| | | Quartz | 5270 | 0.6 | 96.4 | 2.2 | 0.6 | |
| ⑤ | Glendale T = 62 | Bloodstone | 7 | | 57.0 | | 42.8 | 0 |
| | | Flint | 52 | 1.9 | 86.5 | | 11.5 | |
| | | Quartz | 2 | | 100.0 | | | 32 |
| | | Sandstone | 1 | | 100.0 | | | |
| ⑧ | Eigg 1 T = 100 | Bloodstone | 5 | | 100.0 | | | 0 |
| | | Flint | 71 | | 85.9 | | 14.0 | |
| | | Agate | 22 | 13.6 | 86.3 | | | 30 |
| | | Pitchstone | 2 | | 100.0 | | | |
| ⑬ | Risga T = 14080 | Bloodstone | 67 | 16.4 | 79.0 | | 4.4 | 1 |
| | | Rest | 14013 | 2.1 | 91.6 | | 6.4 | ? |
| ⑫ | Allt Lochan na Caraidh T = 77 | Bloodstone | 5 | | 100.0 | | | 20 |
| | | Flint | 45 | 2.2 | 93.3 | 2.2 | 2.2 | 12 |
| | | Chalcedony | 27 | | 100.0 | | | |
| ⑩ | Arivegaig T = 41 | Bloodstone | 3 | | 100.0 | | | 0 |
| | | Flint | 38 | | 97.3 | | 2.6 | 23 |
| ⑩ | Cul na Croise T = 336 | Bloodstone | 12 | 8.3 | 91.6 | | | 0 |
| | | Flint | 60 | 3.3 | 91.6 | | 5.0 | 13 |
| | | Chalcedony | 142 | | 100.0 | | | |
| | | Quartz | 122 | | 100.0 | | | |
| ⑩ | Kentra T = 128 | Bloodstone | 8 | 25.0 | 62.5 | | 12.5 | 12 |
| | | Flint | 52 | | 88.4 | | 11.4 | 38 |
| | | Chalcedony | 68 | | 100.0 | | | |
| ⑩ | Bruach na Maorach T = 35 | Bloodstone | 1 | | 100.0 | | | 0 |
| | | Flint | 24 | | 95.8 | | 4.1 | 5 |
| | | Quartz | 10 | 20.0 | 80.0 | | | |
| ⑪ | Polloch T = 143 | Bloodstone | 6 | | 100.0 | | | 0 |
| | | Flint | 126 | 2.3 | 94.3 | | 3.1 | 19 |
| | | Chalcedony | 11 | | 100.0 | | | |
| ⑭ | Acharn T = 843 | Bloodstone | 3 | 33.3 | 66.6 | | | 0 |
| | | Flint | 661 | 1.3 | 85.4 | 9.2 | 3.9 | |
| | | Chalcedony | 165 | 7.2 | 90.2 | 1.2 | 1.2 | |
| | | Pitchstone | 1 | | | 100.0 | | 13 |
| | | Mudstone | 4 | | 100.0 | | | |
| | | Quartz | 9 | 11.1 | 88.8 | | | |
| ⑩ | Drymen Sands T = 85 | Bloodstone | 6 | | 66.6 | | 33.3 | 0 |
| | | Flint | 77 | | 78.5 | | 21.5 | ? |
| | | Chalcedony | 2 | | 100.0 | | | |

Table 29: The use of bloodstone in prehistory, sites off the island of Rhum: raw material types.

sites (Acharn and Eigg 1), there are also small quantities of pitchstone and these pose a problem. Pitchstone from Arran is known to occur in archaeological assemblages across Scotland (Thorpe and Thorpe 1984), but there are pitchstone outcrops on Eigg. The pitchstone artifacts from these two sites were not included within the previous work on the sourcing of pitchstone artifacts and so it is possible that the material was locally derived from Eigg, rather than from Arran.

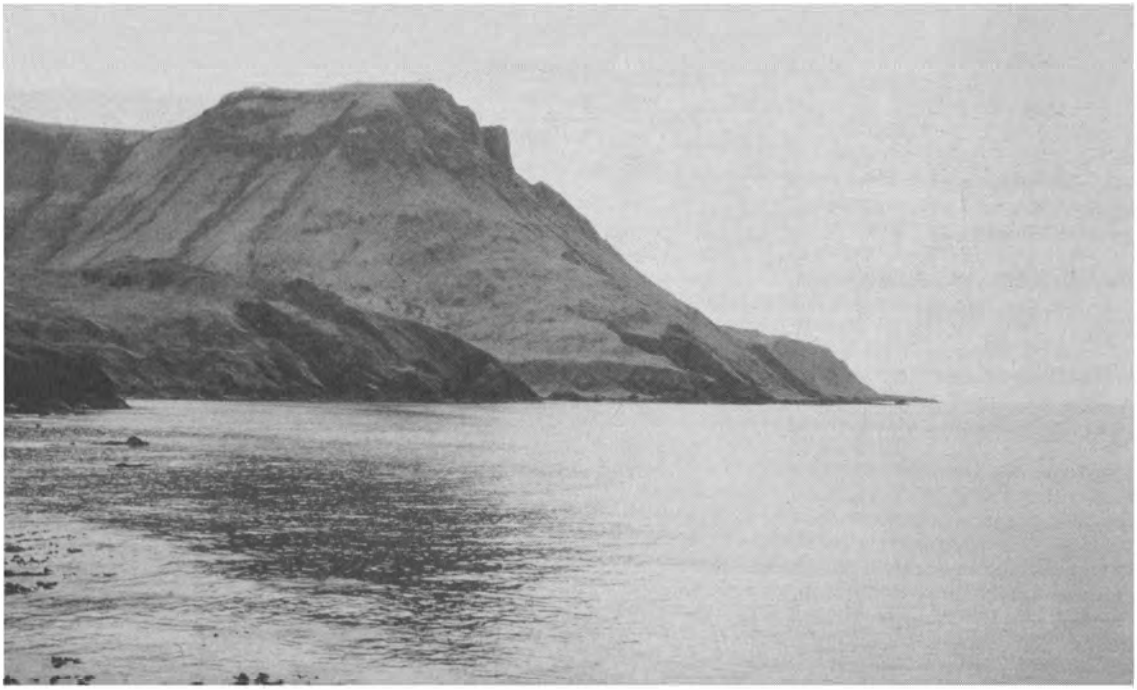
In order to assess whether bloodstone was transported as pebble nodules, the percentage of cortical pieces on each site was calculated, together with the percentage of bloodstone cores and knapping debris (Tab 29). On most sites cortical pieces were scarce, they were 'numerous' at only three sites, and there were bloodstone cores at only three sites. Knapping debris occurred on all sites, but only ten of the twenty-one sites contained retouched artifacts of bloodstone.

The analysis of the artifact assemblages was difficult because of the poor quality of the data. Most assemblages contain only small quantities of bloodstone, and it is noticeable that the two largest assemblages come from the

only two sites in the series that have been excavated. Despite these problems, there are points of interest. The cortical component of the archaeological assemblages is generally low (Tab 29), and this suggests that the nodules were reduced before leaving Rhum (perhaps to limit weight or to test the quality of the raw material). Knapping debris does occur on all of the sites, however, so that some additional reduction of bloodstone is likely to have taken place locally. This may have included the production of flakes on some sites, in particular those from which bloodstone cores were recovered (three of these sites are mesolithic). Elsewhere it may be that the bloodstone was transported as flakes and these flakes could then be further worked as necessary. As it stands, the evidence does not suggest that bloodstone fulfilled a specific function at any of the sites. There is a relatively high number of retouched pieces of bloodstone, and this might reflect the value assigned to the material in prehistory (perhaps for its visual quality and its rarity off the island), but it might also be a result of the biases of past collection techniques.

## DISCUSSION

Although not fully confirmed by geological provenancing, the available evidence does suggest that Bloodstone Hill, Rhum (Ill 95), was the only prehistoric source of bloodstone. Given this assumption, and though the archaeological evidence is not abundant, certain patterns are discernible. The use of bloodstone extended over a long period of time (from the mesolithic into the bronze age). Bloodstone was only one of a number of lithic resources available throughout the area, but it was the only raw material likely to have been collected from any distance. Throughout the period of its use, some slight changes are visible. In the mesolithic there is more evidence for the on-site manufacture of bloodstone artifacts (reflected in the quantities of knapping debris recovered), and as the mesolithic sites are all (so far) on the Ardnamurchan or Morvern peninsulas there is the possibility that their inhabitants maintained direct access to Rhum and removed raw material in the form of cores. In this period the exploitation of bloodstone may have been a subsidiary to other subsistence activities. In the later periods it seems that bloodstone may have been used more specifically, particularly for retouched artifacts, and it may have been transported as prepared flakes. It must be remembered, however, that many different types of site are involved; excavation is necessary to verify the details of the emerging picture of the use of bloodstone in prehistory throughout the area.



ILL 95: Bloodstone Hill from the N.