

Mesolithic activity at Carn Southern Raised Beach, Isle of Jura

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ABSTRACT

A small flint-workers' site on the east coast of North Jura – assigned to Jura's Phase 2 – provided interesting vegetational information in addition to confirming Mesolithic activity in the area. A golden bark layer (probably alder) directly overlay the occupation layer, which itself yielded a carbonized pear-like fruit-pip. Pollen analysis of the overlying peat showed clear traces of human influence on the vegetation from the beginning of the peat formation (probably late Sub-Boreal).

INTRODUCTION

The initial excavation of this site, directed by the late John Mercer, assisted by the present author, was carried out in 1966 and 1968. Our Mesolithic investigations on Jura were fully under way at that time and it was hoped that Carn Southern Raised Beach would increase our knowledge of the tool typology. As the site supported findings at Lealt Bay (Mercer 1968) excavation was not then pursued. The present author feels that the site merits publication; only the more interesting aspects are given in some detail.

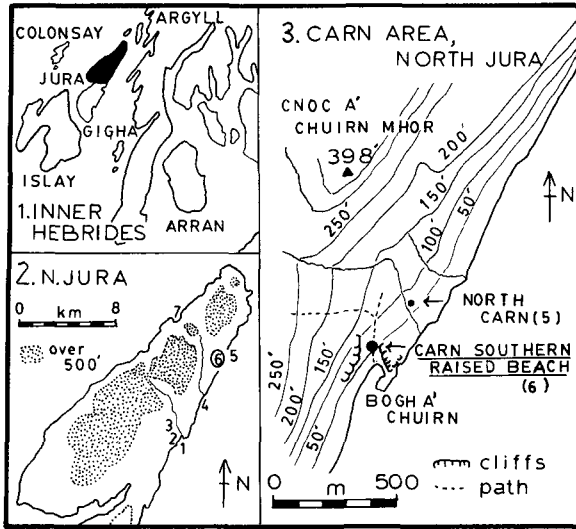
The main artefact analyses were done by John Mercer shortly after the 1968 investigations. Three additional trenches were dug by the author in 1986, with further work briefly in early 1987.

THE SITE

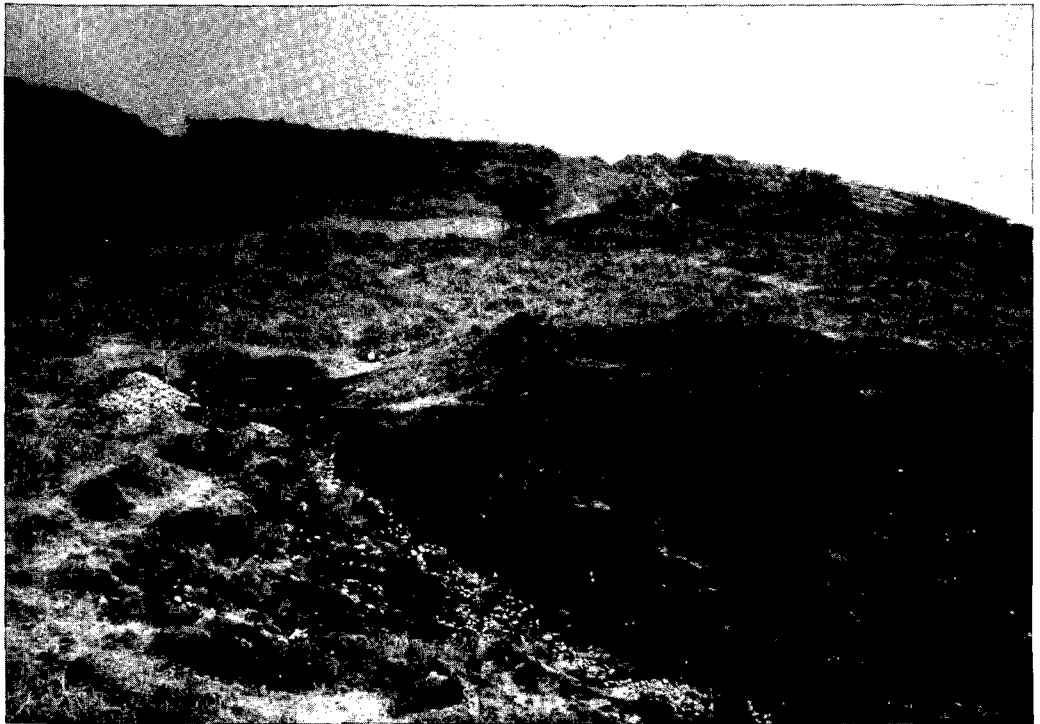
The site (NGR NR 684 937) lies on the southern edge of a coastal plateau (height c 18-21 m) stretching from Carn Bay north-east to Carn Burn and North Carn Raised Beach (illus 1 & 2). On the seaward side, the quartzite strata slope down at 45° to a narrow coastal platform, itself well clear of the present sea. Inland, and immediately south-west of the site, the plateau gives way to steep hillside which drops abruptly in a cliff-like formation to the foreshore and bay. Running through the site (trenches A and B), a much-used track leads down a steep gully to the Pre-Recent platform and Carn Bay. A flint scatter had been revealed by animals using this track, the principal access route to the bay.

The site stands at 20.37 m OD (present surface). Sea-level was measured as for all previous Jura sites. A large part of the plateau is covered by an old raised beach of little depth, with waterworn cobbles protruding through the turf in many places. Excavation suggested that the deposition of beach pebbles had been halted to the east and south-east by rising bedrock.

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ILLUS 1 Location maps. 1 – Inner Hebrides; 2 – N Jura with sites: 1, Lussa Bay; 2, Lussa River; 3, Lussa Wood; 4, Lealt Bay; 5, North Carn; 6, Carn Southern Raised Beach; 3 – Carn area, north Jura



ILLUS 2 Carn Southern Raised Beach site at head of gully leading to Carn Bay. Heap of excavated beach cobbles on left, North Carn raised beach in background

EXCAVATION

TECHNIQUES

Surface vegetation was cleared off the site. Six trenches each 1.52 m by 1.52 m were dug; A, B, C in 1966/68 and D, E, F in 1986. Trench F was dug in two halves, Fa and Fb. The total area excavated was 13.86 m². The concentration of archaeological material in the two central trenches (A and C), with a marked decrease in the four exterior trenches, would seem to indicate that the limits of the site were contained within this small area. It is likely that in the past the site extended further towards the southern lip of the plateau, where heavy erosion by rain and the passage of animals has carried away large portions of the top turf and peat and parts even of the underlying raised beach.

Wet sieving was used over most of the site.

STRATIGRAPHY

The general stratigraphy was as follows:

TABLE 1

Layer details	Thickness (mm)	Depth below surface (mm)
1 Top turf	25	—
2a Brown peat	305	25
2b Black peat	25	330
3 Golden bark, very decomposed	25	355
4 Blackish soil with first cobbles, becoming imperceptibly grey and gritty with smaller cobbles. Artefacts, thinning towards base	205	380
5 Wet grit, rotten bedrock, no artefacts	unknown	585

COMMENTS

- 1 A bedrock ridge, lying north-east/south-west, ran through the middle of trench A, protruding up into the brown peat layer. A similar ridge cut across the east corner of trench F, here filling layer 4 with fragments of rotting quartzite. In both cases the extent of the artefact-bearing deposit was accordingly reduced.
- 2 Peat depth (layer 2) was variable since the site area rose steadily to east and south – up to 50 cm thick in south corner of trench E, for instance.
- 3 Trench D: beach cobbles almost to surface; single raised beach deposit, dug to 455 mm. No artefacts.
- 4 Layer 4 more or less level in all trenches. All the archaeological material was found in this layer. In trenches E and F this layer was dug in two spits of 10 cm. No differences were noted in the material recovered and the finds were regrouped (illus 3 shows lower spit in trench F).
- 5 Layer 5 was dug into a depth of 5–8 cm in trenches A, B, C and F. Half of trench E was dug 15 cm into this deposit, with no change in its composition (bottom not reached, though solid bedrock could not have been far).

Golden bark layer

This thin deposit underlying the peat (illus 4) was an interesting discovery, unknown from other excavated North Jura sites, though its certain identification was not possible. Dr Metcalf reported (July 1966): ‘unfortunately the bark in your sample is in such an advanced state of decomposition that it is almost impossible to make any suggestions about its identity. We agree with you, however, that it is the outer bark of a tree, and it is strongly suspected that it is the outer bark of an alder (*Alnus glutinosa*). The possibility of its being birch cannot, however, be excluded’.

The alder is, of course, a well-known local tree (as is the birch). It figures in all Jura pollen



ILLUS 3 Trench F, lower part of layer 4, showing cobbles and smaller stones

analyses, including that of Carn Southern Raised Beach, so its presence in bark form would be no surprise.

A layer of silver birch roots and branches divided the blanket peat at the south Jura site of Cùl a' Bhaile (Stevenson 1984).

Charcoal

Very minute fragments were found in trenches A, B and C. They were not identified. The quantity was disappointing in view of the large amounts of burnt flints in all trenches.

Carbonized hazelnut shells

Rare fragments occurred in trenches A, C and E.

Carbonized fruit pip

Professor Dimbleby reported on this pip from trench A as follows (May, 1969): 'The fig-pip-like specimen is . . . the pip of a Rosaceous fruit. The nearest match is with *Pyrus* (pear) which is puzzling because the pear does not occur either as a sub-fossil or as a native tree in North Britain. Such species as mountain ash (*Sorbus aucuparia*), which might be expected on distributional grounds, were not as closely similar'. One pip does not make a pear orchard but similar finds, if forthcoming, could prove the existence of the pear tree in Scotland at a very early date.

NON-FLINT LITHIC MATERIAL

Iron pyrites

Two pieces were found in trench A.



ILLUS 4 Trench O with thin deposit of golden bark indicated by white string; cobbles of layer 4 visible at base of photograph

Quartz (excluding milky)

Seventeen small pieces of colourless quartz were found: three in trench B, four in trench C (one classified) and 10 in trench E (one classified). Thirteen small quartz crystals were recovered (four in trench A, nine in trench C), together with a small lump of amethyst crystals (trench C). These three items occur naturally on Jura and have been found in previous excavations. A unique find was a Cairngorm crystal: Dr Macpherson reported (1987) that it was impossible to state its origin but that it did not look to have travelled far in its present state. Cairngorm crystals have never figured before in a North Jura excavation (nor have they ever been seen by the author anywhere on the island).

Quartzite

One out of several hundred excavated beach pebbles was considered to have been undoubtedly man-worked: a bifacially-flaked chopping tool, found in trench B (illus 5, no 1)

FLINT AND QUARTZ ARTEFACTS (illus 5)

Total flint weight amounted to 1.45 kg, with classified artefacts accounting for 428 g. Total quartz came to 1.65 kg; quartz artefacts weighed 175 g. The material for the flint artefacts was provided, as usual, by imported water-worn pebbles, one of which was found in trench A. (It is of course possible that some flint pebbles were found on the Jura beaches. Despite long-term searching, the present beaches have never yielded a single flint pebble and the quantity needed for the numerous Jura sites clearly indicates importation.)

Table 2 gives the artefact distribution by trench.

TABLE 2
Artefact totals and distribution

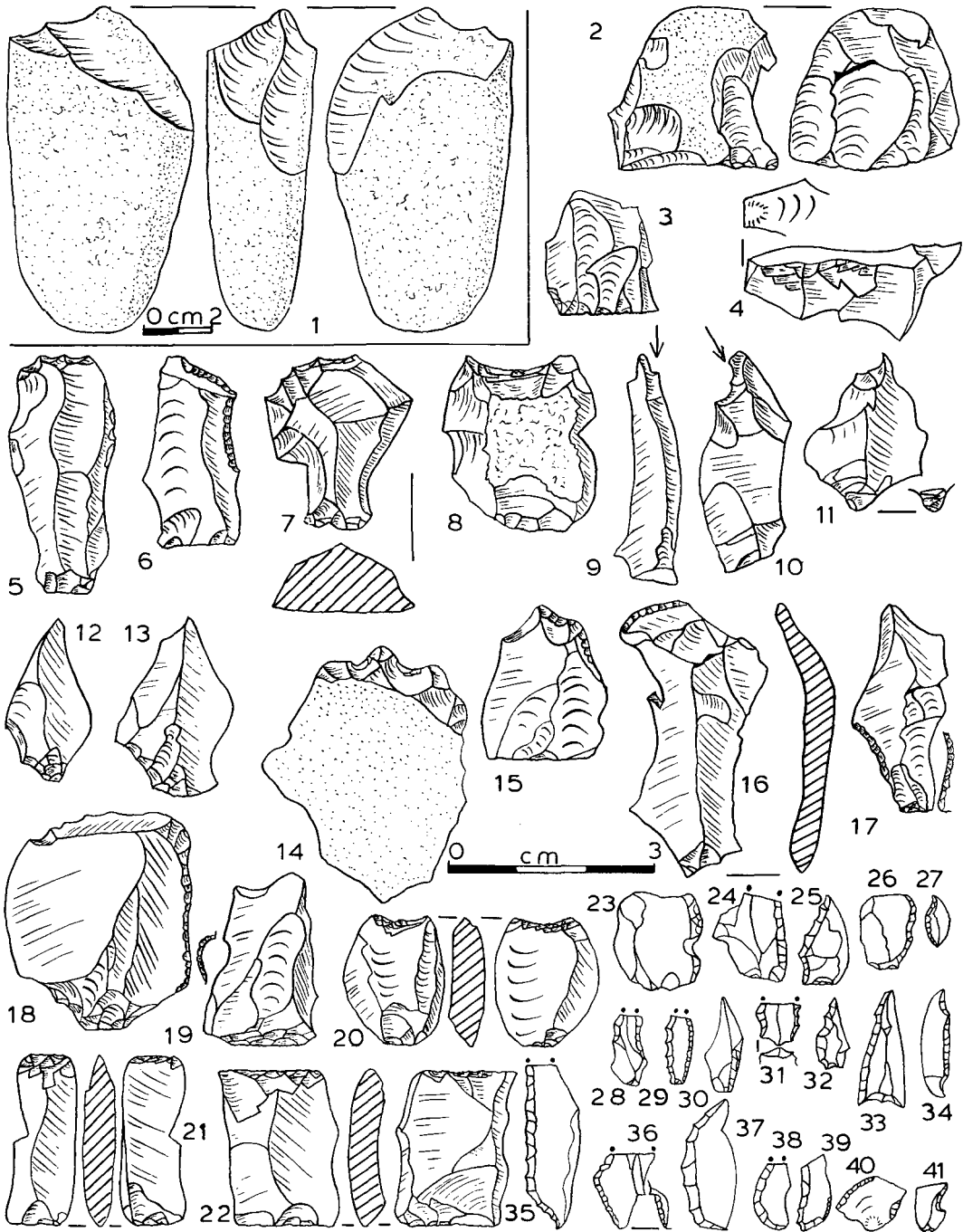
	Total	Trenches				
		A	B	C	E	F
Cores	10	4	1	4		1
Core rejuvenation	5	3	1	1		
Microliths	68	30	13	23	1	1
Microburins	4	3	1			
Scrapers	11	4	3	3	1	
Gravers	5	3	1	1		
Leaf-shaped flakes	9	5		3	1	
Perforators	6	3	1	1		1
Arched, tip-heavy flakes	3	1		2		
Miscellaneous trimming	21	13	3	4	1	
Notched flakes	2	2				
Blades:						
28 mm and over	2	1		1		
under 28 mm	25	17	1	3	3	1
Chisels	62	36	10	13	1	2
	233	125	35	59	8	6

The 68 microlithic tools are analysed in Table 3.

TABLE 3
Microliths

Class	Quantity	Illustration numbers and notes
Basal end not separately shaped		
1B fully trimmed one side	18	11 bulbar. Nos 23-27
1C partially trimmed each side	1	No 28
1E fully trimmed each side (max width over ¼ length)	1	No 29 (bulbar)
Basal end separately shaped		
3A basal end tapered	2	No 30 (bulbar)
3B base trimmed, straight or convexly	3	Nos 31 and 32
3C base trimmed concavely	2	No 33
3D miscellaneous tanged forms	2	No 36
Triangles		
4B scalene	2	No 35 (bulbar); one prob frag
Crescents		
5A arc trimmed	2	No 37 (two patinas)
5B chord trimmed	2	No 34
Miscellaneous	33	Nos 39 and 40

In general the flint-work is poor. The cores are small and heavily worked, though seven out of 10 retain some cortex (nos 2 and 3, the former the best-looking). Core rejuvenation flakes are standard (no 4). The scrapers are a mixed lot: two end-of-blade (nos 5 & 6), one with microlithic trimming on end and side; one steepish, perhaps hafted (no 7), two other possible steep ones in quartz, two hollow, both in quartz (no 8) and four varied. The five gravers recovered are all products of the blow technique as opposed to chipping (one in quartz) (nos 9 & 10). Classified leaf-shaped flakes have a suspicion of base-tapering (nos 11-13), with two excellent examples in clear quartz (no 11). The perforators, as often, are varied in shape: one on a heavy cortex-bearing lumpy flake (no 14), the others on rough flakes (no 15), with one very small (8 mm). Two of the three arched, tip-heavy flakes are trimmed (no 16). Two miscellaneous trimmed artefacts are illustrated (nos 17 and 18), the latter perhaps hafted. Two flakes are notched (no 19). The two 'big' blades measure 44 mm and 36 mm; the majority of the bladelets barely reaches 15 mm. Chisels, of which 23 are in quartz, are approximately equal in number to microliths and obviously played an important part in the tool outfit (nos 20-22).



ILLUS 5 Flint and quartz artefacts, nos 2-41; no 1 quartzite

The range of microlithic types is smaller than in other Jura sites. The square-sectioned rod (class 2) is absent. Almost half the microliths defied classification, mainly because of their fragmentary nature. The microburins are all butt-ends (no 4I). The percentage of microburins to total microliths is low: 6%, compared with 35% at North Carn, 28% at Lussa River and 27% to Lealt Bay (Mercer 1972; 1971; 1968). The absence of trapezoids (class 6) and the small representation of triangles and crescents (classes 4 and 5) may account for this low figure.

DATING AND TYPOLOGICAL IMPLICATIONS

Carbon-dating was not possible with the small amount of charcoal recovered. Pollen analysis, carried out in 1967 by Dr Durno, while presenting data of interest, gave no clear information on the date of occupation of the site. However, according to Dr Durno (1967 letter), this site 'reveals probably the most interesting vegetational history with clear evidence of anthropogenic influence. The upper portion [of the pollen diagram, see illus 6] is typically Sub-Atlantic but I am inclined to interpret the lower portion as late Sub-Boreal. Alone among the Jura pollen diagrams this one shows highly significant percentages of groups containing weeds of cultivation, the Rosaceae and Compositae, and of course the most reliable indicator, *Plantago*' (see Appendix 1 for pollen count).

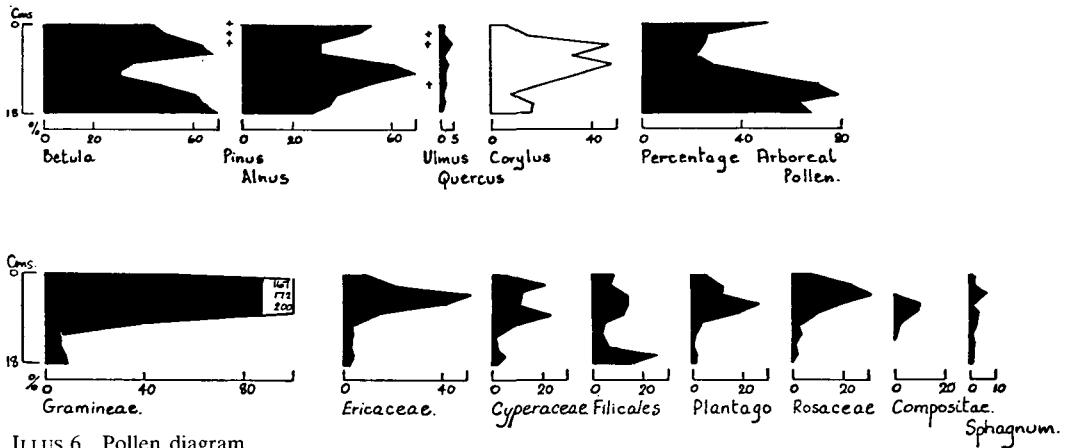
The area round the site was farmed in recent historical times and it is not surprising to find traces of probably prehistoric agriculture. A Sub-Boreal beginning for the overlying peat agrees with that suggested by Dr Durno for the neighbouring North Carn site (Mercer 1972). This period (pollen zone VIIb) is considered to have started about 3000 BC (Godwin 1975). The presence of *Plantago* at the bottom of the sequence was also noted at North Carn. However, Neolithic-type scale-flaked work was not found at Carn Southern Raised Beach. A Bronze-Age hut-circle settlement with agriculture dated to the late second and early first millennium BC has recently been excavated in South Jura (Stevenson 1984).

Unlike some other North Jura sites, the height of the present site gives no clues either as to its age. At 20 m OD, the occupation layer was always well clear of the Post-Glacial sea, whatever its age. At Lussa River for instance (Mercer 1971), the site height of approximately 10 m OD effectively precluded it from being occupied at an early date.

Phase 1 Jura sites – the oldest – are characterized by tanged points and relatively large trapezoidal microliths trimmed on two edges only; these typological indicators are absent from Carn Southern Raised Beach. Three tool types are particularly significant when trying to differentiate between Phase 2 and Phase 3: the square-sectioned microlithic rod (class 2), the chisel and the hammerstone. All three are dominant at Phase 3 sites (or levels); the first two do occur in Phase 2 but are numerically insignificant. At Carn Southern Raised Beach microlithic rods and hammerstones are both absent. Chisels, well outnumbering microliths at the Phase 3 Lussa River site, are here present in almost equal numbers. There seems no reason to argue that the Phase 3 items missing here were used for activities not practised at this site – though this is of course always a possibility.

On typological grounds, Carn Southern Raised Beach belongs to Jura's Phase 2 or Phase 3. When considering the site for a Royal Society paper (unpublished) in 1975, John Mercer unhesitatingly placed it in the former. It is proposed here to accept this attribution and place the site in Phase 2, on account of the absence of rods and hammerstones.

Phase 2 was dated to 6244±350 BC (SRR-160) at Lussa Wood (Mercer 1980) and 5464±80 BC (SRR-161) at North Carn (Mercer 1972). By 2670±140 BC (BM-556), Phase 3 people were active at Lussa River (Mercer 1971). With such a large timespan one cannot necessarily suppose that all Phase 2 sites were contemporary. The smallness of the South Carn Raised Beach site militates against it being an important camp. There were no formal hearths nor structures likely to have been shelters. It seems best to consider it as a mere halt, in use for a short period, perhaps to prepare hunting weapons at a time when the nearby much more important site of North Carn was unoccupied. The beach



ILLUS 6 Pollen diagram

covering much of the plateau would have made a convenient camp site, at 20 m out of range of the washing-limit yet usefully close to the sea. The protruding outcrops of quartzite to north and east of the site would have afforded agreeable windbreaks for hunters squatting in their lee.

In conclusion, Carn Southern Raised Beach confirms the extensive Mesolithic activity on Jura prior to the third millennium BC. It would be hazardous to try and estimate the number of people actually involved, but that they were active stone-workers there can be no doubt.

ACKNOWLEDGEMENTS

Thanks are due to many specialists who examined the organic remains: Dr S E Durno, of the Macaulay Institute for Soil Research, who took peat samples from the site in June 1967 and provided not only the pollen diagram but much general advice; Dr P D Hulme, also of the Macaulay Institute, who searched in his archives many years after the visit of Dr Durno; Dr C R Metcalfe, Royal Botanic Gardens, Kew, who examined the bark; Professor G W Dimbleby, of the Institute of Archaeology, University of London, and Dr J H Dickson, of the Department of Botany, Glasgow University, both of whom examined a number of carbonized items; Dr Macpherson, of the Royal Museum of Scotland, who confirmed the Caringorm identification. A photograph of the carbonized fruit pip was generously supplied by the Royal Botanic Garden, Edinburgh.

Permission to excavate was again kindly given by Mr and Mrs A R Nelson. Guy Martinet helped with the 1986 excavation.

APPENDIX 1

POLLEN COUNT

Depth	Betula	Pinus	Alnus	Ulmus	Quercus	Salix	Corylus	Ericoid	Gram	Cyp	Filicales	Sphag	Rosaceae	Plantago	Umbelliferae	Compositae	Labiatae	Artemisia	Ranunculaceae
Surface	68	2	78	-	2	5	11	14	78	8	8	1	11	7	1	-	-	-	-
- 2 cm	50	1	47	1	1	-	15	21	167	21	7	2	24	12	-	-	-	-	-
- 4 cm	63	1	31	1	4	2	47	52	172	12	13	6	30	12	1	-	1	-	-
- 6 cm	67	-	31	-	2	-	32	41	200	12	13	1	20	26	3	10	-	-	-
- 8 cm	54	-	92	-	4	-	72	22	144	38	18	5	13	27	4	13	-	1	1
- 10 cm	72	-	174	-	4	1	90	9	95	20	12	6	8	10	-	5	-	-	2
- 12 cm	145	-	149	1	5	-	56	11	18	-	13	2	10	3	-	2	-	-	-
- 14 cm	183	-	114	-	3	-	25	8	18	4	18	1	2	-	-	-	-	-	-
- 16 cm	196	-	104	-	1	1	47	13	24	14	81	1	1	1	-	-	-	-	-
- 18 cm	214	-	82	-	4	-	49	7	26	5	48	1	-	1	-	-	-	-	-

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