

## 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.

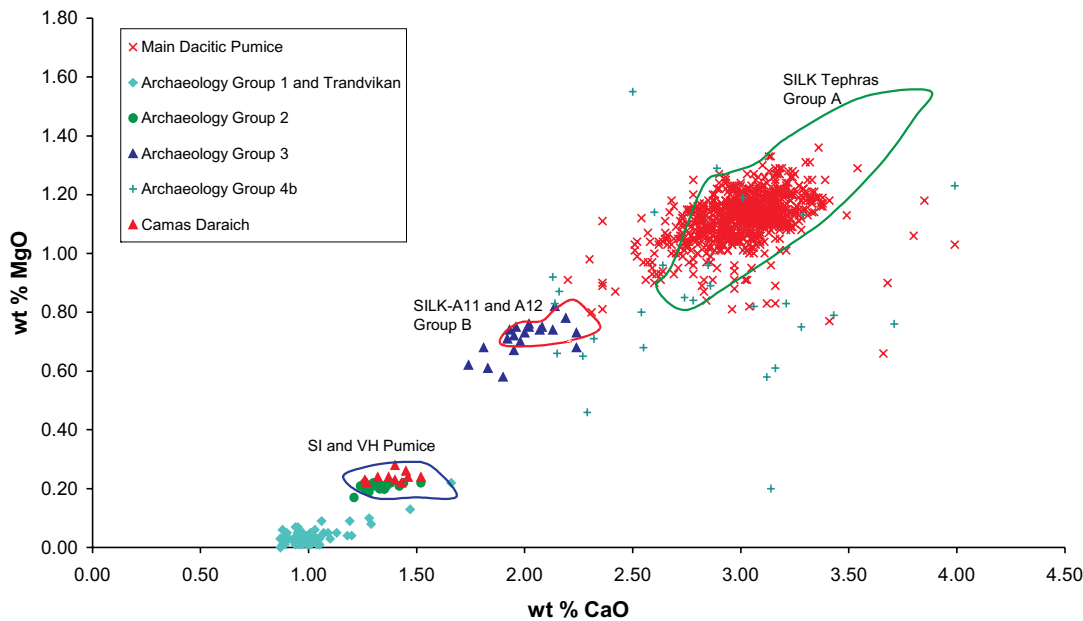
### 8.2 Pumice at Camas Daraich

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  $7670 \pm 55$  uncalibrated  $^{14}\text{C}$  years BP (calibrated 2 sigma range 6638–6424 BC). The largest pumice piece ( $65 \times 35$  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

SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	FeO	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	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.

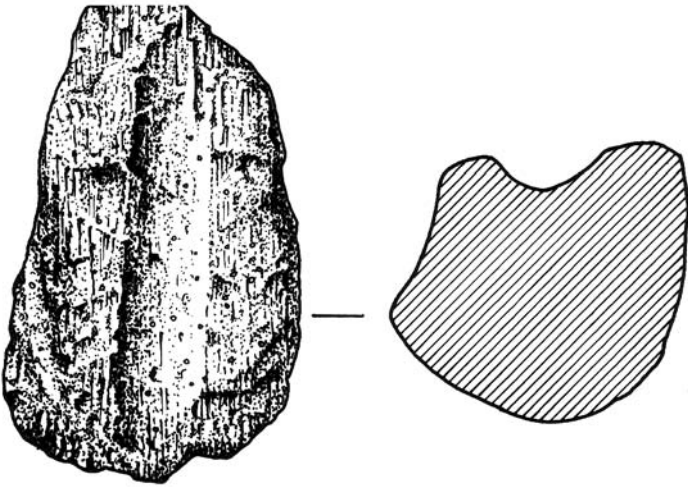
Grooved pumice has been found on other sites, notably at Kinloch on Rùm. At Kinloch, however, it was found in the ploughsoil and could not be securely dated to the Mesolithic. Another worked piece from Kinloch lay in a more recent context, dated to 2146–2573 cal BC, and relating to a more recent eruption (*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

0 5 cms

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.



*Illus 40 Camas Daraich: the worked pumice, B102*