APPENDIX 4: THE LITHIC ASSEMBLAGE FROM DUNASBROC *by Chris Barrowman*

4.1 Introduction

The following report describes the flaked lithic material from the trial excavations at Dunasbroc, Ness, Isle of Lewis in 2005. The total number of lithics recovered from the excavation was 96 (see table 5 for catalogue).

4.2 Methodology

All the lithics recovered by hand and through dry sieving were present for analysis. All pieces were macroscopically classified according to standard analytical principles (Ballin 2000). Any lithics smaller than 10mm in the maximum linear dimension are normally identified as waste or debitage from knapping. However, there were only two lithics of this size within the assemblage, and given that all spoil was sieved with a ¼-inch riddle (*c* 6mm; McHardy 2005, 14) any waste material should have been recovered if present. As there was a policy adopted during excavation that all lithic debris would be recorded (McHardy pers comm), it must be concluded that there was no debitage in the contexts excavated.

4.3 Raw material

Approximately two thirds of the lithics were quartz, with the remainder flint. Three lithics were of a banded siliceous material, one patinated flake of orange agate (SF22), but the other two are very like flint (SF28 and SF48). These would have derived from a beach pebble source, indeed one of the pieces (SF28) *is* a beach pebble. The flint also derives from a pebble source (save one imported artefact – see below), likely to have been available in small amounts on local beaches, and comparable to other flint assemblages on Lewis (Warren forthcoming a)). Cortex is present on 30% of the flint, and it is heavily battered and pitted. There is one flint pebble with a spall scar present. The flint is greatly patinated (45% of all pieces), and 35% is burnt. Most of the flint is either grey or white in colour, and one piece is orange, indicating imported flint (see below).

The quartz utilised in the assemblage is a grey/white opaque form which ranges in quality from very fragmented and crystalline in nature, to a clearer form with a more consistent and fine-grained body. The majority of the quartz is of the former type (79%) and often has small flecks of feldspar throughout, while 15% of the pieces are of the higher-quality, more durable type. All of the quartz would have been available in the immediate locality, although it is impossible to say where the quartz in this assemblage derived from. Quartz is found across the whole of north-west Scotland (quartz assemblages from here are described as being from the Scottish quartz province) and there are known assemblages along the west coast of the island which would have utilised stone from either quartz veins running throughout the Lewisian gneiss, or from beach pebbles. A rock outcrop of quartz at Cnoc Dubh near Garynahine shows the marks of quarrying, and has been examined in detail by Ballin (Ballin 2004).

4.3.1 Condition

Only the condition of the flint assemblage can be described with confidence, given the tendency of quartz to fracture and split naturally. It is also hard to identify the effects of burning on quartz (although see Ballin forthcoming). Many of the pieces (41% of quartz) do show signs of frosting however, indicating post-depositional changes in the material, presumably from weathering. Of the 31 flint pieces, 45% were fully patinated and 42% showed indications of burning. Although the patination gives an indication of post-depositional changes in the material, it is likely that the burnt pieces have undergone firing prior to deposition, given that these pieces are mixed with unburnt lithics in the same contexts (mainly Context 006).

Almost all the quartz and flint is fresh and shows little sign of abrasion as a result of being moved or rolled subsequent to their original deposition. It is likely that the material was either worked at the site or had been brought to it from nearby. Fourteen per cent of the assemblage showed signs of being snapped (these lithics being mostly flakes and blades). Edge damage occurs on 10 lithics (10.5% of the assemblage), and a further 10 show possible edge damage (also 10.5% of the assemblage). This edge damage is likely to have occurred through use (see below).

4.3.2 Assemblage composition

The table (table 6) below shows the composition of lithic types within the assemblage by raw material.

The reduction process varies between the raw materials. Quarried and pebble quartz, pebble flint and pebble agate sources are all present, with a higher proportion of quartz chunks indicating the use of quartz from a quarried source. The three identified cores are all of flint, and show bipolar working techniques, which is expected given that small beach pebbles were the only available source.

Table 5 Dunasbroc flaked lithics 2005

ID	Site ID	Find No	Find No 2	Trench	Context	Raw Mat	Validation	Colour	Blank	Sub-blank	Cond	ED?	Modified?	Red Seq	L	W	B	Snapped?	Name	Notes (including type of retouch and history)
1	DAB05	22		2	2	banded	definite	orange	flake	irregular	fresh	yes	yes	p	28	16	11	no	utilised flake	poss. crude edge retouch and later damage 20% rhs distal
2	DAB05	25		2	2	quartz	definite	white/ opaque	flake	regular	fresh	no	no	t	42	36	16	no	thick flake	
3	DAB05	28		2	2	banded	definite	white	pebble	regular	burnt?			p	35	31	27		flint pebble	one spall scar. Beach pebble
4	DAB05	29	a	2	2	quartz	definite	white/ brown	flake	irregular	fresh	poss.	poss.	t	38	25	15	no	utilised point?	possible edge damage at distal end point
5	DAB05	29	b	2	2	flint	definite	white	flake	regular	fresh	no	no	t	9	14	2	no		
6	DAB05	33		2	3	flint	definite	grey	blade	regular	patinated	no	no	t	27	15	7	distal	crested blade	previous removals show diffuse ripples in same direction
7	DAB05	34		2	3	quartz	definite	white/ brown	flake	regular	fresh	no	no	t	20	16	6	no		
8	DAB05	36		2	3	quartz	definite	white	chunk	regular	patinated	no	no	s	11	13	9			
9	DAB05	43		2	6	flint	definite	white	flake	irregular	burnt	no	no	t	14	10	6	no		
10	DAB05	44		2	6	flint	definite	white	flake	regular	patinated	no	no	t	12	13	3	no		
11	DAB05	47	a	2	6	quartz	definite	white/ opaque	flake	regular	fresh	no	no	t	39	26	9	no		
12	DAB05	47	b	2	6	quartz	definite	white/ opaque	flake	regular	fresh	no	no	t	11	6	3	no		
13	DAB05	48		2	6	banded	prob.	grey	flake	regular	patinated	no	no	t	14	10	3	distal		
14	DAB05	68		2	6	flint	definite	grey	flake	regular	patinated	no	no	p	28	22	7	distal		
15	DAB05	71	a	2	6	quartz	definite	white/ opaque	chunk	regular	fresh	no	no	t	37	22	12			
16	DAB05	71	b	2	6	quartz	definite	white	chunk	regular	fresh	no	no	t	32	20	14			
17	DAB05	72		2	6	flint	definite	grey	flake	irregular	burnt	yes	indet.	p	37	27	7	no	utilised decortical flake	edge damage lhs
18	DAB05	73		2	6	quartz	definite	white	flake	regular	fresh	poss.	indet.	t	51	44	18	no	large utilised flake	possible edge damage at distal edge
19	DAB05	75		2	6	flint	definite	grey	flake	irregular	patinated	no	no	p	27	27	10	yes		
20	DAB05	86		2	6	flint	definite	grey	core	regular	patinated	no	no	s	28	20	9	no	bipolar core	flakes removed from opposed ends on either side
21	DAB05	93		2	6	flint	definite	grey	flake	regular	patinated	yes	no	s	24	17	4	no	utilised flake	scar on dorsal shows flake removal from opposite end
22	DAB05	100		2	6	flint	definite	orange	flake	bifacial	fresh	yes	yes	t	29	19	2	proximal	leaf arrowhead	complete invasive retouch
23	DAB05	101		2	6	flint	definite	grey	flake	irregular	burnt	no	no	s	23	19	10	no		thick decortical flake
24	DAB05	104		2	6	quartz	definite	white	flake	regular	fresh	no	no	t	29	27	13	no		

Table 5 (*cont.*)

ID	Site ID	Find No	Find No 2	Trench	Context	Raw Mat	Validation	Colour	Blank	Sub-blank	Cond	ED?	Modified?	Red Seq	L	W	B	Snapped?	Name	Notes (including type of retouch and history)
25	DAB05	108		2	6	quartz	definite	white/ brown	flake	regular	fresh	yes	no	t	37	27	7	no	utilised flake	almost denticulated, uneven damage
26	DAB05	109		2	6	quartz	definite	white	blade	irregular	fresh	no	no	t	20	14	7	no		
27	DAB05	114		2	4	quartz	definite	white/ brown	flake	regular	fresh	yes	no	t	19	27	6	no	poss. utilised flake	edge damage but may be post deposition lhs and distal
28	DAB05	130	a	2	6	flint	definite	white	blade	irregular	burnt	no	no	t	33	11	5	proximal		
29	DAB05	130	b	2	6	flint	definite	white	blade	regular	burnt	no	no	t	14	9	7	proximal and distal		prominent ripples
30	DAB05	133	a	2	6	quartz	prob.	white	chunk	irregular	burnt?	no	no	t	40	28	18			
31	DAB05	133	b	2	6	quartz	prob.	white	flake	irregular	burnt?	no	no	t	33	15	10	no		
32	DAB05	134		2	6	quartz	definite	white/ brown	flake	irregular	fresh	no	no	s	25	23	10	no		
33	DAB05	138		2	6	quartz	definite	white/ grey	flake	regular	fresh	yes	yes	t	45	29	11	no	retouched flake	edge retouch lhs, distal end damaged
34	DAB05	142	a	2	6	flint	definite	grey	flake	regular	patinated	no	no	t	13	11	3	no		
35	DAB05	142	b	2	6	flint	definite	white	flake	irregular	burnt	no	no	t	20	15	6	no		
36	DAB05	144	a	2	6	quartz	definite	white	blade	regular	fresh	no	no	t	32	12	11	proximal	crested blade	
37	DAB05	144	b	2	6	quartz	definite	white	flake	regular	fresh	no	no	t	26	16	9	no		
38	DAB05	151		2	6	flint	definite	grey	flake	regular	patinated	no	no	p	25	21	7	distal		
39	DAB05	154		2	6	quartz	definite	white/ brown	pebble	regular	patinated	no	no	p	28	18	16			
40	DAB05	162		2	8	quartz	definite	white	flake	regular	fresh	no	no	t	17	14	3	no		
41	DAB05	164	a	2	6	flint	definite	grey	chunk	regular	abraded	no	no	p	47	26	20			chunk with flakes removed not core
42	DAB05	164	b	2	6	flint	definite	grey	chunk	regular	burnt?	no	no	p	21	15	6			small chunk
43	DAB05	164	c	2	6	flint	definite	grey	chunk	regular	burnt?	no	no	s	27	15	13			small chunk scorched?
44	DAB05	165		2	6	quartz	definite	white/ brown	chunk	irregular	fresh	no	no	s	60	37	35			poss. flake removals
45	DAB05	168	a	2	6	quartz	definite	white/ grey	chunk	regular	fresh	no	no	p	100	65	35			flake removals, irregular
46	DAB05	168	b	2	6	quartz	definite	white/ grey	flake	regular	fresh	no	no	t	29	26	8	no		crystalline quartz with mica inclusions
47	DAB05	172		2	10	quartz	definite	white	flake	regular	fresh	poss.	no	t	33	17	10	no	poss. utilised flake	v. steep lhs edge, no obvious retouch but possible damage
48	DAB05	179		2	9	quartz	definite	white	flake	regular	patinated	poss.	no	t	21	16	7	no	poss. utilised flake	poss. edge damage rhs

Table 5 (*cont.*)

ID	Site ID	Find No	Find No 2	Trench	Context	Raw Mat	Validation	Colour	Blank	Sub-blank	Cond	ED?	Modified?	Red Seq	L	W	B	Snapped?	Name	Notes (including type of retouch and history)
49	DAB05	181	a	2	9	quartz	definite	white	flake	irregular	fresh	poss.	indet.	t	55	31	17	no	rejuvenation flake?	previous removals at 90 degrees
50	DAB05	181	b	2	9	quartz	definite	white	flake	regular	fresh	no	no	t	17	15	9	no		
51	DAB05	186	a	1	8	quartz	definite	white/ brown	blade	irregular	patinated	yes	no	s	40	17	10	distal	utilised blade	edge damage rhs, shallow notches from working
52	DAB05	186	b	1	8	quartz	definite	white/ brown	flake	regular	patinated	no	no	t	25	13	6	no		
53	DAB05	500		2	6	flint	definite	grey	flake	regular	patinated	no	no	t	18	13	2	no		
54	DAB05	501		2	6	flint	definite	grey	flake	regular	patinated	no	no	t	14	10	3	no		
55	DAB05	502		1	1	quartz	definite	white	chunk	regular	patinated	no	no	s	35	30	18			
56	DAB05	503		2	6	quartz	definite	white	flake	regular	abraded	no	no	s	22	22	6			natural water rolled pebble
57	DAB05	504		2	6	quartz	definite	white	flake	irregular	patinated	no	no	t	21	18	10	no		
58	DAB05	505		2	6	quartz	definite	white	flake	irregular	patinated	no	no	t	22	17	6	no		
59	DAB05	506		2	6	quartz	definite	white	flake	regular	patinated	no	no	t	13	13	3	no		
60	DAB05	507		2	1	quartz	definite	white/ brown	chunk	irregular	patinated	no	no	s	57	42	20	no		
61	DAB05	508		1	1	quartz	definite	white	flake	irregular	patinated	no	no	t	27	18	9	no		
62	DAB05	509		1	1	quartz	definite	white	flake	irregular	patinated	no	no	t	15	10	4	no		
63	DAB05	510		2	6	flint	definite	white	flake	irregular	burnt	no	no	p	17	9	3	no		
64	DAB05	511		2	6	flint	definite	white	flake	irregular	burnt	no	no	p	14	9	5	no		
65	DAB05	512		2	2	quartz	prob.	white/ brown	flake	irregular	patinated	no	no	t	23	21	6	no		
66	DAB05	513		2	2	quartz	definite	white/ opaque	chip	regular	fresh	no	no	t	9	4	2	no	debitage	
67	DAB05	514		2	2	quartz	definite	white	chip	regular	fresh	no	no	t	9	6	2	no	debitage	
68	DAB05	515		2	2	quartz	definite	white	flake	irregular	fresh	no	no	t	13	6	3	no		
69	DAB05	516		2	2	quartz	definite	white	flake	irregular	patinated	no	no	t	20	14	6	no		
70	DAB05	517		1	4	quartz	definite	white	flake	irregular	patinated	no	no	t	24	11	6	no		
71	DAB05	518		1	2	flint	prob.	white	pebble	regular	cortical	no	no	p	25	19	18			natural water rolled pebble
72	DAB05	519		2	6	quartz	definite	white/ brown	flake	regular	patinated	poss.	no	t	27	15	6	no	poss. utilised flake	possible utilised flake, edge damage rhs
73	DAB05	520		2	6	quartz	definite	white/ brown	chunk	regular	patinated	no	no	t	20	12	9			
74	DAB05	521		2	6	quartz	prob.	white/ brown	flake	regular	patinated	no	no	p	18	11	4	no		
75	DAB05	522		2	6	quartz	definite	white/ opaque	flake	regular	fresh	no	no	t	13	8	3	proximal		

Table 5 (*cont.*)

ID	Site ID	Find No	Find No 2	Trench	Context	Raw Mat	Validation	Colour	Blank	Sub-blank	Cond	ED?	Modified?	Red Seq	L	W	B	Snapped?	Name	Notes (including type of retouch and history)
76	DAB05	523		2	6	quartz	prob.	white/ brown	flake	regular	patinated	no	no	t	23	13	4	no		
77	DAB05	524		2	6	quartz	definite	white/ brown	flake	regular	patinated	no	no	t	22	22	9	no		
78	DAB05	525		2	6	quartz	definite	white	flake	irregular	patinated	no	no	t	27	17	9	no		
79	DAB05	526		2	6	quartz	definite	white	chunk	irregular	patinated	no	no	t	14	12	7	no		
80	DAB05	527		1	2	quartz	definite	white	flake	irregular	burnt	no	no	s	11	17	6	no		
81	DAB05	528		2	1	flint	definite	grey	flake	regular	patinated	poss.	no	s	18	11	6	no	poss. utilised flake	slight edge damage10% lhs, prominent ripples on dorsal
82	DAB05	529		1	8	flint	prob.	brown	flake	regular	burnt	no	no	s	19	13	6	distal		
83	DAB05	530		2	3	quartz	definite	white/ opaque	flake	regular	fresh	no	no	t	11	4	3	no	debitage	
84	DAB05	4		2	1	flint	definite	white	core	regular	burnt	no	no	t	30	28	15		bipolar core	unsuccessful removals both sides
85	DAB05	5		2	1	flint	definite	grey	flake	irregular	patinated	yes	indet.	t	40	28	6	no	utilised flake	poss. retouch down lhs, definite edge damage 25% same area
86	DAB05	6		1	1	quartz	definite	white	chunk	regular	patinated	no	no	t	19	12	10			
87	DAB05	9		2	1	flint	definite	white	core	regular	patinated	no	no	t	31	22	11	no	bipolar core	flakes removed from opposed ends on either side, one side unsuccessful removal showing hinge fracture
88	DAB05	10		1	1	quartz	definite	white/ opaque	flake	regular	patinated	no	no	t	12	10	3	no		
89	DAB05	12		2	1	flint	definite	grey	flake	irregular	burnt	yes	indet.	s	39	26	7	no	utilised flake	edge damage both sides
90	DAB05	13		2	1	quartz	definite	white/ brown	flake	irregular	fresh	poss.	no	t	18	23	8	proximal and distal	utilised flake	edge damage along one edge?
91	DAB05	15		2	1	flint	definite	grey	flake	regular	patinated	yes	yes	s	33	28	10	no	poss. scraper	prominent ripples, retouch along all lhs, edge damage same place
92	DAB05	16		2	1	quartz	definite	white/ brown	flake	regular	fresh	poss.	no	t	15	17	6	no	poss. utilised flake	possible edge damage but may be trowel damage
93	DAB05	17		2	1	quartz	definite	white/ clear	flake	regular	fresh	no	no	t	28	15	6	no		
94	DAB05	18		2	1	quartz	prob.	white/ brown	flake	regular	patinated	no	no	t	42	32	11	no		
95	DAB05	19		2	1	quartz	definite	white/ grey	chunk	regular	fresh	no	no	s	75	47	29			poss. flake removals

Table 6 Composition of Dunasbroc assemblage

Type	Flint (inc. % of flint)	Quartz (inc. % of quartz)	Banded/ agate (inc. % of agate)	% of total assemblage
pebble	**1** *3.2%*	**1** *1.6%*	**1** *33.3%*	*3.2%*
chunk	**3** *9.7%*	**12** *19.7%*		*15.8%*
bipolar core	**3** *9.7%*			*3.2%*
flake	**21** *67.7%*	**43** *70.5%*	**2** *66.7%*	*69.5%*
blade	**3** *9.7%*	**3** *4.9%*		*6.3%*
chip		**2** *3.3%*		*2.1%*
totals	**31**	**61**	**3**	

Table 7 Size variation amongst flakes from Dunasbroc

	Primary (average L × W × B mm (N))	Secondary (average L × W × B mm (N))	Tertiary (average L × W × B mm (N))
Flint			
Regular	29.2 × 20.6 × 11.6 **(5)**	24.8 × 17.3 × 8 **(6)**	18.7 × 15 × 5.8 **(9)**
Irregular	23.75 × 18 × 6.25 **(4)**	31 × 22.5 × 8.5 **(2)**	26.75 × 16 × 5.75 **(4)**
Quartz			
Regular	48.6 × 31.3 × 18.3 **(3)**	35.75 × 28 × 15.5 **(4)**	25 × 17.9 × 7.7 **(33)**
Irregular		38.6 × 27.2 × 16.2 **(5)**	25.6 × 17.5 × 8.8 **(16)**

These are all a similar shape and size, being rectangular, squat and narrow in profile. They all have crushed platforms at both ends, and flakes have been removed from both sides on all three. One is burnt (SF4; illus 67) and was recovered from the topsoil, while the other two are patinated, only one of which (SF86; illus 67) came from a secure context (006), the other (SF9; illus 67) coming from the topsoil.

Bipolar knapping would be expected for the final reduction of small cores, or as a technique applied to smaller pieces of raw material, which would be expected given that pebble flint was used. There is little evidence to suggest that direct percussion was practised on the flint material, although a few flakes and one blade may have prepared, rather than crushed platforms, therefore indicating a more managed knapping technique, for example flakes SF72, SF12 and blade SF33 (illus 67). These are slightly larger pieces (SF72 is a decortical flake) and perhaps indicate that initial pebbles were reduced through direct percussion rather than bipolar knapping alone. The rest of the flint flake assemblage could all have been derived from bipolar knapping.

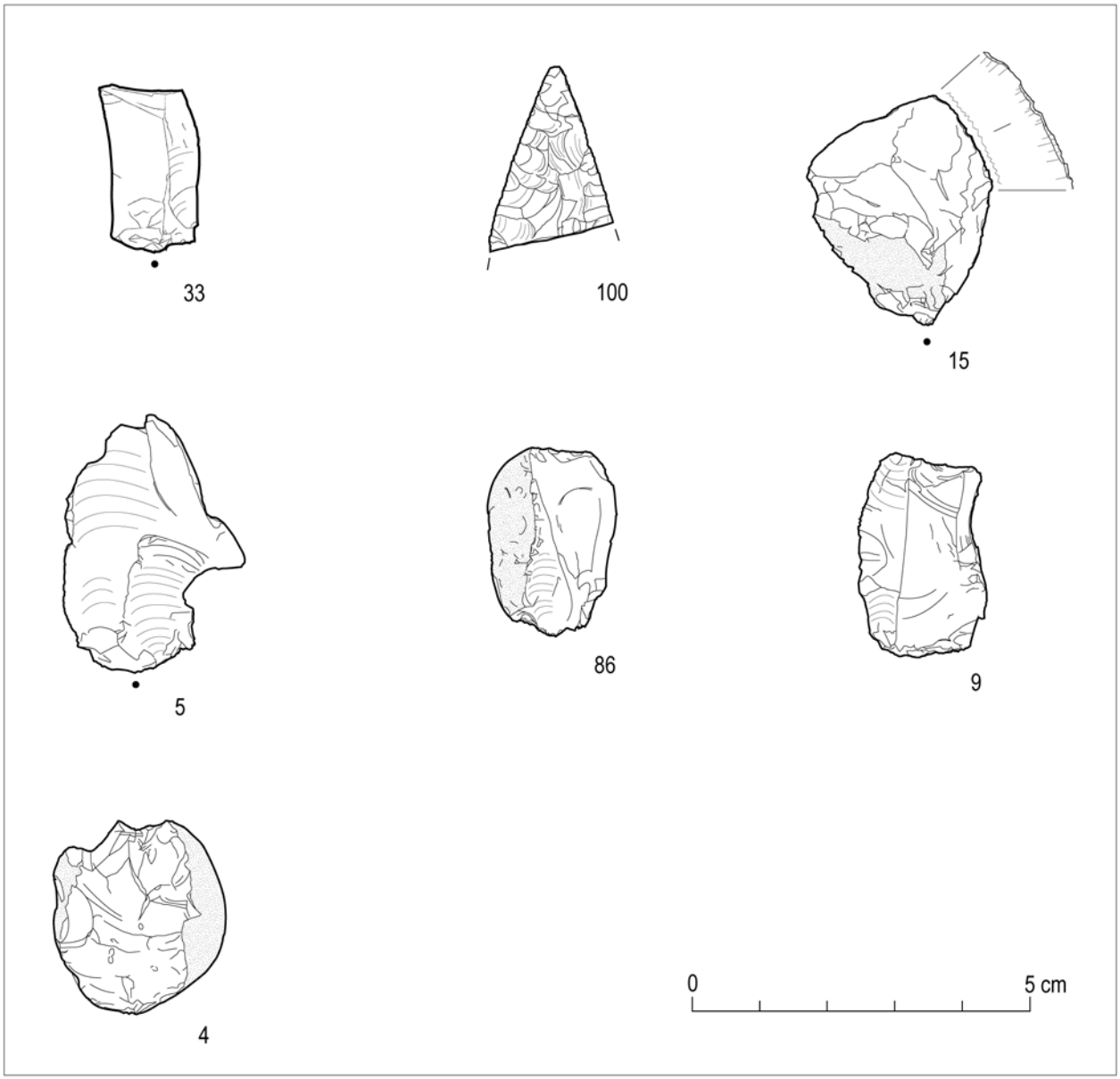
It is interesting to note that no obvious bipolar working is evident from the quartz assemblage, even though there is evidence of this from other quartz assemblages on Lewis (Warren forthcoming a)). Although there are no obvious cores within the quartz material, there are a few chunks which show isolated flake removals, although these have not been developed into true cores (for example SFs 164a, 168, 19 and 165) and no platform preparation is evident. These chunks are relatively large (70mm length on average) and tabular in form, typical of quarried quartz. The lack of bipolar technique is presumably because there is an adequate supply of quartz material nearby, and quarried chunks could be reduced through direct percussion to remove larger flakes (supported by flake analysis, below).

4.4 Flake analysis

Table 7 above shows the size variation of the flakes from the assemblage.

The table indicates that the quartz flakes are on average larger in all dimensions than the flint. They are also on average longer and thinner than the flint flakes, which are more squat and square, a consequence of the raw material morphology and also the knapping techniques utilised. There are a large number of tertiary flakes (those without any cortex) within the quartz assemblage, and a proportionally high number of tertiary flakes in the flint assemblage.

The bulbs shown on the flakes were categorised into four types: absent, indeterminate, diffuse and prominent. Only four flakes of flint (20% of flint flakes) had prominent bulbs, four were indeterminate and ten (50%) were diffuse, suggesting soft-medium percussion. The quartz had a similar proportion of diffuse bulbs, at 19 (45.2%), although a high number (18) had indeterminate bulbs, a common problem with quartz where successful conchoidal fracture



Illus 67 Lithic artefacts from Dunasbroc. SFs 4, 5, 9, 15, 33, 86 & 100

is dependent on the quality of the material, and in many cases flakes will not have obvious bulbs or ripples. Five flakes had no visible bulb. Platforms also ranged between simple and crushed examples, with the former being the most frequent for flint and quartz. There are more crushed platforms within the flint flakes than the quartz, again suggesting that bipolar knapping took place with the flint.

The presence of a quartz rejuvenation flake (SF181a from Context 009) indicates that quartz cores and platforms were being managed to some extent.

4.5 Modified pieces

Table 8 below shows the pieces with edge damage and modification.

Twenty lithics have either possible or definite edge damage. In general the modified lithics have nibbled retouch down one side and in four cases at the end (SFs 29, 73, 114 and 138). Both regular and irregular flakes have been utilised, and in one case a decortical flake has been possibly retouched and definitely used (SF72). It is clear that all types of flake were therefore used, with no obvious consideration as to the quality of the piece selected, for example SF5 (illus 67).

Only four lithics had definitely been modified by retouch (SFs 15, 22, 100 and 138), three of which have also been used, the other (SF100) may have edge damage but has been snapped. The diagnostic pieces were a possible side-scraper form (SF15; illus 67), a possible point (SF29) and a definite leaf-shaped arrowhead (SF100; illus 67). Three flakes (one is a long blade-like flake) have one serrated lateral edge, all are quartz and it is difficult to say whether

Table 8 Modified and retouched lithics from Dunasbroc

Context	Find No	Find No 2	Raw Mat	Blank	Sub-blank	ED?	Modified?	Name	Notes (including type of retouch and history)
1	5		flint	flake	irregular	yes	indet.	utilised flake	poss. retouch down lhs, definite edge damage 25% same area
1	12		flint	flake	irregular	yes	indet.	utilised flake	edge damage both sides
1	13		quartz	flake	irregular	poss.	no	utilised flake	edge damage along one edge?
1	15		flint	flake	regular	yes	yes	poss. scraper	prominent ripples, retouch along all lhs, edge damage same place
1	16		quartz	flake	regular	poss.	no	poss. utilised flake	possible edge damage but may be trowel damage
1	528		flint	flake	regular	poss.	no	poss. utilised flake	slight edge damage 10% lhs, prominent ripples on dorsal
2	22		banded	flake	irregular	yes	yes	utilised flake	poss. crude edge retouch and later damage 20% rhs distal
2	29	a	quartz	flake	irregular	poss.	poss.	utilised point?	possible edge damage at distal end point
4	114		quartz	flake	regular	yes	no	poss. utilised flake	edge damage but may be post deposition lhs and distal
6	72		flint	flake	irregular	yes	indet.	utilised decortical flake	edge damage lhs
6	73		quartz	flake	regular	poss.	indet.	large utilised flake	possible edge damage at distal edge
6	93		flint	flake	regular	yes	no	utilised flake	scar on dorsal shows flake removal from opposite end
6	100		flint	flake	bifacial	poss.	yes	leaf arrowhead	complete invasive retouch
6	108		quartz	flake	regular	yes	no	utilised flake, serrated?	almost denticulated, uneven damage
6	138		quartz	flake	regular	yes	yes	retouched flake, serrated?	edge retouch lhs, distal end damaged
6	519		quartz	flake	regular	poss.	no	poss. utilised flake	possible utilised flake, edge damage rhs
8	186	a	quartz	blade	irregular	yes	no	utilised blade, serrated?	edge damage rhs, shallow notches from working
9	179		quartz	flake	regular	poss.	no	poss. utilised flake	poss. edge damage rhs
9	181	a	quartz	flake	irregular	poss.	indet.	rejuvenation flake?	previous removals at 90 degrees
10	172		quartz	flake	regular	poss.	no	poss. utilised flake	v. steep lhs edge, no obvious retouch but possible damage

Illus 68 Tip of leaf-shaped arrowhead SF100

the serration was formed through retouch or edge damage, as it is very crude (SFs 108, 138, 186a).

The leaf-shaped arrowhead is made from imported orange flint and although only the distal half is present, it is assumed it has a kite form (illus 68). It has been snapped diagonally along the widest point. There are no obvious notches at the lateral points of the snap to suggest deliberate breakage, although the presence of several impact scars on the surface of the arrowhead indicates that it has been abraded or knocked frequently since its creation.

A long lozenge-shaped arrowhead with an almost identical point was found in 1985 by Dell River, over 3km from Dunasbroc, during peat cutting. This was slightly wider, at 23mm compared to 19mm, for the snapped arrowhead found at Dunasbroc. The invasive retouch on both is also similar, although typical of this form of arrowhead. A further leaf-shaped arrowhead of unknown form was recovered at the base of peat cuttings approximately 700m to the south-east of Dunasbroc in 1951, but has subsequently been lost (NMRS no. NB46SE 10).

4.6 Contextual analysis

Context 001
Two cores (SFs 4 and 9, SF4 is burnt) came from the topsoil, along with four chunks and eleven flakes, three of which had edge damage and one with retouch (SF15).

Context 002
Twelve lithics came from this context, the majority being flakes (only one of which was burnt). One was modified and had edge damage (SF22) and one was possibly retouched with edge damage (SF29).

Context 003
One chunk, one bald and two flakes came from Context 003. None of the pieces were burnt or had modifications or edge damage.

Context 004
Two flakes came from this context; one had edge damage (SF114).

Context 006
The majority of the lithics came from this context (SF52, being 54.7% of total assemblage). Eight pieces were burnt, with a further five possibly burnt. One of the burnt pieces had edge damage (SF72). Of the unburnt lithics, five had definite edge damage (SFs 72, 93, 100, 108, 138), and two had possible edge damage (SF73, 519). There were also two retouched flakes (SF100 and SF138).

The remaining lithics had a mixture of conditions, and no obvious patterns emerged from the analysis. All types of lithic present in the total assemblage were represented in this context.

Context 008
A total of three flakes (one burnt, SF529) and one blade were present.

Context 009
Again three flakes were present, two with possible edge damage (SF179 and SF181a).

Context 010
One flake was present, which had signs of possible edge damage (SF172).

4.7 Conclusions

The assemblage demonstrates the use of bipolar and platform reduction techniques, on flint and quartz respectively. It is suggested that reduction took place away from the contexts excavated, given the almost total lack of debitage smaller than 10mm. The lack of small debitage is a common indicator for early Neolithic working on the east coast of Scotland (Warren forthcoming a)). The mixing of burnt and unburnt pieces in certain contexts shows that burning of the lithics did not occur in situ and that the material was therefore redeposited. This would explain the lack of debitage, as smaller pieces may not have been transported when redeposited.

All the utilised pieces are regular and irregular flakes, the retouched pieces have been semi-abruptly modified along one lateral edge, the classic 'nibbling' noted by Warren (forthcoming b)), and probably used mainly for cutting, although some scraping would also have been undertaken (possible side-scraper present). The use of all types of flake shows that there was apparently little concern for the form, and they would have been quickly made and used, again this trait has been detected from early Neolithic assemblages on the east coast of the mainland (ibid), although the opportunistic nature

of this assemblage is common throughout the Neolithic (Edmonds 1995).

A further parallel with early Neolithic working is the frequency of utilised pieces without retouch, overall the assemblage would fit into either early or later Neolithic typologies. The assemblage lacks a number of early Neolithic tool types however, such as fabricators, formal convex scrapers and plano-convex knives (see Edmonds for full discussion on these tool types), although the quartz flakes are longer than the flint flakes, and many have edge damage along one side. There is evidence of the quartz being knapped in a more controlled fashion, with a soft-medium hammer using direct percussion.

Leaf-shaped arrowheads are typical Early Neolithic indicators for Scotland and Britain (Green 1980), with examples from Scotland dating to the earliest part of the fourth millennium (associated with contexts which have been radiocarbon dated; Warren forthcoming a)), although 'kite-shaped' arrowheads, are usually associated with the later part of the early Neolithic (ibid), and a Later Neolithic date cannot be ruled out. Many of these arrowheads have been found in funerary or ritual contexts, although also used for hunting and warfare. The form of these arrowheads suggests that they would have been effective tools for both hunting and warfare, but their beautiful shape and tactile form, along with their rarity (especially in Lewis) also implies they would have been given a strong social importance (Edmonds 1995, 46). This importance would go beyond the physical appearance of the piece, as it would take on symbolic properties relating to where it came from and how it was used, carrying with it associations of specific people or places.

Ongoing survey work in the Ness area has recovered further burnt flint and quartz lithic scatters in the immediate local, a few hundred metres to the south of this site on a similar natural promontory, although these are still to be analysed (Barrowman, CS forthcoming a) and b)). There are also known quartz assemblages and knapping floors to the north of the area on the eroding coastal machair at Cross, Swainbost and Habost (Cowie 1995; Barrowman, C S in prep), and also in areas where the peat moor is eroding at Skigersta and Cross (ibid). Flint and quartz industries utilising bipolar and platform techniques are known from Olcote, Breasclete (Warren forthcoming b)) and Barra (Wickham-Jones 1995), and quartz assemblages are found on numerous sites in Lewis, such as Dalmore (Sharples in prep), Northton (Simpson 1976), Barvas (Cowie in prep), Calanais (Ashmore in prep) and Berie (Lacaille 1937), all dating to the Neolithic and Bronze Age.

There is no doubt that the lithics from Dunasbroc are an invaluable addition to a small yet growing body of prehistoric flint and quartz assemblages in Lewis from datable contexts.

4.8 Flaked lithics from STAC 2004, surface finds (see table 9 for details)

A total of five flaked lithics were recovered from surface finds on two stack sites. Three flakes of quartz were recorded from Dunasbroc. Two flakes of flint and one flake of quartz were recovered from Dun Arnistean.

The Dunasbroc surface finds correspond with the excavated assemblage. Two of the flakes are long and have a similar form, with one sharp lateral edge. One of the pieces (SF4B) has been utilised, although there is no modification visible.

The lithics from Dun Arnistean are also prehistoric: one of the flint flakes appears to be a rejuvenation piece, and has two blade scars on the dorsal face. This face is fairly messy, which may be the reason for a thicker removal using the same platform, to create a fresh working face. The piece of quartz from the same site may have been modified along one lateral edge, and there are signs of edge damage at this point.

Table 9 Flaked lithics from STAC 2004 surface finds

ID	Site ID	SF Find No	Find No 2	Raw Mat	Validation	Colour	Blank	Sub-blank	Cond	ED?	Modified?	Red Seq	Br?	L	W	B	Bulb	Snapped?	Name	Notes (including type of retouch and history)
1	Arnistean 2004	53	a	flint	def	white	flake	irregular	patinated	no	no	p	no	24	14	10	diffuse		rejuvena-tion?	possible rejuv thick, short flake with blade removals on dorsal, rejuvenation of face
2	Arnistean 2004	53	b	flint	def	white	flake	regular	cortical/ patinated	no	no	p	yes	14	11	3	prominent	distal	flake	small decortical flake
3	Arnistean 2004	11		quartz	def	white/ pink	flake	irregular	cortical	yes	poss.	p	no	54	38	14	diffuse	no	utilised flake	curved lhs lateral with edge damage
4	Dunasbroc 2004	4	a	quartz	def	white/ clear	flake	regular	decortical	no	no	p	no	35	24	9	diffuse	no	flake	flake with useable lateral edge
5	Dunasbroc 2004	4	b	quartz	def	white/ clear	flake	regular	fresh	yes	no	t	no	41	20	8	diffuse	no	utilised flake	one edge lhs has edge damage
6	Dunasbroc 2004	4	c	quartz	def	white	flake	irregular	patinated	no	no	t	no	18	11	5	no		waste flake	