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TABLE 5

House 1 artefacts

Context description	SF number	Description
Topsoil (1001)	28	quartz
	134	flint scraper
Layer over outer wall 1.01(1004)	GR3842	flint knapping spall
Layer over house (1006)	32	quartz
Layer over house (1125)	GR2001	flint
Layer over intramural space (1009)	29	quartz
Central hearth 1.25 (1025)	31	quartz
Pit 1.34 (1042)	GR1763	flint knapping spall
Ard-mark 1.28 (1072)	GR1982	flint flake fragment
Layer outside House 1 (1075)	132	flint flake

TABLE 6

Contexts containing Burnt bone in Area 1

Context description	SF numbers
Topsoil (1004)	GR3842
Layer over house (1006)	10, GR3902, GR3923
Central hearth 1.25 (1037)	GR3971
Central hearth 1.25 (1049)	GR3975
Post-hole 1.36 (1066)	GR1900

TABLE 7

House 3 artefacts

Context description	SF number	Description
Modern disturbance (2022)	40	quartz scraper
Topsoil (2001)	34	flint flake
	43	chalcedony flake
Layer over House 3 (2006)	13	slag
Layer over House 3 (2002)	122	slag
	129	glass bead
	125	quartz
Layer 8.04 in House 8 (2014)	37	flint flake
House 3 wall 3.01 (2004)	131	quartz
House 3 wall (2041)	152	coarse pot sherd
Layer under House 3 doorway paving (2026)	24	coarse pot sherd
Subsoil surface (2029)	42	quartz
	126	quartz
	127	flint flakes

TABLE 8

House 8 and later artefacts

Context description	SF number	Description
Post-abandonment layer (2009)	14	iron slag
Post-abandonment layer (2010)	19	rim-sherd of medieval pottery
	35	quartz
	130	quartz flake
Post-abandonment layer (2052)	153	iron loop
Layer over doorway (2011)	20	base-sherd of medieval pottery
	154	copper alloy pin
Layer over doorway (2023)	124	medieval pottery handle
Floor deposit 8.04 (2027)	155	hammer-stone
Floor deposit 8.04 (2020)	39	quartz flake
	121	quartz
Layer under House 8 wall (2018)	38	quartz flake

TABLE 9

House 4 artefacts

Context description	SF number	Description
Wall collapse (3503)	15	iron nail
	45	flint
Wall collapse (3504)	17	iron nail
Destructured house floor (3500)	16	iron gouge
	44	quartz
Doorway paving	148	saddle quern

4.02 (3509)

TABLE 10

House 5 artefacts

Context description	SF number	Description
Topsoil (3000)	51	flint flake
	145	flint [illegible]
	147	flint [illegible]
Post-hole 5.16 (3062)	GR4707	slag
	GR4709	slag
Outer gully 5.19 (3104)	GR4723	slag
Post-hole 5.28 (3118)	GR1256	slag
	149	hammer-stone
Floor deposit (3002)	GR1807	sherd of medieval pottery
	52	flint flake
	GR1801	flint flake
	53	slag
Floor deposit (3022)	133	flint flake
Floor deposit (3027)	137	slag
	138	slag
	139	slag
	140	slag
	141	slag
	142	slag

TABLE 11

Contexts containing Burnt bone in House 5

Context description	SF numbers
Upper floor deposit (3002)	GR1777, GR1791, GR1869, GR1896, GR1908, GR1898

TABLE 12

House 6 artefacts

Context description	SF number	Description
Topsoil (4001)	47	quartz
	100	quartz flake
	110	quartz
House 6 wall 6.01 (4007)	103	flint flake
Layer under House 6 wall (4046)	GR0748	quartz flake
Matrix of doorway paving 6.02 (4018)	GR3948	sherd of medieval pottery
	GR3948	slag
	4018	quartz flakes
Layer under upper doorway paving (4040)	105	coarse pottery
	106	coarse pottery
	108	coarse pottery
	Rt	coarse pottery
Floor deposit (4041)	GR0741	slag
	GR0745	slag
Layer between houses (4031)	GR3955	flint flake fragment

TABLE 13

Contexts containing burnt bone in House 6

Context description	SF numbers
House wall 6.01 (4017)	104, 119, GR3954
Floor deposit (4041)	109, 187
Layer between houses (4031)	GR3955

TABLE 14

House 7 artefacts

Context description	SF number	Description
Topsoil (4001)	101	quartz flake
	102	flint flake
Layer in intramural space (4033)	GR3946	flint fragment
Layer to east of house (4013)	4013	quartz flakes

Carn Dubh vegetation survey
Coralie Mills

INTRODUCTION

Vegetation survey was undertaken in April 1987, at the same time as the topographic survey, to provide background information for the investigation of vegetation history through pollen analysis, to investigate the ecology of the area and to explore the relationship between archaeological monuments and vegetation cover. Most of the surveyed area to the north of the road was ploughed for afforestation in 1989. The full version of this report, with tables, has been lodged with the Archive.

METHODS

The survey involved mapping, describing and quantifying the various plant communities within the 1000 m by 500 m grid area, using the following procedures. For logistical reasons, the vegetation survey had to be undertaken fairly early in the growing season. For this reason, immature plants were frequent, affecting the level of identification possible. It is also possible that some elements of the vegetation were not visible in April.

The first step in the survey was to identify the different communities present and to map their distribution (illus 3). The map was built up by sketching the vegetation changes within each 100 m square of the grid. Usually the boundaries between vegetation stands were distinct, but where a transition zone was present the boundary was mapped mid-way between the pure stands. Communities were classified and mapped according to their dominant species, although in some areas there was no clear dominant, for example areas mapped as 'Sward and young *Calluna vulgaris*'.

The components of each community were identified and quantified by means of randomly placed 1 m2 quadrats. Percentage cover was estimated for each taxon and ten quadrats were recorded for each community type.

In order to estimate the total abundance of each species or group over the whole grid, the vegetation map was used to estimate the area covered by each community. The percentage abundance of each taxon within each community type was multiplied by the proportion of the grid covered by each community.

RESULTS

The sketch map of the vegetation in the survey grid area (illus 3) shows that the most common plant community is that dominated by *Calluna vulgaris* (ling/heather). Mire communities dominated by *Molinia caerulea* (purple moor grass)

are also widespread. Short turf or sward occurs in more restricted areas, and is also found in association with recent muirburn and regenerating *Calluna vulgaris*. Besides the three most important vegetation types of heather, mire and sward, there were also isolated patches dominated by *Erica tetralix* (cross-leaved heath) or *Myrica gale* (bog myrtle).

Vegetation mapping classes

The following classes were used;

a) *Calluna vulgaris* as dominant species. The range of plants associated with *Calluna vulgaris* may alter according to its growth stage (Gimingham 1964, 274). Vigorously growing ling shows higher percentage cover than old degenerating ling which is more open and may allow a richer community to co-exist. Therefore the growth stage of the *Calluna vulgaris* stands has been noted on the map which differentiates between young vigorously regenerating ling, mature ling and the oldest ling on the site which was just entering the degenerative stage.

b) Mire areas dominated by *Molinia caerulea* and commonly associated with *Juncus effusus* (soft rush) and *Sphagnum* moss species.

c) Sward or short turf areas which appear to be stable, rather than being a stage in the heather burning and regeneration cycle. These are dominated by the grasses *Agrostis* spp., *Festuca ovina* and *Nardus stricta* with plentiful mosses.

Sward also occurs as a stage in the heather burn and regeneration cycle, and these are mapped as

d) Sward with recent muirburn.

e) Sward with young regenerating *Calluna vulgaris*.

The two remaining mapping units are both dwarf shrub communities:

f) *Erica tetralix* is dominant.

g) *Myrica gale* is dominant.

Note on the use of the muirburn symbol

Sward with muirburn is the only class where the burn appears to be recent and is exerting great control over the vegetation type. Where the muirburn symbol is used in other vegetation types, this means that the remains of burnt heather stumps were observed but the burning may have occurred several years before the survey was undertaken.

Descriptions of vegetation classes

In the ling communities, *Calluna vulgaris* is dominant in young, mature and old stands but shows greatest cover in the mature stage. Mosses are present in all three stages, but are most abundant where the ling is opening out in the old stage. *Vaccinium vitis-idaea* (cowberry) and *Vaccinium myrtillus* (bilberry) are also present in all stands but show greatest cover in the young ling areas. Grasses, particularly *Deschampsia flexuosa* (wavy hair grass) are present in small quantities throughout but Cyperaceae are only common in the young stands. *Juncus effusus* and *Erica tetralix* occur in isolated wetter areas but are not common. Generally the ling stands show a limited range of associated species.

Tussocks of *Molinia caerulea* have formed in most mire areas, and this grass shows high percentage cover in nine of the ten quadrats. The tenth shows *Juncus effusus* as dominant, and this reflects its patchy distribution throughout the mire areas. The constant presence of mosses, particularly *Sphagnum* spp., of Cyperaceae and of *Selaginella selaginoides* (lesser clubmoss) indicates the dampness of this habitat. Occasional herbs occur, but there is a general paucity of associated species.

In the stable sward areas, grasses are dominant with *Agrostis* spp. and *Festuca ovina* being most important, although *Nardus stricta* is constantly present. Mosses also show high cover. Sward is the most floristically diverse of the vegetation classes present in the grid area, supporting a range of herb species. *Thymus drucei* (wild thyme), *Linum catharticum* (purging flax) and *Veronica officinalis* (common speedwell) require relatively basic soils and their presence here indicates soil of good quality, probably a mesotrophic brown forest soil (King & Nicholson 1964, 189).

Areas of very recent muirburn are also dominated by grasses, although *Nardus stricta* shows higher cover than in the stable sward areas while mosses are much less frequent, perhaps reflecting the drier, more exposed nature of the habitat. In some quadrats there is more bare ground than vegetation cover, and these are probably in areas where the muirburn reached higher temperatures.

Sward with young *Calluna vulgaris* shoots is apparently the next stage in the ling growth cycle. Grasses (*Agrostis* spp., *Festuca ovina* and *Nardus stricta*) are dominant and that mosses are also important. Young *Calluna vulgaris* shoots, probably only a year old, show varying cover reflecting their patchy distribution at this

stage. A reasonably wide range of herbs is represented, but these will tend to disappear as the ling canopy matures and closes.

Where *Erica tetralix* is dominant, *Molinia caerulea* and *Sphagnum* are also important, reflecting the saturated conditions in the soil.

The few areas dominated by *Myrica gale* show *Molinia caerulea* and Cyperaceae to be important while Sphagnum is present in most quadrats. Again, wet soil conditions are indicated.

Estimates of total area covered by each community

The vegetation map (illus 3) was used to estimate the total area of the grid covered by each class of vegetation. This was done by estimating cover for each 100 m grid square and then summing the figures for all fifty squares.

To estimate the total cover of each species or taxon, the average percentage cover figures were multiplied by the total area covered by each vegetation class. Ericaceae (heather family) are clearly dominant covering an estimated 56.9% of the total survey area. The next most abundant group are Gramineae (grass family) with 27.1% followed by mosses with 8.4%. Apart from *Juncus effusus* with 2.9%, all other taxa cover only very small areas.

DISCUSSION

The vegetation survey resulted in the identification of nine vegetation classes of which mature *Calluna vulgaris* was clearly the most widespread, with mire communities and areas of sward also being important. Comparison of the results with work on Scottish vegetation as a whole (eg Burnett 1964) enables some ecological interpretations to be made. The *Calluna vulgaris* communities observed here can be correlated with the widespread *Calluna-Vaccinium* heath type, as described by Gimingham (1964, 260). This type of vegetation can occur over a wide range of soil moisture conditions but is usually associated with acidic soils of podsolic or semi-podsolic type (Gimingham 1964, 260). The overwhelming dominance of *Calluna vulgaris* over other dwarf shrubs may be attributed to anthropogenic factors (Gimingham 1964, 261).

The distribution of the mire areas at the site is largely determined by physiography, being dependent on the lateral flow of water near the ground surface (Ratcliffe 1964, 429). They largely occur in depressions and channels, perhaps following the structural geology to some extent. They also occur where steeper slopes flatten out and possibly where there are concentrations of glacial drift, since this tends to be relatively impermeable (Ratcliffe 1964, 429). The restricted herb flora in the Carn Dubh mires indicates a low base status in the soil and is typical of oligotrophic

mires (Ratcliffe 1964, 432-3). The soil is likely to be a peaty gley or a gley mineral soil (Ratcliffe 1964, 435-6). In general, mire was most common on the lower ground in the south and west of the survey area, while *Calluna vulgaris* was predominant on the higher ground in the central and northern parts which appeared to be more freely drained.

The floristic composition of the stable sward community at Carn Dubh places it as an intermediate between *Festuca-Agrostis* types 5 and 9 as described by King & Nicholson (1964, 188), because calcicolous species, although present, were not so frequent as would be expected for type 9. There must be some input of bases into the soil, although the other communities at Carn Dubh indicate generally acidic soil conditions. One possible explanation may be local occurrences of base-rich glacial drift, perhaps derived from calcareous mica-schists in the region.

The areas of sward associated with muirburn and with *Calluna vulgaris* form part of the heather burning and regeneration cycle, a deliberate management policy to maintain grazing quality. The anthropogenic origin of these areas is evidenced in their artificial shape and distribution, since they are usually oblong patches next to access routes.

The areas dominated by *Erica tetralix* can be linked with more or less permanently saturated conditions in an acid soil (Gimingham 1964, 266). *Myrica gale* can thrive in a wide range of soil pH values (3.8 to 6.1) but does indicate generally wet conditions (Ratcliffe 1964, 435).

Finally it is worthy of mention that some small-scale changes in vegetation may be picking out archaeological sites. Small circular areas of *Calluna vulgaris* within mire (at 1100/2370 and 1140/2370) or mire and sward (at 1490/2280) may represent man-made features. However, the project design at Carn Dubh was such that the topographic and post-ploughing surveys would provide a more comprehensive strategy for locating such archaeological sites, and it is notable that many of the known archaeological sites were not marked by any change in vegetation type.

REFERENCES

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Gimingham, C H 1964 'Dwarf shrub heaths', *in* Burnett 1964, 232-275.

King, J & Nicholson, I A 1964 'Grasslands of the forest and sub-alpine zones', *in* Burnett 1964, 168-206.

Ratcliffe, D A 1964 'Mires and bogs', *in* Burnett 1964, 426-459.

Carn Dubh charred plant remains
Sheila Boardman

Note - treatment of the bulk samples from Carn Dubh

Bulk samples were processed in the standard AOC manner, using a water separation machine (Kenward *et al* 1980). The light fractions (flots) were collected in sieves with mesh sizes of 1 mm and 300 microns, and the heavy, sinking material (retent), in a 1 mm mesh. A fraction of each of the greater than 1 mm flots and retents was initially sorted, by eye or using a low power light microscope. Those with charred plant remains were sorted in completion The quantity of plant remains did not warrant the sorting of the 300 micron flots.

Plant material was identified at Historic Scotland's Kinnaird Park, using a seed reference collection and various texts and keys.

TABLE 15

Seed species list

The seed species list below applies to the macroplant results tables (Table 15 to Table 21).

No.	Species	No.	Species
1	*Hordeum* hulled asymmetric	25	*Linum* cf. *catharticum*
2	*Hordeum* hulled cf. asymmetric	26	*Lycopus europaeus*
3	*Hordeum* cf. hulled asymmetric	27	*Myosotis* cf. *arvensis*
		28	*Polygonum*
4	*Hordeum* hulled symmetric		*persicaria/lapathifolium*
5	*Hordeum* hulled	29	*Polygonum aviculare*
6	*Hordeum* cf. symmetric	30	*Polygonum/Carex*
7	*Hordeum* sp.	31	*Potentilla* sp.
8	*Avena* sp.	32	*Raphanus raphanistrum*
9	Cereal indet.	33	*Ranunculus* cf. *repens*
10	*Linum usitassimum*	34	*Ranunculus* sp.
11	*Linum* cf. *usitassimum*	35	Rosaceae (*Potentilla* type)
12	*Brassica* sp.	36	*Rumex crispus*
13	*Brassica/Sinapsis*	37	*Rumex crispus/obtusifolius*
14	*Bromus hordaceus/mollis*	38	*Rumex* cf. *longifolius*
15	*Carex* cf. *pallescens*	39	*Rumex* sp.
16	*Carex* sp. (biconvex)	40	*Spergula arvensis*
17	*Carex* Sect. Paludosae	41	*Stachys* sp.
18	*Chenopodium/Atriplex*	42	*Stellaria media*
19	*Fallopia convolvulus*	43	*Stellaria* cf. *media*
20	*Galeopsis* cf. *tetrahit*	44	*Teucrium* cf. *scorodonia*
21	cf. *Galeopsis tetrahit*	45	*Vicia/Lathyrus*
22	*Galeopsis/Stachys*	46	Weeds indet.
23	Gramineae undiff.	47	*Corylus avellana* (shell)
24	Labiatae undiff.	48	*Calluna/Erica* (fruits)

TABLE 16

Summary of macroplant assessment results, Area 1

Species number	Post-abandonment contexts (4 samples)	Central hearth deposits (5 samp)	Shallow hollow in house (1 samp)	Subsoil (1 samp)
1		5		
2		5		
3	1			
4		3		
5		1		
7		1		
8	1			
9		1		
10		3		
11			1	
17	1			
18	1			
19	1			
20			1	
23				1
40		1		
46		1	1	

TABLE 17

Summary of macroplant assessment results, House 3

Species number	Layer under hearth
2	1

TABLE 18

Summary of macroplant assessment results, House 2/House 8

Species number	Post-abandonment context (1 sample)	Floor deposit (6 samp)	Hearth deposit (2 samp)	Subsoil (1 samp)
2			2	
3			1	
4		1		
7			2	
8	1	3	6	
9		1		1
11			2	
18				1
23	1			
26		1		
31		1		
32		1		
39		1		
46	1	3		
47		4F	16F	
48		1		

TABLE 19

Summary of macroplant assessment results, House 4

Species Number	Cooking-pit 4.19 (1 samp)	Post-hole 4.41 (1 samp)	Post-hole 4.33 (1 samp)
9		1	
16	1		
29	1		
31			1
44		2	
46		1	
47		1F	

TABLE 20

Summary of macroplant assessment results, House 5

Species number	Floor deposit (15 samp)	Cooking-pit 5.24 (1 samp)	Pot-boiler dump 5.04 (1 samp)	Inner wall collapse over gully 5.19 (1 samp)
1	1		1	
2			1	
3	2			
7	2			
9		1		
12				2
16	1			
18	2			
19	3			
20	1			2
22				1
25	1			
28	1	2		
29		2		
32	1			
33			1	
35	1			
36	1			
37	5			
38	1			
45	1			
46	4	2	1	

(Table 20 continued)

Species number	Gully 5.19 (6 samp)	Gully 5.22 (2 samp)	Gully 5.21 (3 samp)	Outer wall (1 samp)	Post-hole 5.16 (1 samp)
1		2	1		
6			1		
9	1				
14		1			
18			1		1
20	4				
21	1				
24	1				
27	1				
31	1				
33			1		
34	1				
35	1				
41	1				
42	1				
46	3			1	
47		4F			
48	1				

Species number	Post-hole 5.23 (1 samp)	Post-hole 5.27 (1 samp)	Post-hole 5.28 (1 samp)	Floor depress-ion (1 samp)	Floor depress-ion (1 samp)
16	1				
18		1			
22			1		
32					1
43					1
45				1	

TABLE 21

Summary of macroplant assessment results, House 6

Species number	Floor deposit (4 samples)	Matrix of doorway paving (1 sample)
1	1	
4	1	
9	1	
13	1	
15	1	
17		2
20	1	
22	1	
34		1
40	1	
42		1
46	1	
47		1F

TABLE 22

Summary of macroplant assessment results, House 7

Species number	Layer under inner wall (1 sample)
30	1

Analytical report on the Carn Dubh bead
J Henderson

TABLE 23

Electron-probe micro-analysis of Carn Dubh bead (weight percent element oxide). Note - ND = Not Detected; MDL = Minimum Detectable Level.

Na_2O	12.7
MgO	0.7
Al_2O_3	2.5
SiO_2	70.9
P_2O_5	0.07
SO_3	0.18
Cl	0.8
K_2O	0.7
CaO	8.8
TiO_2	ND
MnO	0.6
Fe_2O_3	0.8
CoO	MDL
NiO_2	ND
CuO	0.3
ZnO	ND
As_2O_3	ND
SnO_2	MDL
Sb_2O_3	ND
PbO	0.04

The Carn Dubh iron artefacts
Jonny Shiels

CATALOGUE

Post-House 8

SF153 Sub-rectangular iron loop with squared ends. Length 65 mm; Width 15 mm; Weight 10.2 g (Illus 10)

SF14 Irregular lump of iron, probably slag. Length 45 mm; Width 45 mm; Weight 36.4 g

Post-House 4

SF15 Iron nail with a wedge-shaped head and round shaft, broken towards the point. Length 50 mm; Weight 3.2 g

SF16 Shallow gouge, with broken tip, pointed tang and rectangular shaft. Length 123 mm; Weight 17.7 g (Illus 13)

SF17 Iron nail with a flat, sub-circular head, flaring from a rectangular shaft. The nail is bent and corroded but appears to be complete. Length 25 mm; Weight 2.7 g.

The slag from Carn Dubh
J S Rideout

CATALOGUE

Post-House 3

SF13 Two small fragments of slag. One fragment reacted to magnetic attraction. The second fragment is light and vitreous. Weight 2.1 g.

SF122 Two large lumps and many fragments of slag. All reacted to magnetic attraction. Weight 234.3 g.

House 5

GR4707 Many fragments of vitreous slag. None responded to magnetic attraction. Weight 19.2 g.

GR4709 Many small lumps and small fragments of vitreous slag. None responded to magnetic attraction. Weight 53.1 g.

GR4723 One fragment of vitreous slag which did not respond to magnetic attraction. Weight 0.3 g.

GR1256 One fragment of vitreous slag which did not respond to magnetic attraction. Weight 0.9 g.

SF53 One small lump of vitreous slag which did not respond to magnetic attraction. Weight 5.8 g.

SF137 One small lump and two fragments of vitreous slag. None reacted to magnetic attraction. Weight 1.5 g.

SF138 One small lump and two fragments of vitreous slag. None reacted to magnetic attraction. Weight 1.8 g.

SF139 One small lump of vitreous slag which did not respond to magnetic attraction. Weight 0.6 g.

SF140 One small lump and seven fragments of vitreous slag. None reacted to magnetic attraction. Weight 21.6 g.

SF141 One small lump of vitreous slag which did not respond to magnetic attraction. There is an impression of wood grain on one side. Weight 6.9 g.

SF142 One small lump of vitreous slag which did not respond to magnetic attraction. Weight 10.5 g.

House 6
GR3948 Nine fragments of vitreous slag, none of which reacted to magnetic attraction. Weight 1.3 g.

GR0741 Many small lumps of vitreous slag. None reacted to magnetic attraction. Weight 58.0 g.

GR0735 Nineteen fragments of vitreous slag, none of which reacted to magnetic attraction. Weight 10.0 g.

Carn Dubh coarse pottery
Ann MacSween

CATALOGUE

House 3
Vessel 2, SF24 1 body sherd, heavily abraded. 12 mm thick. Fabric - fine micaceous clay tempered with c 20% mixed rock fragments. Grey with a brown exterior margin. Interior sooted.

Vessel 3, SF152 1 body sherd, heavily abraded. Fabric - sandy clay. Brown.

House 6
Vessel 1, SF105 - 1 rim-sherd, SF106 - 1 body sherd, SF108 - 2 body sherds and 3 rim-sherds, Rt find - 2 body sherds. Plain rim. The vessel probably had a short neck. 11 mm thick. Fabric - very fine clay tempered with c 30% rock fragments. Grey with a brown exterior margin. Interior sooted. Abraded. (Illus 17)

The Medieval pottery from Carn Dubh
Gordon A Turnbull

CATALOGUE

Post-House 8
SF19, One club rim sherd, weight less than 5 g.

SF20, two flat base sherds, weight less than 5 g.

SF124, one handle sherd, weight less than 5 g.

House 5
GR1807, one body sherd, weight less than 5 g.

House 6
GR3948, one body sherd, weight less than 5 g.

Carn Dubh lithics
Nyree Finlay

AREA 1 FLINT CATALOGUE

SF134 - Light brown secondary flake; bipolar split pebble; fine regular sub-parallel invasive retouch removing cortex; convex scraper. Length 21 mm; Width 14 mm; Thickness 7 mm. (Illus 6)

GR3842 - Fresh orange inner flint flake; complete; less than 10 mm; knapping spall.

GR1763 - Fresh light brown inner flint flake; complete; less than 10 mm; knapping spall.

GR1982 - Fresh grey inner flint flake fragment; truncated distal end; less than 10 mm; slight edge damage.

SF132 - Inner brown flint flake with missing proximal end; area of inverse, invasive retouch left side (50 degrees). Length 24 mm; Width 22 mm; Thickness 5 mm. (Illus 6)

GR2001 - Fresh light brown, inner flint flake; complete; less than 10 mm; knapping spall.

Quartz Retent Samples
Contexts 1004,1006,1014,1050 and 1125 produced fresh quartz fragments of less than 1 cm maximum dimension. Contexts 1026,1019,1043,1103 produced pieces less than 10 mm and between one and two larger flakes from each context (<30 mm).

AREA 2 FLINT AND CHALCEDONY CATALOGUE

SF34 - Fresh golden brown secondary flint flake; wedge shaped bipolar piece. Length 26mm; Width 10 mm; Thickness 11 mm.

SF43 - Fresh translucent chalecedony flake; simple unprepared platform, anvil supported. Length 11 mm; Width 8 mm; Thickness 4 mm.

SF37 - Fresh light brown inner flint flake; hard hammer on unprepared platform. Fine edge damage, distal. Length 13 mm; Width 10 mm; Thickness 1 mm.

SF127a - Burnt inner flint flake; pronounced bulb; dorsal opposed removal scars. Length 33 mm; Width 13 mm; Thickness 7 mm. (Illus 8)

SF127b - Light brown inner flint flake; simple prepared platform; inverse retouch forming shallow concave notch right side (55 degrees); retouched flake. Length 26 mm; Width 29 mm; Thickness 6 mm. (Illus 8)

Quartz Retent

Contexts 2025,2027,2073, 2122 produced fresh quartz fragments of less than 10 mm maximum dimension. Retent from context 2073 also contained a chunk, split along flat fracture plane with negative scars on the dorsal surface (MD 40 mm). Context 2027 also contained a wedge shaped section flake (MD 15 mm).

Coarse Stone

SF155 - A quartz pebble hammer-stone with two discrete areas of pitted damage at one end. Hammer-stone appears to have split through use and was reused as a core for the removal of at least two flakes. Length 82 mm; Width 71 mm; Thickness 42 mm.

AREA 3 FLINT CATALOGUE

SF51 - Fresh grey inner flake; platform rejuvenation flake struck at 90 degrees to platform to remove pronounced step and hinge fractures. Edge damage opposite platform, possible retouch. Length 39 mm; Width 22 mm; Thickness 8 mm. (Illus 14)

SF145 - Fresh yellow flint bipolar core;secondary unsuccessful working attempt at 90 degrees;cortex present. Length 19 mm; Width 17 mm; Thickness 8 mm. (Illus 14)

SF147 - Fresh inner light brown flint flake; pronounced bulb; hard hammer; evidence of previous bipolar working at 90 degrees; fine edge damage at distal end. Length 24 mm; Width 16 mm; Thickness 4 mm.

SF52 - Fresh grey secondary flake; cortex platform; pronounced bulb; flat ventral; left side truncated; regular sub-parallel retouch (60 degrees) from ventral; convex scraper. Length 21 mm; Width 22 mm; Thickness 5 mm. (Illus 14)

GR1801 - Fresh brown flint flake; less than 1 cm; complete; hard hammer.

SF133 - Burnt inner regular flake. Length 18 mm; Width 13 mm; Thickness 3 mm.

SF45 - Fresh secondary yellow flint flake; crushed edges; possibly the same flint as 145. Length 12 mm; Width 10 mm; Thickness 5 mm.

Retent Samples

Contexts 3002,3022,3516,3573 produced fresh quartz fragments of less than 1 cm maximum dimension. Context 3573 also produced an angular flake, split along fracture plane with a steep edge.

The retent samples from the floor deposits of House 5, contained six chunks, three flakes with regular edges and two wedge shaped pieces.

Coarse Stone

SF149 - Complete quartz pebble hammer-stone, area of pitting at one end and smoothed area at 90 degrees. Length 79 mm; Width 72 mm; Thickness 40 mm.

his material.

AREA 4 FLINT CATALOGUE

SF221 - Burnt distal fragment; possibly from a blade; less than 1 cm.

SF102 - Burnt inner flake; hard-hammer; no remaining platform. Length 11 mm; Width 12 mm; Thickness 2 mm.

SF103 - Fresh brown secondary flint flake; rounded, smooth pebble cortex; slight hinge; no proximal end. Length 12 mm; Width 15 mm; Thickness 4 mm.

GR3955 - Inner brown flint distal flake fragment; less than 10 mm maximum dimension.

Quartz Retent

Contexts 4001,4007, 4017 and 4033 produced fresh quartz fragments of less than 1 cm maximum dimension. Context 4006 produced an orange coloured piece with opposed negative bulbs and bashed remains of existing platform. Slight denticulate

edge (65-70 degrees) formed by removal of two flakes, some damage or stabilisation of edge.
L 35 mm; W 30 mm; T 20 mm.

Note on Classification and definitions used

Knapping of quartz tends to produce a large number of chunky pieces and spalls that are difficult to classify using flint based criteria. Quartz was catalogued according to the definitions outlined below, these follow Finlayson (forthcoming) and are an attempt to standardize quartz recording between different analysts to enable inter-assemblage comparison.

Measurement

Definition of Terms Used in the Catalogue:

Chunk(C), a block without conchoidal fracture, Flake (F) with recognisable conchoidal fracture, Splintered Flake (SF), clearly flaked but without good conchoidal fracture.

Stage of removal (P) primary all dorsal covered with cortex, (S) secondary removal some cortex and inner (I), no cortex present. The few number of primary and secondary flakes reflect the predominance of unweathered vein quartz material exploited.

Edge Characteristics:
Regular(R) refers to >1 cm acute edge, less than 22 degrees(TH-thin), medium edge angle (M) between 22-45 degrees and thick (T) for over 45 degrees, all measured by eye.
Measurements are in millimetres, all taken at right angle to length. Core length is the size of the main flaking surface.

Retent Sample

No attempt was made to quantify quartz recovered from retent. The natural disintegration of quartz and the presence of quartz in the vicinity of the site limits inferences that can be made regarding the < 1 cm fraction, which can easily be the product of natural processes. However the presence of fine quartz flakes from the floor deposits of Area 2 and 3 confirms the patterning discernable in the hand collected sample.

Carn Dubh Soils analysis
Stephen Carter

TABLE 24
Contexts which produced higher phosphate values

Context	Interpretation
2073	House 8 Hearth deposit (8.04)
3015	House 5 Floor deposit
3039	House 5 Wall collapse over outer gully
3056	House 5 Fill of post-ring post-hole (5.08)
3077	House 5 Fill of post-ring post-hole (5.13)
3079	House 5 Fill of burning pit
3100	House 5 Fill of outer gully (5.19)
3101	House 5 Fill of outer gully (5.19)
3102	House 5 Fill of outer gully (5.19)
3104	House 5 Fill of outer gully (5.19)
3141	House 5 Fill of pit within house
3521	House 4 Fill of pit within house
3527	House 4 Fill of post-ring post-hole (4.08)
3529	House 4 Fill of post-ring post-hole (4.07)
3559	House 4 Fill of slot 3560 (4.23)
3578	House 4 Fill of post-hole in slot (4.23)
3582	House 4 Fill of pit under slot (4.22)
3583	House 4 Fill of pit under slot (4.22)
3601	House 4 Fill of post-hole
3611	House 4 Fill of post-ring post-hole (4.14)
3623	House 4 Fill of cooking pit (4.20)
3634	House 4 Fill of possible pit