Archaeological Salvage Excavation of the GhGk-4 site, 1990

Presented to:
Whapmagoostui Band Council
and
Municipality of Kuujjuarapik

By:
Avataq Cultural Institute

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1.0 Introduction

The present report concerns the archaeological salvage excavation project conducted in 1990 at the GhGk-4 site. This Pre-Dorset habitation site is located near the Cree village of Whapmagoostui and the Inuit Municipality of Kuujjuarapik, at the mouth of the Great Whale River, southeastern Hudson Bay (Figure 1). It is situated on Category 1A land of the Whapmagoostui Crees, approximately 1.2 km north of the river and about 1.6 km east of the coast.

The project was prompted by information received from Mr. Denis Roy, archaeologist of the ministère des Transports du Québec, who visited the GhGk-4 site in late summer of 1989. At that time Mr. Roy noted that a significant portion of the site had been destroyed by local construction work carried out earlier that year. In response to this information, representatives of the Whapmagoostui Cree Band, the Municipality of Kuujjuarapik and the archaeologists of the Cree Regional Authority (CRA) and the Avataq Cultural Institute met the following June to discuss measures for the protection of the site. This meeting resulted in an agreement of co-operation between the 2 communities which authorized the CRA and Avataq to undertake a joint archaeological salvage excavation project in the site.

The main objectives of the project were to rescue disturbed and intact cultural deposits threatened by the impacts of past construction work, to evaluate the archaeological potential of the site and to obtain new information on the Pre-Dorset culture in southeastern Hudson Bay. In the latter regard research was oriented toward the recovery of: 1. radiocarbon material in order to clarify the chronology of occupation of the site; 2. tool assemblages from different types of habitation structures presumably occupied during different seasons of the year. The project also included a training component focused on instruction in basic archaeological techniques. This component emphasized training in the use of a theodolite for site gridding, in the identification of habitation structures and lithic artifacts, and in data registration.

The field work was carried out over the two-week period between 17 and 31 August and involved a crew composed of 4 local archaeological assistants: Weemish Petagumskun and Johnny Kawapit of Whapmagoostui and Caroline Weetaluktuk and Lizzie Fleming of Kuujjuarapik. The crew was directed by Daniel Gendron, Assistant Director of the Avataq Archaeology Department, assisted by Francis Marcoux, engaged by the CRA as crew supervisor.

Figure 1. Location **of the** GhGk-4 **Site**

2.0 The GhGk-4 site

2.1 General Description and Research History

The GhGk-4 site occupies an extensive boulder field situated at a relatively high altitude. It consists of a series of boulder beach ridges formed by ice-push action during the post-glacial Tyrrell Marine Transgression. The formation measures 130 x 260 m in maximum dimensions and is interrupted by a flat bedrock outcrop covering roughly 5,600 m^2. The boulder field is bounded to the east and west by bedrock hills and, to the north and south, by outcrops and lower, wet zones. Stands of black spruce mixed with shrubs occur in the lower zones.

The GhGk-4 site was discovered by members of a research team from the Centre d'études Nordiques, Université Laval, who, carrying out ecological studies in the area in 1968, noted curious depressions in the boulder field. Informed of these depressions, Patrick Plumet travelled to the locality in 1969 and recorded 17 habitation structures and 7 exterior features in the western section of the formation (c.f., Plumet, 1976, Figure 4). Plumet's excavation of one of the structures and testing of another yielded 263 lithic artifacts. Projectile points and burins included in the collection indicated that the site had been occupied by groups of the Pre-Dorset culture. A radiocarbon assay of 3,300 ± 100 B.P. (GIF 1576)* obtained on wood charcoal from the excavated structure was later corrected to 3,671 B.P., or 1721 B.C. (Plumet, 1976: 142-144).

In 1970 Elmer Harp, Jr., of Dartmouth College, New Hampshire, and his crew excavated 3 habitation structures and tested a fourth in the site. Harp's unpublished field notes provide the only description of these excavations. The 608 lithic artifacts recovered from this work, along with those collected earlier, were subsequently analyzed by Plumet (1980).

In 1988 the ministère des Transports du Québec mandated the Cree Regional Authority to carry out an archaeological potential study and pre-inventory of the Kuujjuarapik airport study area. The pre-inventory, conducted in collaboration with the Avataq Cultural Institute, included a visual inspection of GhGk-4. This inspection resulted in the identification of more than 50 habitation structures and in the redefinition of the site as covering the entire boulder field (Denton and Laforte, n.d.). Disturbance noted at that time consisted of a shallowly-graded ATV trail crossing the southwestern part of the site. The south-central section of the site was destroyed the following year by the extraction of boulders for local construction work.

*B.P. refers to "Before the Present", which is fixed in archaeology at A.D. 1950. The capital letters and number in brackets following the B.P. date identify the radiocarbon laboratory and number of the processed sample.

Disturbance caused by boulder extraction work and the ATV trail covers 2,000 m^2 (c.f., Appendix 3). This disturbance includes 2 deep borrow pits, one of which is located on the southern edge of the central outcrop and the other on the extreme southeastern limit of the area. A shallower extraction zone and access road, both of which have been bulldozed to the bedrock surface, and piles of redeposited overburden are situated in the intervening space. Redeposited overburden and a scraped zone extend along the western, southern and eastern peripheries of the southeastern borrow pit.

2.2 Area A.

The natural configuration of the boulder field and the disturbed portion of the site allow GhGk-4 to be divided into 3 "areas". Area A comprises the western section of the boulder field while Areas B and C encompass the southeastern and northeastern parts of the formation. All salvage activities were carried out in Area A.

Area A corresponds, in general, to the site as originally defined in 1969. It is bordered to the west by a bedrock hill and, to the east, by the central outcrop. The southeastern limit is formed by the disturbed zones.The area varies in altitude from 63 to 70 m.a.s.l. and covers approximatly 9,500 m^2, with maximum dimensions of 105 x 120 m. The greater part of the surface boulders average from 30 to 50 cm in overall dimensions, increasing to more than 1 metre in the southwestern part of the area. Vegetation is composed of some stunted black spruce, isolated shrubs and a few patches of mosses and lichens intermixed with grass.

Seventeen habitation structures and 6 exterior features are presently indentified in the area (Table 1). These remains include 7 habitations which, recorded in 1969, have been renumbered in order to avoid confusion. Ten other structures and 2 features registered that year have been obliterated by extraction work. The type and dimensions of the destroyed components presented in Table 1 are as listed in Plumet (1976 : 77-92).

Extant habitation structures are represented by 5 semi-subterranean dwellings and 12 tent rings. The semi-subterranean dwellings are characterized by oval depressions of variable depth surrounded either wholly or in part by raised rims. The smallest, interpreted in 1969 as a cache pit, measures 1.90 x 2.60 m and the largest, 5.10 x 6.25 m. Two of the tent rings are circular and 9 are oval in shape. The latter vary from 1.80 x 2.00 m to 3.25 x 4.40 m in dimensions. Each of the circular tent rings is 4.00 m in diametre. Another tent ring (i.e., Structure 6) is suggested by a semi-circular alignment of rocks projecting from beneath a pile of redeposited boulders. The form and dimensions of this habitation are unknown.

The exterior features comprise 2 modern hunting blinds and 4 cache pits. One of the blinds consists of a rock-built wall, 1.10 m in interior height, enclosing an oval space carpetted with spruce boughs. The second is composed of a semi-circular rock wall, about 0.50 m in height. The situation of the cache pits close to 2 habitation structures suggests an Early Palaeoeskimo origin for these features. All habitation structures in Area A are considered to be Pre-Dorset in cultural affiliation.

Table 1. Summary of Cultural Features Identified in Area A of the GhGk-4 site

A. Habitation Structures

Structure		Type	Dimensions (m)	Remarks
Avataq (1990)	Plumet (1976)			
1	A	semi-subterranean	4.75 x 5.40	-
2	B	semi-subterranean	5.10 x 6.25	-
3	E	tent ring	3.35 x 3.60	excavated by Harp
4	F	tent ring	3.25 x 4.40	excavated by Plumet
5	G	semi-subterranean	3.50 x 4.00	tested by Harp
6	-	tent ring	unknown	almost completely covered by rede-posited boulders
-	H	semi-subterranean	4.00 x 5.00	destroyed
7	I	semi-subterranean	3.50 x 3.75	-
-	J	tent ring	3.00 x 4.00	destroyed
-	K	semi-subterranean	5.00 x 5.00	tested by Plumet; destroyed
-	L	semi-subterranean	4.00 x 4.50	destroyed
-	M	semi-subterranean	4.40 x 5.40	destroyed
8	N	tent ring	3.00 x 3.20	-
-	P	tent ring ?	unknown	destroyed
-	Q	tent ring	3.00 dia.	destroyed
-	R	tent ring	3.20 x 3.60	excavated by Harp; destroyed
-	S	semi-subterranean	3.00 x 3.60	excavated by Harp; destroyed
-	T	unknown	2.00 dia.	destroyed
9	-	tent ring	4.00 dia.	-
10	-	tent ring	1.80 x 2.00	-
11	-	tent ring	2.00 x 3.00	-
12	-	tent ring	2.60 x 3.40	-
13	-	tent ring	3.00 x 3.80	-

Structure		Type	Dimensions (m)	Remarks
Avataq (1990)	Plumet (1976)			
14	-	tent ring	2.00 x 2.80	-
15	Feature 5	semi-subterranean	1.90 x 2.60	-
16	-	tent ring	2.00 x 2.60 (incomplete)	partly destroyed
17	-	tent ring	4.00 dia.	-

B. Exterior Features

Feature		Type	Dimensions (m)	Remarks
Avataq (1990)	Plumet (1976)			
I	Structure C	modern hunting blind	3.00 x 4.20	-
II	Structure D	modern hunting blind	2.00 long.	-
III	1	cache pit	1.70 dia.	-
IV	2	cache pit	1.80 dia.	-
V	3	cache pit	1.40 dia.	-
VI	4	cache pit	0.70 x 1.40	excavated by Plumet
-	6	cache pit	1.00 dia.	destroyed
-	7	cache pit	0.40 x 0.50	destroyed

3.0 Field Techniques.

Area A was mapped and gridded using a Sokkisha theodolite and 60-metre surveyors' chain. The grid was composed of intersecting 1-metre bands extending from a reference point arbitrarily placed well to the southwest of the area. North-south bands were numbered while those oriented east-west were assigned alphabetical letters. The resulting square metres were alpha-numerically coded (i.e., DA 88), with the value of the numbers and letters increasing toward the north and east, respectively.

The square metres formed the basic units for testing and the excavation of 1 tent ring. Waste flakes produced by lithic tool manufacturing recovered in these units were collectively registered according to quadrant and stratigraphic level. The quadrants, measuring 50 x 50 cm, were identified by their position in a square metre (i.e., southeast, northwest, etc.). The north and east co-ordinates of each tool and tool fragment were recorded and these specimens were individually collected.

Other habitation stuctures were excavated by "habitation" quadrants. This procedure involves the subdivision of a structure into 4 equal parts based on the orientation of its length axis. Techniques used to register lithic artifacts in the square metres were applied to habitation quadrants. However, in these cases tools were recorded in relation to quadrant dividing lines which, the quadrant depending, may assume a number of different cardinal orientations.

Surface-collecting was carried out in a part of the scraped area immediately east of the southeastern borrow pit (i.e., Collection Zone 1A) and, to a limited extent, on the access road. Only the general provenience of the surface-collected lithics was registered.

The location of all excavated artifacts and other occupational remains was plotted on millimetric graph paper at a scale of 1:10. Plans of the excavated habitation structures, the test excavations and stratigraphic profiles were also drawn at this scale. Area A in general, the structures, excavations and other details were photographed in colour and black and white prints and slides.

4.0 Project Results.

Approximately 105 m^2 were excavated. These excavations were centred primarily on Structures 1, 2, 5, 7, 12 and 17. Structures 3 and 4, the interiors of which were excavated by Harp and Plumet, respectively, were also tested. Features III, IV and V, 3 cache pits, were excavated, with negative results. Excavations extended where possible to the limit of artifact infiltration, defined by sterile sand-gravel or bedrock. Work in Structures 1 and 2 was arrested at a depth of 1 m by massive boulders.

4.1 Stratigraphy.

The profiles observed in Structures 1 and 2 are composed of unsorted boulders of variable dimensions interspersed with smaller stones. An unsorted boulder deposit, ranging from 30 to 80 cm in thickness, also occurs in Structure 5 (Appendix 5). This deposit overlies a layer of pebbles which, varying from 5 to 50 cm in thickness, is underlain by gravel impregnated with decayed vegetal matter.

The upper stratigraphic unit in Structure 7 consists of a layer of boulders, attaining a maximum thickness of 1.50 m in the rim of the habitation. The boulders generally decrease in size with increased depth and overly a horizon of coarse gravel high in organic content. The gravel horizon in the southern and central sections of the structure is roughly 20 cm thick and rests on bedrock. The surface of the bedrock dips abruptly to an unknown depth in the northern and western parts of the dwelling.

The upper units in Structures 5 (including the pebble layer) and 7 were recorded as Level I and the underlying gravel horizons in both habitations as Level II.

Structures 12 and 17 are situated in shallow, natural depressions which, acting as catchment basins, have promoted vegetation growth and the development of organic soil. The stratigraphic levels revealed in Structure 12 are summarized as follow:

Level I	-discontinous vegetation mat composed mainly of mosses and lichens, averaging 6 cm in thickness.
Level II	-sandy humus layer, 5 to 10 cm in thickness.
Level III	-boulder layer, 20 to 30 cm in thickness.
Level IV	-gravel horizon, 25 cm in thickness.

The stump of a small black spruce occurs in the centre of the structure. The roots of this tree extend throughout Levels I and II in the central portion of the habitation.

Levels I and II in Structure 17 are of similar composition and thickness. However, in this instance the boulder layer is replaced by scattered boulders, with Level II humus directly overlying a sand-gravel horizon. This horizon, designated Level III in Structure 17, varies from 10 to 25 cm in thickness and, as in Structure 12, is underlain by large boulders.

A comparable stratigraphic sequence was observed in the test pits excavated on the peripheries of Structures 3 and 4. The vegetation and humus layers were absent in the interiors of these structures, the earlier excavation of which penetrated into the Level III gravel.

4.2 Habitation Structures

Semi-subterranean Dwellings.

Structures 1 and 2 are built into adjacent north-facing boulder ridges (Appendix 4). These oval dwellings are east-west in orientation and surrounded by generally pronounced rims. The northern portions of the rims of both structures are poorly defined.

The exterior dimensions of Structure 1, measured from the crest of the rim, are 4.75 x 5.40 m. Interior rim slopes are of varying gradient and length, enclosing a relatively flat space measuring 2.85 x 3.30 m and 50 cm in average depth. A slight depression roughly 85 cm in diametre occupies the centre of the dwelling. A circular arrangement of rocks, 55 cm in diametre, located in the southeastern quadrant is interpreted as a cache. An east-west alignment of boulders crossing the interior space suggests the edge of a sleeping platform. The alignment is bordered to the north by two, contiguous circles of rocks possibly representing hearths. Each circle is about 50 cm in diametre.

Structure 2 measures 5.10 x 6.25 m in exterior dimensions and 2.40 x 3.75 m in interior dimensions. Its depth varies from 45 to 65 cm. A cache composed of an irregularly-shaped arrangement of rocks roughly 70 cm in overall dimensions is situated in the northwest quadrant. Interior features of unknown function are suggested by a concentration of boulders in the western part of the same quadrant and by a rock alignment in the northeastern quadrant.

Structure 5 was classified in 1969 as a tent ring (Plumet, 1976: 72) and recorded the following year by Harp (n.d.: 3) as being rectangular in shape. However, as illustrated by the profile presented in Appendix 5, this structure is clearly semi-subterranean in nature, attaining a depth of 30 cm. As well, its complete excavation in 1990 revealed an oval contour for the dwelling, with exterior

dimensions of 3.50 x 4.00 m. The length axis is oriented east-west. Harp's sampling of the structure is represented by a 50 x 65 cm test pit in the southeast quadrant.

Structure 7 is oval in form, measures 3.50 x 3.75 m and is oriented north-south. Its depth increases from 15 cm along the interior edge to 50 cm in the centre of structure. As in the case of Structure 5, a number of flagstones are scattered throughout the habitation. No interior features were identified in either dwelling.

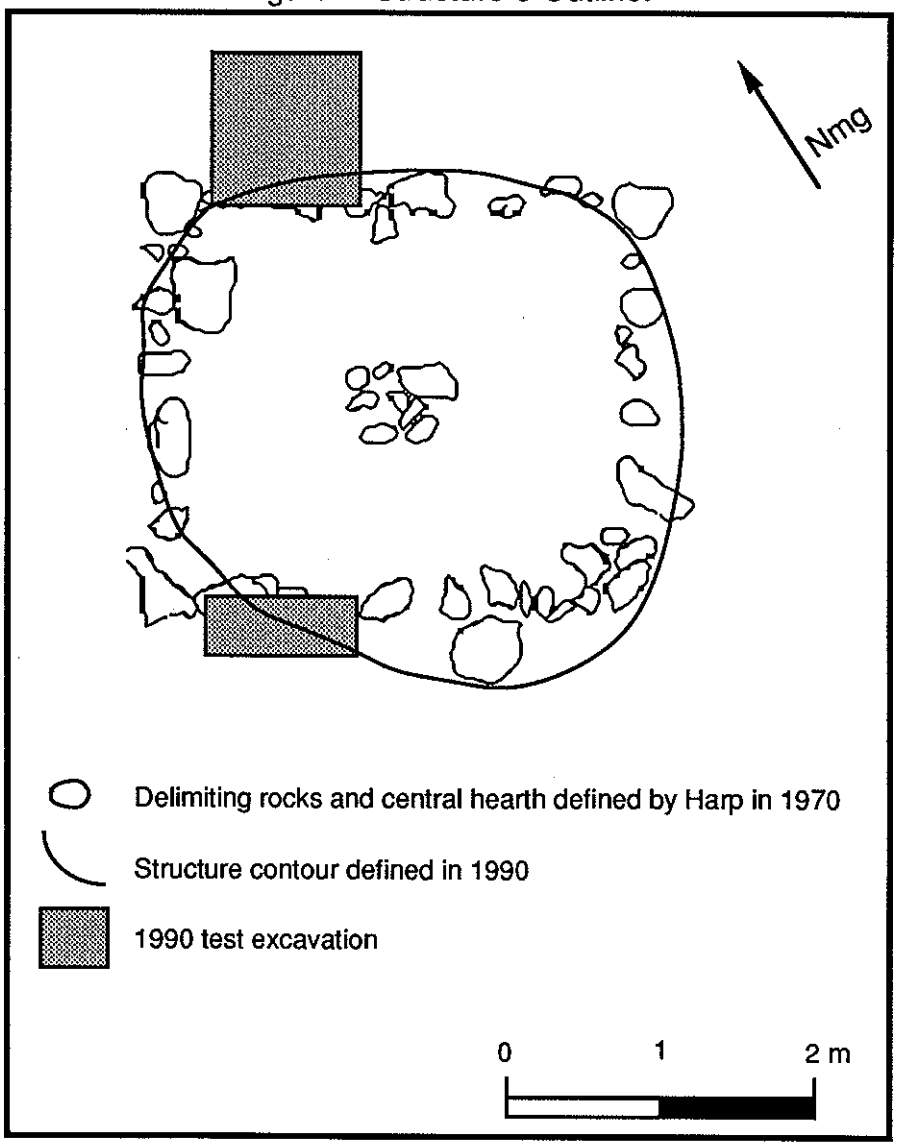
Tent Rings

Structure 12 consists of an oval configuration of irregularly-spaced boulders (Appendix 6). It measures 2.00 x 3.00 m and is east-west in orientation. A rock concentration associated with pockets of charcoal near the intersection of the 3 excavated quadrants indicates a central hearth area.

The excavation of the northern and south-central portions of Structure 17 suggests a circular tent ring, about 4.00 m in diametre. The structure is bisected by a mid-passage composed of 2 parallel rows of rocks oriented northwest-southeast. This feature, initially obscured by surface vegetation, is 60 to 70 cm wide. Although some of its constituent rocks rest on Level III gravel, the mid-passage appears to be associated with the Level II humus. A deposit of carbonized grease was situated in the northwestern extremity of the mid-passage and pockets of charcoal were located in the northern part of the habitation. Numerous small fragments of charcoal were scattered to the west of the structure.

While Structure 3 was recorded by Harp (n.d.: 8) as rectangular in shape, 1990 field observations indicate an oval form for this tent ring (Figure 2). Structure 3 measures 3.35 x 3.60 m. Structure 4 is also oval and measures 3.25 x 4.40 m.

Figure 2. Structure 3 Outline.



4.2 Lithic Collection.

The excavations and surface-collecting produced a total of 4,737 lithic artifacts, comprising 233 tools, 4,501 waste flakes and 3 unworked quartz crystals (Table 2). The bulk of the collection was recovered from Structure 17 (72.6%), followed by Collection Zone A1 (12.3%) and Structure 12 (11.9%). In contrast, only 63 artifacts, or 1.5% of the collection, were retrieved from the 4 excavated semi-subterranean dwellings. Test-pitting in Structures 3 and 4 yielded 64 lithics and 14 others were surface-collected on the access road.

The majority of the specimens from Structures 3, 5, 7 and 12 were located in the gravel horizon. Roughly equal amounts of lithics were associated with the humus and gravel level in Structure 17. Artifact frequency increased around the mid-passage in this tent ring and in the hearth area of Structure 12. No distribution patterns were evident in the other structures.

The largest portions of the tool assemblage were furnished by Structure 17 (N=170) and Structure 12 (N=31). Nineteen implements were registered in Collection Zone A1 and the semi-subterranean dwellings provided a total of 13 tools. The assemblage is dominated, numerically, by burins and burin spalls, microblades, retouched flakes, projectile points and fragments of bifacially-worked implements of unknown function. Many of the burin spalls, some of which may have been reworked, appear to have been used as small engraving tools or perforators. The projectile points include stemmed and triangular forms as well as micropoints. End scrapers, microblade cores and flake cores are also relatively numerous in the assemblage while knives are comparatively rare. A small number of used flakes, 3 chipped and polished adze blades, 2 large blades, 2 uniface fragments, 2 preforms, a side scraper, a side blade and a hammerstone complete the list of tools.

Differences in the frequency of tools recovered from the individual structures are accompanied by notable contrasts in the number of implement categories associated with the different habitation types. For example, all 18 categories contained in the assemblage were found in Structure 17 and 10 categories were present in Structure 12. Only 7 categories occurred in the 3 semi-subterranean dwellings that produced tools. Five of these categories were represented in separate dwellings. Tools common to 2 dwellings are end scrapers, occurring in Structures 5 and 7, and used flakes, occuring in Structures 2 and 5.

Most of the waste flakes in the collection are small, suggesting relationships with the final stages of tool manufacturing. Microblade core blanks are suggested for the unworked quartz crystals.

Mottled black chert is the overwhelmingly predominant raw material, representing 99% of the collection. Twenty artifacts are in quartz crystal, 15 are in metabasalt and 5 are in metamorphosed sandstone. The raw material of 4 specimens is undetermined.

Table 2. Summary of the Lithic Collection

Categories	Structures								Collection Zone A1	Access Road	Total
	1	2	3	4	5	7	12	17			
Points	-	-	-	-	-	1	3	17	3	-	24
Knives	-	-	-	-	-	-	-	2	3	-	5
End scrapers	-	-	-	-	1	1	1	7	1	-	11
Side scraper	-	-	-	-	-	-	-	1	-	-	1
Side blade	-	-	-	-	-	-	-	1	-	-	1
Burins	-	-	-	-	-	-	5	28	-	-	33
Burin spalls	-	-	-	-	-	-	1	34	-	-	35
Flake cores	-	-	-	-	-	-	1	5	1	-	7
Microblade cores	-	-	-	-	-	-	3	36	1	-	10
Microblades	-	-	-	-	-	2	9	20	2	-	33
Blades	-	-	-	-	-	-	-	2	-	-	2
Adze blades	-	2	-	-	-	-	-	1	-	-	3
Biface fragments	-	-	-	-	1	-	3	16	2	-	22
Uniface fragments	-	-	-	-	-	-	-	2	-	-	2
Preforms	-	-	-	-	-	-	-	1	1	-	2
Retouched flakes	-	-	-	-	2	-	4	21	4	-	31
Used flakes	-	2	-	-	1	-	1	5	1	-	10
Hammerstone	-	-	-	-	-	-	-	1	-	-	1
Sub-total	-	4	-	-	5	4	31	170	19	-	233
Waste flakes	5	10	58	6	21	21	533	3,268	562	14	4,498
Unworked crystals	-	-	-	-	-	-	1	-	2	-	3
Total	5	14	58	6	26	25	565	3,438	583	14	4,734
%	0.1	0.3	1.2	0.1	0.6	0.5	11.9	72.6	12.3	0.3	99.9

Table 3. Lithic Categories and Raw Materials

Categories	Raw Materials					Total
	Chert	Quartz crystal	Metabasalt	Sandstone	Undetermined	
Points	24	-	-	-	-	24
Knives	5	-	-	-	-	5
End scrapers	11	-	-	-	-	11
Side scrapers	1	-	-	-	-	1
Side blade	1	-	-	-	-	1
Burins	32	1	-	-	-	33
Burin spalls	35	-	-	-	-	35
Flake cores	7	-	-	-	-	7
Microblade cores	7	3	-	-	-	10
Microblades	31	2	-	-	-	33
Blades	2	-	-	-	-	2
Adze blades	-	-	2	1	-	3
Biface fragments	22	-	-	-	-	22
Uniface fragments	2	-	-	-	-	2
Preforms	2	-	-	-	-	2
Retouched flakes	31	-	-	-	-	31
Used flakes	9	-	1	-	-	10
Hammerstone	-	-	-	-	1	1
Sub-total	222	6	3	1	1	233
Waste flakes	4,468	11	12	4	3	4,498
Unworked crystals	-	3	-	-	-	3
Total	4,690	20	15	5	4	4,734

4.4 Organic Remains.

Seven charcoal samples, a sample of carbonized grease and a fragment of burnt bone were recovered from the excavations. The bone was found in the northwest quadrant of Structure 2 and is tentatively identified as a caribou longbone epiphysis.

Four of the charcoal samples were collected from the gravel horizon in the northeast and northwest quadrants of Structure 12. Two of these samples (i.e., Nos. 1 and 4) were directly associated with the hearth area in the structure. The 3 other charcoal samples were collected from Level III gravel in the northern section of Structure 17. The carbonized grease was located in level II humus, in the mid-passage of this structure.

Table 4. List of Charcoal and Carbonized Grease Samples

Sample No.	Structure	Excavation unit	Level
1	12	northwest quad.	III
2	12	northwest quad.	III
3	12	northeast quad.	III
4	12	northeast quad.	III
5*	17	DD85	II
6	17	DD86	III
7	17	DD86	III
8	17	DD86	III

* carbonized grease

4.5 Radiocarbon Dates

Charcoal samples 1 and 3 from Structure 12 and sample 6 from Structure 17 were dated by the Geological Sciences Radiocarbon Lab of Brock University, St. Catherines, Ontario. The Structure 12 samples provided uncorrected dates of 3,260 ± 100 B.P.(BGS 1473) and 3,360 ± 90 B.P. (BGS 1474). The Structure 17 sample is dated to 3,790 ± 70 B.P. (BGS 1475).

The 3 dates fall in the early part of the Pre-Dorset culture, which began in Arctic Canada about 2000 B.C. and ended between 900-600 B.C. (Maxwell, 1985:77). The first 2 dates cluster well and indicate that Structure 12 was occupied between 1410-1310 B.C. The third date places the occupation of Structure 17 at 1840 B.C.

5.0 Discussion.

The radiocarbon determinations available for GhGk-4, including Plumet's corrected date, tend to suggest 2 phases of occupation in Area A. The earlier phase extends from mid-1800 to 1720 B.C. and probably represents the initial Pre-Dorset occupation of southeastern Hudson Bay. The later phase, also approximately 100 years in length, began around 1400 B.C.

The above chronological framework might indicate Early Palaeoeskimo abandonment of southeastern Hudson Bay during an interval of 3 centuries or a temporary shift in settlement by a population resident in the region since the early 2nd millenium B.C. On the other hand, it is not known whether the occupation hiatus suggested in Area A by the radiocarbon dates actually exists. This apparent hiatus may be a function of archaeological bias, with structures dating to that interval remaining unexcavated.

Altitudinal differences often provide some indication of differences in the ages of habitation structures. As in the case of historic Inuit, prehistoric Inuit groups generally placed their camps close to the contemporaneous shoreline. With decreased marine levels and the correspondent emergence of new shorelines due to isostatic uplift through time, later habitations in a site were located at successively lower altitudes. Initial uplift in southeastern Hudson Bay was particularly rapid and may have been as much as 3 m/century during the period bracketed by the GhGk-4 radiocarbon dates (c.f., Hillaire-Marcel, 1979). Theoretically then, Structure 17 should be situated at a noticeably higher elevation than Structure 12, which was occupied more than 400 years later.

However, these structures occur on the same beach ridge and are separated in altitude by less than one metre. Obviously, the location of habitations in Area A was influenced not only by the position of the shoreline but by a combination of factors such as protection against prevailing winds and the variable character of the boulder field. These factors may explain the concentration of structures in the southeastern portion of the area which, including those destroyed by construction work, contained no less than 24 habitations.

Cold-weather occupations are indicated by the semi-subterranean dwellings and warm-weather occupations by the tent rings. Most of the habitations are of similar size and, based on ethnographic analogy, would have been occupied by single nuclear families averaging 4 or 5 individuals. Larger social units consisting of 2 nuclear families or extended families are interpreted for Structures 1 and 2. No more than 2 individuals are speculated for Structures 10 and 15.

The spatial relationships of Structures 1 and 2 and of Structures 5 and 7 suggest that the dwellings in each of these habitation clusters were simultaneously occupied. Two winter camps composed of 2 households and a third camp represented by Structure 15 are implied. No clear spatial patterning is apparent among the tent rings. However, the close proximity of Structures 4, 10 and 13

to semi-subterranean dwellings may point to occupation of these structures by families that inhabited the adjacent dwellings.

Multiple reoccupations of Structure 17 are suggested by the large number of lithics recovered from this tent ring. Structure 12, at least one reoccupation of which is attested by the radiocarbon dates, may also have been reoccupied on several occasions. The tools associated with these habitations reflect a wide variety of subsistence and domestic activities. Although faunal remains are lacking, variation in projectile point style and size suggest the hunting of sea mammals, terrestrial game and, possibly, birds. The knives, microblades, blades and end scrapers are related principally to butchering and hide processing and the burins, side scraper and adze to the fashioning of cultural equipment in bone, antler, ivory and wood. The burin spalls may also have been used in the production of organic implements, for hide perforation, or both. In addition, the large quantity of waste flakes collected from the 2 tent rings indicates that lithic tool manufacturing was relatively intensively carried out by the inhabitants of the structures.

The few tools and small amount of waste flakes recovered from the semi-subterranean dwellings suggest a more limited range and reduced level of activity. These data may indicate seasonal unavailability of lithic raw material or, alternately, short-term occupation of the dwellings. It is possible that the structures were occupied only during early winter and were later abandoned for snow houses or other habitations elsewhere. No reoccupations are indicated for any of the semi-subterranean dwellings.

6.0 Recommendations.

The 1990 salvage excavation project carried out in Area A of the GhGk-4 site has provided new information on the Pre-Dorset culture in southeastern Hudson Bay. The results of the project clarify the nature of occupation of the site and contribute to a better understanding of Early Palaeoeskimo chronology and cultural adaptation in the region. In particular, the numerous lithic implements recovered from the tent rings allow the distinction of a warm-weather tool assemblage. On the other hand, the data collected from the semi-subterranean dwellings are insufficient to the characterization of a similar assemblage associated with cold-weather occupation. Moreover, it is unknown whether the site was continuously occupied throughout the roughly 550-year period spanned by the radiocarbon determinations and, as well, whether the latest of the determinations dates terminal Pre-Dorset occupation of the site.

In view of the above, it is therefore recommended that additional salvage excavations be undertaken in Area A of GhGk-4 during 1991. This second project would centre on the completion of work begun in 1990 and the rescue of cultural deposits in disturbed and undisturbed zones. It is also recommended that no further construction work be carrried out in Area A pending the conduct of the proposed excavations and that any future work avoid Areas B and C of the site.

7.0 References Cited

Denton, D. and E. Laforte

n.d. Infrastructures aeroportuaires des villages de Kuujjuarapik et Whapmagoostui. Synthèse des données archéologiques et de l'utilisation du territoire. In preparation.

Harp, E., Jr.

n.d. GhGk-4 field notes, 1970.

Hillaire-Marcel, C.

1979 Les mers post-glaciares du Québec : quelques aspects, Doctoral thesis presented to Université Pierre et Marie Curie, Paris VI.

Maxwell, M. S.

1985 Prehistory of the Eastern Arctic, Academic Press, Inc., Orlando, Florida.

Plumet, P.

1976 Archéologie du Nouveau-Québec: habitats paléo-esquimaux à Poste-de-la-Baleine, Collection Paléo-Québec, No. 7, Centre d'études Nordiques, Université Laval, Quebec City.

1980 Essai d'analyse descriptive: les témoins faconnés pré-dorsétiens de Poste-de-la-Baleine, Québec (1975), Collection Paléo-Québec, No. 12, Université du Québec à Montréal, Montréal.

8.0 Photographs

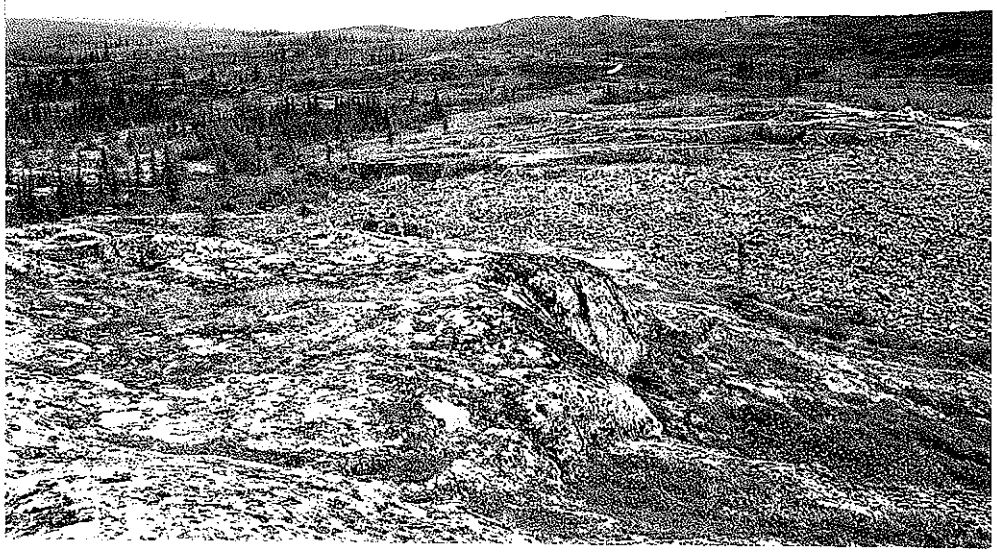


Photo 1. General view of the northern portion of Area A, toward the east-southeast.

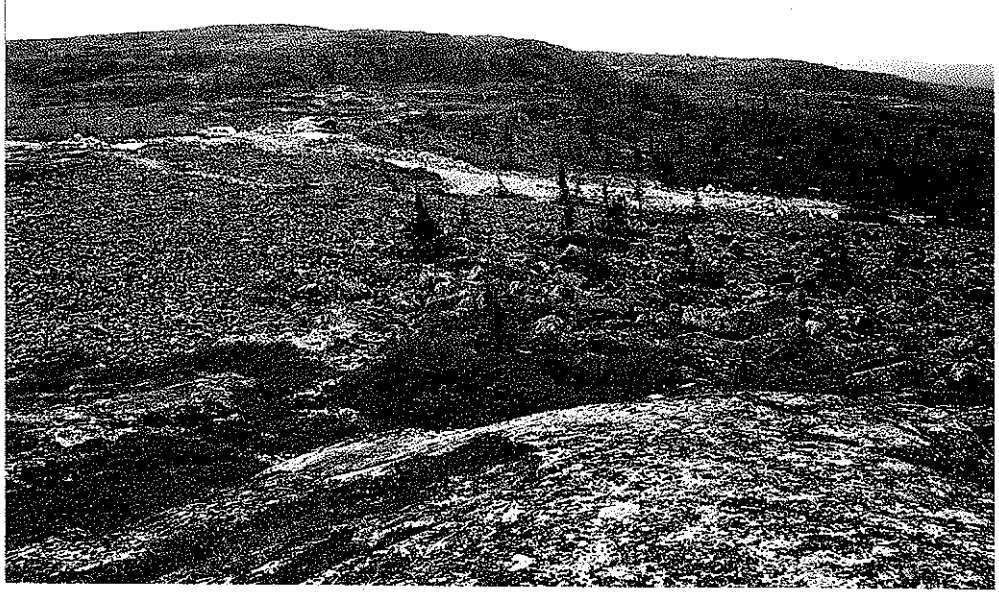


Photo 2. General view of the southern portion of Area A, toward the south.
Note the ATV trail, in the left centre ground, and the disturbed zone.

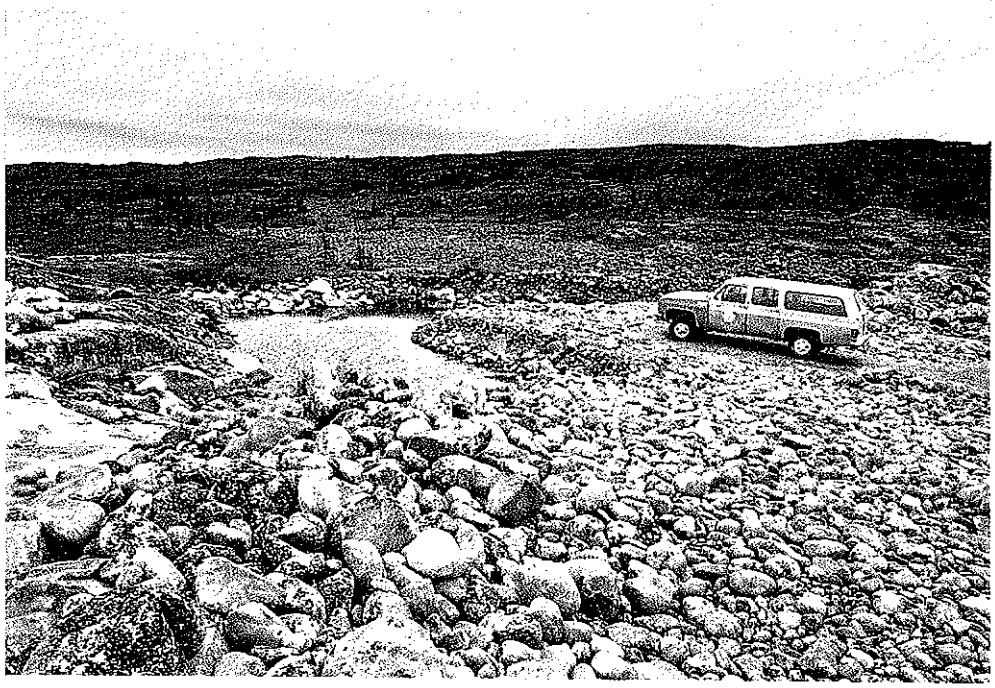


Photo 3. Borrow pit and extraction zone at the eastern end of the access road. Toward the southeast.

Photo 4. Access road and disturbed zones along the southeastern edge of Area A. Toward the west.

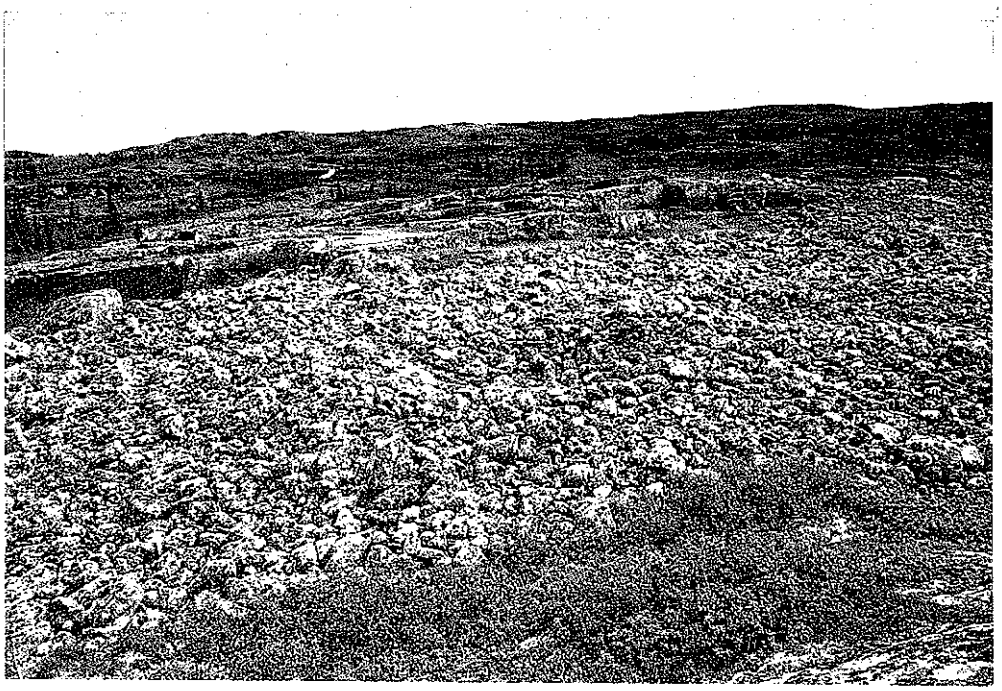


Photo 5. Structures 1 and 2, toward the southeast. The scale is in Structure 2 and Structure 1 is defined by the shallower depression immediately to the right.

Photo 6. Excavated northeast quadrant of Structure 2, toward the west.

Photo 7. Cache in Structure 2, toward the north-northwest. The scale is in the centre of the feature, defined by the larger boulders.

Photo 8. Excavated cache in Structure 2, toward the north.

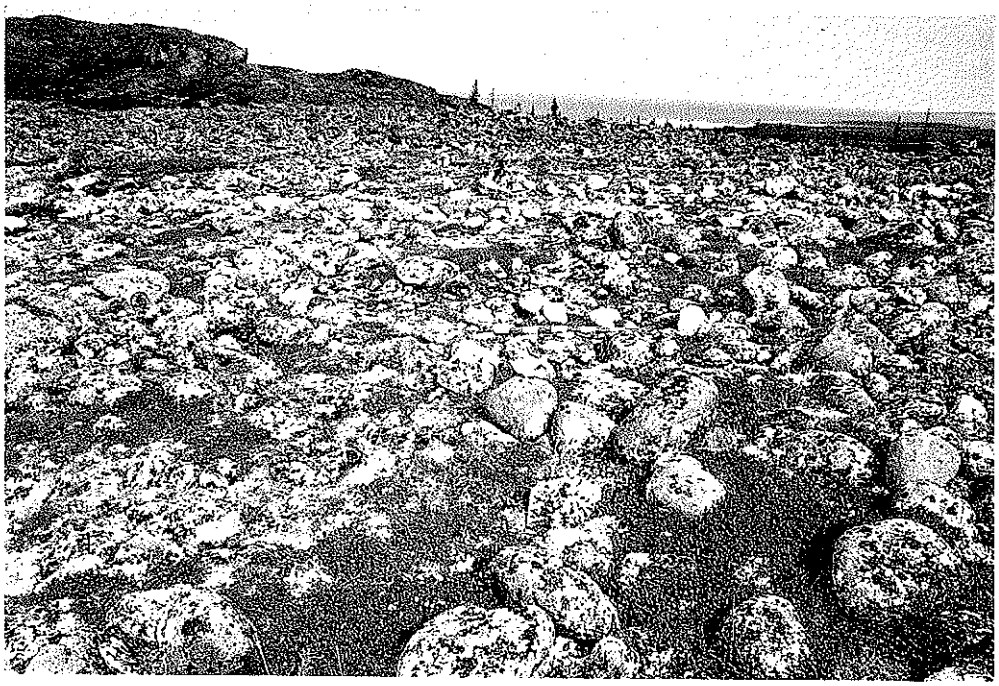


Photo 9. Structure 3, toward the north. The scale is in the centre of the structure.

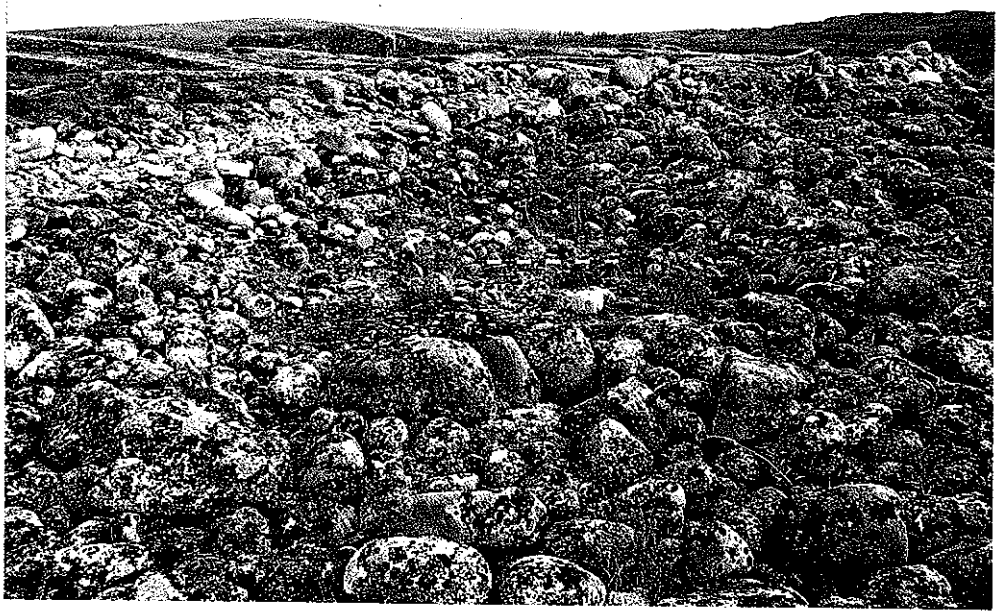


Photo 10. Structure 4, toward the east. Note the ATV trail in the background.

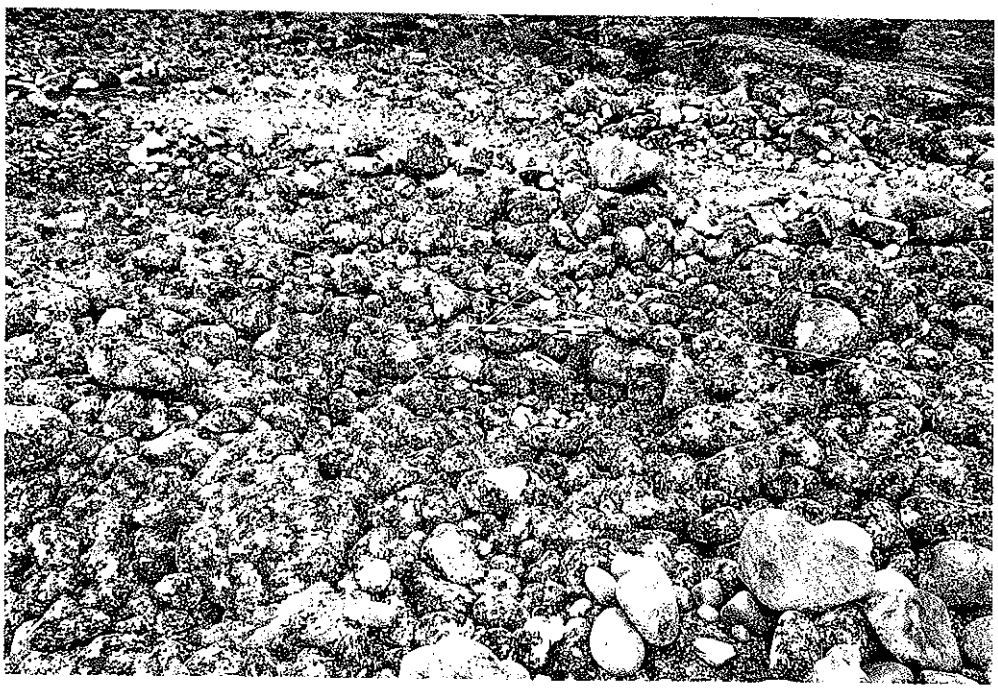


Photo 11. Structure 5, toward the north. The scale is in the centre of the structure. Note the ATV trail in the background.

Photo 12. Excavation of Structure 5, toward the northwest.

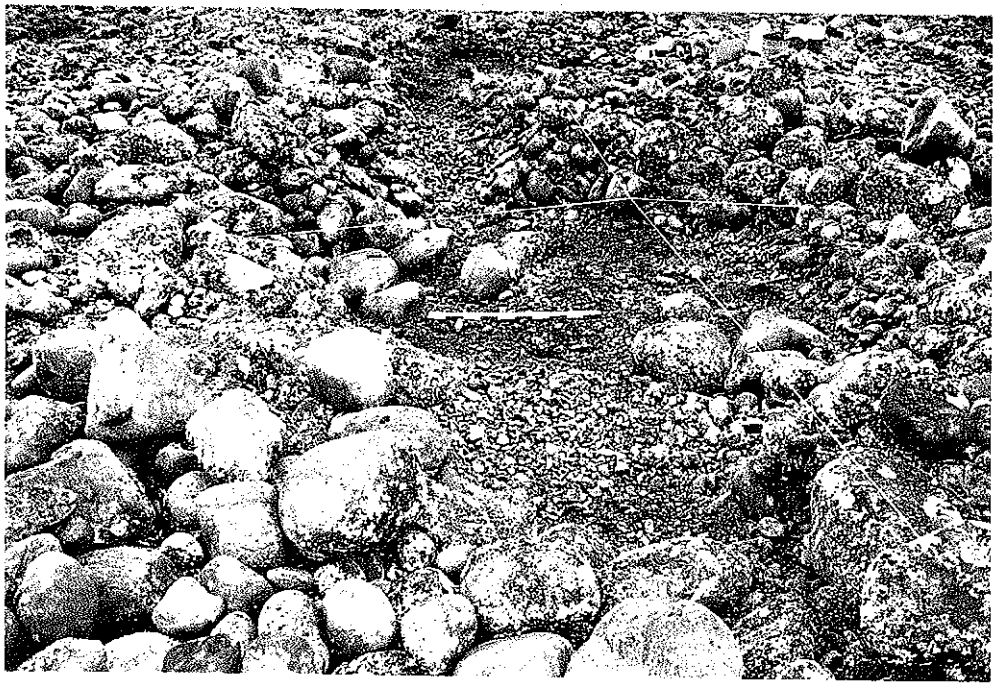


Photo 13. Excavated Structure 5, toward the west-northwest.

Photo 14. Profile of the southwest quadrant of Structure 5, toward the east.

Photo 15. Structure 7, toward the southwest.

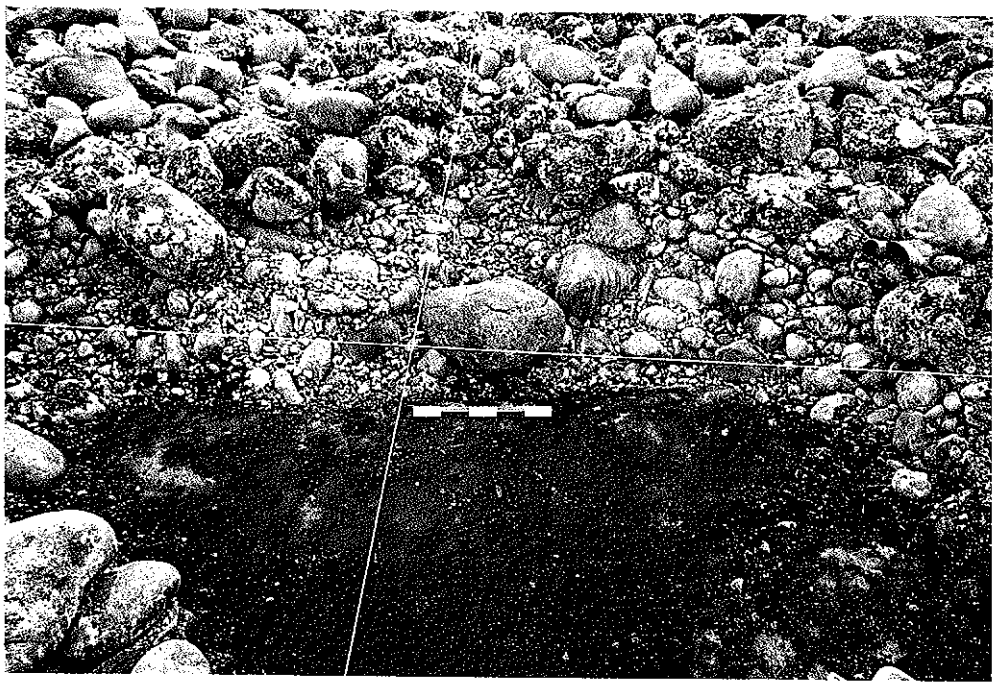


Photo 16. Excavated interior of Structure 7, toward the west, illustrating the interface between the gravel horizon and the bedrock.

Phot 17. Structure 12, toward the west.

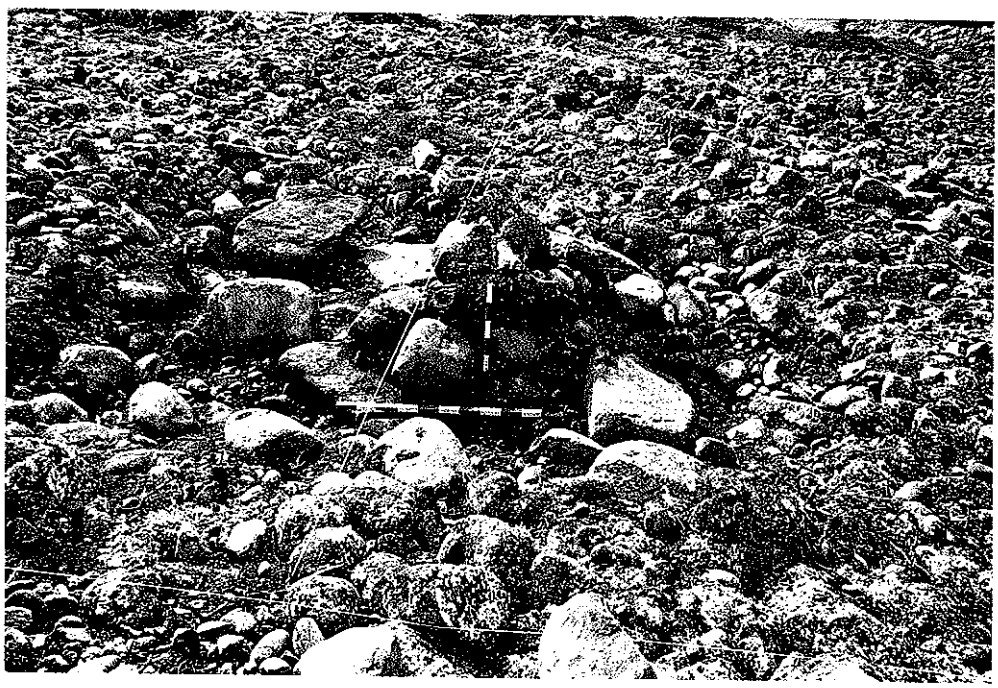


Photo 18. Partially excavated Structure 12, toward the south. Note the spruce stump in the middle of the structure.

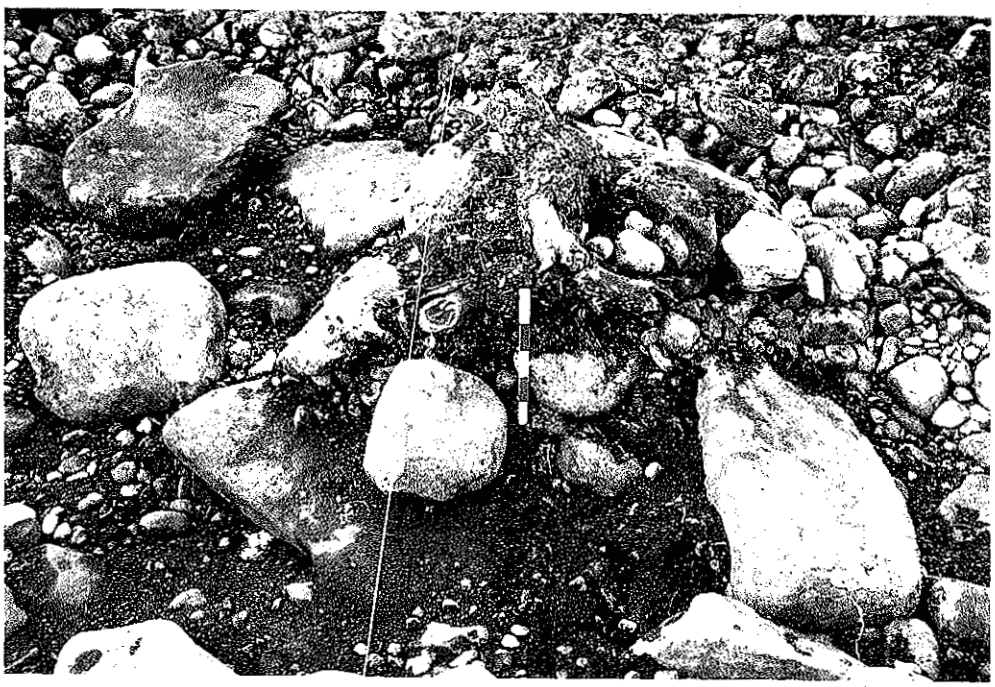


Photo 19. Structure 12 central hearth area, toward the south.

Photo 20. View of Structure 17 and surroundings prior to excavation, toward the west. The scale is in the centre of the structure.

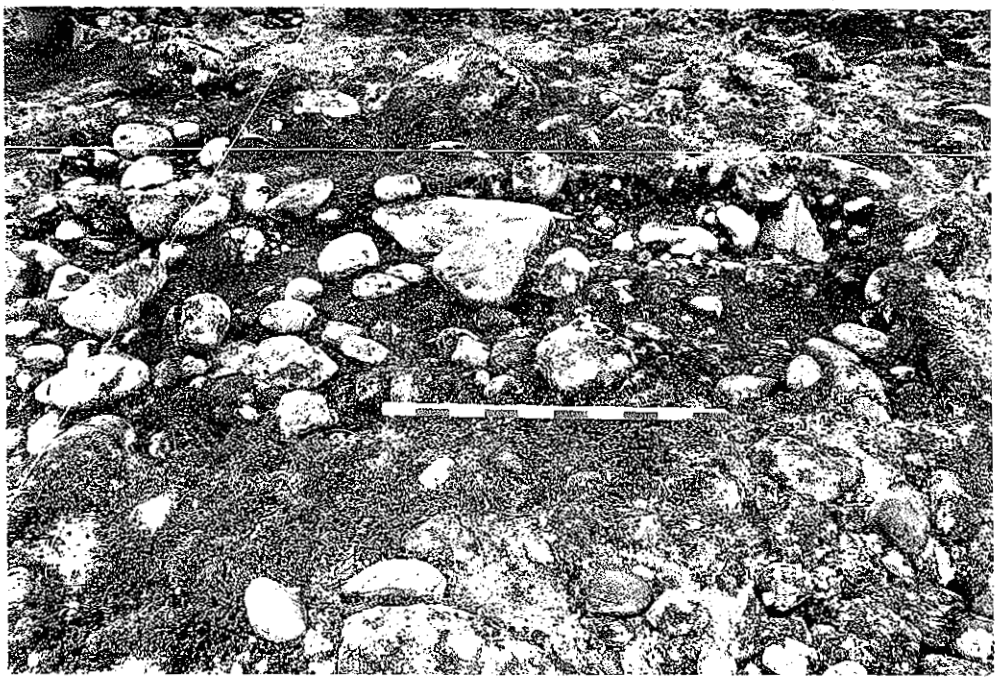


Photo 21. DB-DD85-86, partially excavated northwestern portion of Structure 17, toward the south.

Photo 22. DE-DF85-86, partially excavated northeastern portion of Structure 17, toward the south.

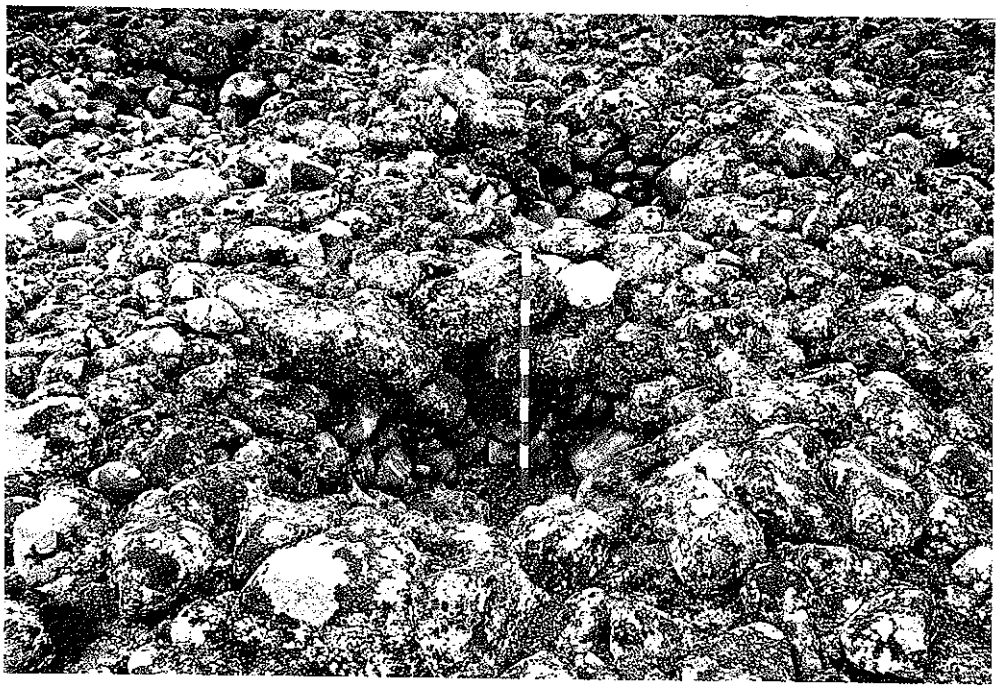


Photo 23. Excavated Feature IV cache pit, toward the northeast. The Feature V cache pit, also excavated, is located in the background.

Photo 24. Surface-collecting in Collection Zone A1, toward the northwest.

Appendix 1.

Appendix 1. List of Photographs.

Roll	Negative	Subject	Orientation	Date
C9003-1	18	Structure 2	SSE	20/8/90
	19	Structure 1	SE	20/8/90
	20	Structure 1, interior	NNE	20/8/90
	21	Structure 2, interior	WNW	20/8/90
	22	Structure 2, NW quad., cache	NNW	21/8/90
	23	Structure 2, SW quad., level I excavated	ENE	21/8/90
	24	General view of Area A, north section	ESE	21/8/90
	25	General view of Area A, central section	SE	21/8/90
	26	General view of Area A, south section	S	21/8/90
	27	Feature VI (cache pit)	NE	21/8/90
	28	Feature I (hunting blind)	N	21/8/90
	29	Structure 17 and surroundings	W	21/8/90
	30	Structure 7	SW	21/8/90
	31	Structure 5	N	21/8/90
	32	Structure 6	SSE	21/8/90
	33	Structure 4	E	21/8/90
	34	Structure 3	N	21/8/90
	35	Structure 15	N	21/8/90
	36	Structure 15	W	21/8/90
	37	Structure 12	W	21/8/90
C9003-2	1	Structure 8	E	21/8/90
	2	Structure 9	SSW	21/8/90
	3	Southeastern disturbed portion of Area A	W	21/8/90
	4	Structure 2, SW quad. excavated	W	21/8/90
	5	Structure 2, NE quad. excavated	NE	21/8/90
	6	Structure 2, NW quad., excavated cache	N	21/8/90
	7	Structure 1	NW	21/8/90
	8	Structure 1, interior features	SW	21/8/90
	9	Structure 2 excavated	E	21/8/90
	10	Structure 7	NNW	23/8/90
	11	Structure 5	N	23/8/90
	12	South section of Area A	W	23/8/90
	13	Excavations in progress	WNW	23/8/90
	14	Eastern disturbed portion of Area A	SE	23/8/90
	15	Structure 5, interior (Harp's test pit)	N	23/8/90
	16	Structure 7, interior	SSW	23/8/90
	17	Structure 1, excavated	NE	23/8/90
	18	Structure 1, NW quad., excavated	ESE	23/8/90
	19	Structure 7 excavation	SSW	24/8/90
	20	Structure 7, bedrock/gravel interface	W	24/8/90
	21	Structure 5, SW quad., profile	E	24/8/90
	22	Structure 5, NE quad., upper level excavated	E	24/8/90
	23	Structure 7, excavated	SW	27/8/90
	24	Structure 5 excavation	NW	27/8/90
	25	Structure 5, excavated	WNW	28/8/90
	26	Structure 5, west trench	ESE	28/8/90
	27	Collection Zone A1	NW	29/8/90
	28	DB-DF 85-86, Structure 17	E	29/8/90
	29	DE-DF 85-86, Structure 17	S	29/8/90
	30	DB-DD 85-86, Structure 17	S	29/8/90
	31	Feature V (cache pit), excavated	NW	29/8/90
	32	Feature IV (cache pit), excavated	NE	29/8/90
	33	Feature III (cache pit), excavated	NE	29/8/90
	34	Structure 13	E	29/8/90
	35	DB 78-81, Structure 3	N	29/8/90
	36	DA-DF 81, Structure 3	E	29/8/90
	37	Structure 12 excavation	WSW	29/8/90

Appendix 1. List of Photographs.

Roll	Negative	Subject	Orientation	Date
C9003-3	4a	Structure 12 partially excavated	S	2/9/90
	5a	Structure 12, hearth area	S	2/9/90
	6a	Structure 3, test pits	S	2/9/90
	7a	General view of area B	SE	2/9/90
	8a	General view of area C, east portion	E	2/9/90
	9a	General view of area C, west portion	N	2/9/90
	10a	DB-DC 85 profile, Structure 17	S	2/9/90
	11a	DE-DF 85 profile, Structure 17	S	2/9/90
BW9003-1	28	Structure 2	SSE	20/8/90
	29	Structure 1	SE	20/8/90
	30	Structure 2, NW quad., cache	NNW	21/8/90
	31	Structure 2, SW quad., level I excavated	ENE	21/8/90
	32	General view of Area A, north section	ESE	21/8/90
	33	General view of Area A, central section	SE	21/8/90
	34	General view of Area A, south section	SE	21/8/90
	35	Feature VI (cache pit)	NE	21/8/90
	36	Structure 17 and surroundings	W	21/8/90
	36a	Structure 7	SW	21/8/90
BW9003-2	1	Structure 5	N	21/8/90
	2	Structure 3	N	21/8/90
	3	Structure 15	N	21/8/90
	4	Structure 15	W	21/8/90
	5	Structure 12	W	21/8/90
	6	Structure 8	E	21/8/90
	7	Structure 9	SSW	21/8/90
	8	South section of Area A	W	21/8/90
	9	Structure 2, NE quad. excavated	W	21/8/90
	10	Structure 2, SW quad. excavated	NE	21/8/90
	11	Structure 2, NW quad., excavated cache	N	21/8/90
	12	Structure 1	NW	21/8/90
	13	Structure 1, interior features	SW	21/8/90
	14	Structure 2, excavated	E	21/8/90
	17	Structure 7	NNW	23/8/90
	18	Structure 5	N	23/8/90
	19	Structure 1, excavated	NE	23/8/90
	20	Structure 7, NW quad., excavated	ESE	23/8/90
	21	Structure 7, bedrock/gravel interface	W	24/8/90
	22	Structure 5, SW quad. profile	E	24/8/90
	23	Structure 7, excavated	NW	27/8/90
	24	Structure 5 excavation	NW	27/8/90
	25	Structure 5, excavated	WNW	28/8/90
	26	Structure 5, excavated	ESE	28/8/90
	27	DB-DF 85-86, Structure 17	E	29/8/90
	28	DE-DF 85-86, Structure 17	S	29/8/90
	29	DB-DD 85-86, Structure 17	S	29/8/90
	30	Feature V (cache pit), excavated	NW	29/8/90
	31	Feature IV (cache pit), excavated	NE	29/8/90
	32	Feature III (cache pit), excavated	NE	29/8/90
	33	Structure 13	E	29/8/90
	34	DB 78-81, Structure 3	N	29/8/90
	35	DA-DF 81, Structure 3	E	29/8/90
	36	Structure 12 excavation	WSW	29/8/90
	37	south section of Area A	SW	29/8/90
BW9003-3	7	Structure 12	S	2/9/90
	8	Structure 12, hearth area	S	2/9/90
	9	Structure 3, test pits	S	2/9/90
	10	General view of area B	SE	2/9/90

Appendix 1. List of Photographs.

Roll	Negative	Subject	Orientation	Date
BW9003-3	11	General view of area C, east portion	E	2/9/90
	12	General view of area C, west portion	N	2/9/90
	13	DB-DC 85, Structure 17	S	2/9/90
S9003-1	13	Structure 2	SSE	20/8/90
	14	Structure 1	SE	20/8/90
	15	Structure 1, interior	NNE	20/8/90
	16	Structure 2, interior	WNW	20/8/90
	17	Structure 2, NW quad., cache	NNW	21/8/90
	18	Structure 2, SW quad.,level I excavated	ENE	21/8/90
	19	General view of Area A, north section	ESE	21/8/90
	20	General view of Area A, central section	SE	21/8/90
	21	General view of Area A, south section	S	21/8/90
	22	Feature VI (cache pit)	NE	21/8/90
	23	Structure 15	W	21/8/90
	24	Structure 2, SW quad., excavated	W	21/8/90
	25	Structure 2, NE quad., excavated	NE	21/8/90
	26	Structure 7	NNW	23/8/90
	27	Structure 5	N	23/8/90
	28	Structure 5, interior	N	23/8/90
	29	Structure 7, interior	SSW	23/8/90
	30	General view of Area A	NNW	23/8/90
	31	Structure 1, excavated	NE	23/8/90
	32	Structure 7, NW quad., excavated	ESE	23/8/90
	33	Structure 7, bedrock/gravel interface	W	24/8/90
	34	Structure 5, SW quad., profile	E	24/8/90
	35	Structure 7, excavated	SW	27/8/90
	36	Structure 5 excavation	NW	27/8/90
	37	Structure 5, excavated	NW	28/8/90
	38	Structure 5, excavated	ESE	28/8/90
S9003-2	1	DB-DF 85-86, Structure 17	E	29/8/90
	2	DE-DF 85-86, Structure 17	S	29/8/90
	3	DB-DD 85-86, Structure 17	S	29/8/90
	4	Feature V (cache pit), excavated	NW	29/8/90
	5	Feature IV (cache pit), excavated	NE	29/8/90
	6	Feature III (cache pit), excavated	NE	29/8/90
	7	Structure 13	E	29/8/90
	8	DB 78-81, Structure 3	N	29/8/90
	9	DA-DF 81, Structure 3	E	29/8/90
	10	Structure 12 excavation	WSW	2/9/90
	16	Structure 12	S	2/9/90
	17	Structure 12, hearth area	S	2/9/90
	18	Structure 3, test pits	S	2/9/90
	19	General view of Area B	SE	2/9/90
	20	General view of Area C, east portion	E	2/9/90
	21	General view of Area C, west portion	N	2/9/90
	22	DB-DC 85 profile, Structure 17	S	2/9/90
	23	DB-DC 85 profile, Structure 17	S	2/9/90
	24	DE-DF 85 profile, Structure 17	S	2/9/90

Appendix 2.

Appendix 2. Catalogue of Lithic Specimens.

1. Tools

Cat. No.	Object	Excavation Unit	Level	Coordinates (cm)	Raw Material
1	Microblade	DB 81	II	N90/E95	chert
2	Microblade	DE 83	II	N98/E5	chert
3	Microblade	DE 83	II	N19/E45	chert
4	Microblade	DC 85	II	N40/E3	chert
5	Microblade	DC 85	II	N51/E81	chert
6	Microblade	DD 85	II	N67/E70	chert
7	Microblade	DE 85	II	N65/E95	quartz crystal
8	Microblade	DE 85	II	N80/E20	quartz crystal
9	Microblade	DE 85	II	N48/E95	chert
10	Microblade	DE 85	III	N19/E87	chert
11	Microblade	DF 85	II	N5/E45	chert
12	Microblade	DF 85	III	N68/E41	chert
13	Microblade	DF 85	III	N95/E5	chert
14	Microblade	DB 86	I	N80/E24	chert
15	Microblade	DB 86	III	N89/E93	chert
16	Microblade	DB 86	III	N90/E96	chert
17	Microblade	DD 86	II	N87/E89	chert
18	Microblade	DD 86	II	N60/E88	chert
19	Microblade	DE 86	III	N4/E90	chert
20	Microblade	DF 86	II	N90/E95	chert
21	Microblade	Structure 7	II	N1/E120	chert
22	Microblade	Structure 7	II	S7/E65	chert
23	Microblade	Structure 12	IV	N90/E50	chert
24	Microblade	Structure 12	IV	N100/E65	chert
25	Microblade	Structure 12	III	N35/E20	chert
26	Microblade	Structure 12	III	N35/E20	chert
27	Microblade	Structure 12	III	N0/E200	chert
28	Microblade	Structure 12	IV	N10/W55	chert
29	Microblade	Structure 12	III	N70/E7	chert
30	Microblade	Structure 12	III	N0/W100	chert
31	Microblade	Structure 12	III	N70/W7	chert
32	Microblade	Collection Zone A1	surface	-	chert
33	Microblade	Collection Zone A1	surface	-	chert
34	Blade	DE 84	II	N55/E80	chert
35	Blade	DE 85	I	N68/E40	chert
* 36	Microblade core (crystal)	DE 84	II	N10/E85	quartz crystal
37	Microblade core	DB 85	II	N2/E10	chert
38	Microblade core	DB 85	III	N70/E80	chert
39	Microblade core	DF 85	II	N90/E40	chert
40	Microblade core	DF 85	III	N95/E5	quartz crystal
41	Microblade core	DE 86	III	N55/E52	chert
42	Microblade core	Structure 12	IV	N95/E50	chert
43	Microblade core	Structure 12	IV	S0/E180	chert
44	Microblade core	Collection Zone A1	surface	-	chert
45	Point	DA 81	II	N90/E45	chert
46	Point	DE 83	II	N87/E19	chert
47	Point	DE 85	II	N45/E40	chert
48	Point	DE 85	II	N30/E10	chert
49	Point	DE 85	II	N15/E56	chert

Appendix 2. Catalogue of Lithic Specimens.

Cat. No.	Object	Excavation Unit	Level	Coordinates	Raw Material
50	Point	DE 85	III	N30/E80	chert
51	Point	DE 85	II	N55/E5	chert
52	Point	DF 85	II	N40/E20	chert
53	Point	DF 85	II	N80/E70	chert
54	Point	DF 85	II	N79/E70	chert
55	Point	DF 85	III	N55/E45	chert
56	Point	DF 85	III	N90/E45	chert
57	Point	DF 85	III	N55/E45	chert
58	Point	DF 85	III	N80/E20	chert
59	Point	DF 85	III	N5/E90	chert
60	Point	DD 86	II	N80/E52	chert
61	Point	DF 86	II	N5/E95	chert
62	Point	Structure 7	II	S20/E20	chert
63	Point	Structure 12	IV	N25/E20	chert
* 64	Point	Structure 12	~~IV~~ III	N50/W50	chert
65	Point	Structure 12	IV	N50/E24	chert
66	Point	Collection Zone A1	surface	-	chert
67	Point	Collection Zone A1	surface	-	chert
68	Point	Collection Zone A1	surface	-	chert
69	Side blade	DF 85	II	N25/E40	chert
70	Knife	DF 85	I	N65/E65	chert
71	Knife	Collection Zone A1	surface	-	chert
72	Uniface	DE 85	III	N95/E55	chert
73	Uniface	DE 86	III	N20/E5	chert
* 74	Biface fragment	DB 81	II	N40/E~~60~~ 40	chert
75	Biface fragment	DE 83	II	N30/E50	chert
76	Biface fragment	DD 85	II	N35/E25	chert
77	Biface fragment	DE 85	I	N35/E40	chert
78	Biface fragment	DE 85	I	N85/E5	chert
* 79	Biface fragment	DE 85	II	N49/E5	chert
80	Biface fragment	DE 85	II	N45/E68	chert
81	Biface fragment	DE 85	III	N10/E30	chert
82	Biface fragment	DE 85	III	N48/E5	chert
83	Biface fragment	DE 85	III	N40/E55	chert
* 84	Biface fragment	DE 85	III	N80/E10	chert
85	Biface fragment	DF 85	II	N55/E70	chert
* 86	Biface fragment	DB 86	I	N79/E28	chert
87	Biface fragment	DB 86	III	N80/E91	chert
88	Biface fragment	DD 86	III	N70/E20	chert
89	Biface fragment	DE 86	III	N55/E5	chert
90	Biface fragment	Structure 5	-	N22/E135	chert
91	Biface fragment	Structure 12	IV	N50/E150	chert
92	Biface fragment	Structure 12	IV	N90/E50	chert
93	Biface fragment	Structure 12	III	N78/W150	chert
94	Biface fragment	Collection Zone A1	surface	-	chert
95	Biface fragment	Collection Zone A1	surface	-	chert
96	Preform	DD 86	III	N70/E20	chert
97	Preform	Collection Zone A1	surface	-	chert
98	Burin	DE 81	II	N47/E75	chert
* 99	Burin	DE 83	I	N45/E65	chert
* 100	Burin	DE 83	II	N90/E15	chert

Appendix 2. Catalogue of Lithic Specimens.

Cat. No.	Object	Excavation Unit	Level	Coordinates	Raw Material
101	Burin	DB 85	I	N44/E58	chert
102	Burin	DB 85	II	N36/E86	chert
* 103	Burin	DB 85	II	N86/E39	chert
* 104	Burin	DC 85	III	N4/E8	chert
105	Burin	DE 85	I	NE quadrant	chert
106	Burin	DE 85	I	NE quadrant	chert
* 107	Burin	DE 85	I	NE quadrant	chert
* 108	Burin	DE 85	I	NE quadrant	chert
* 109	Burin	DE 85	I	NE quadrant	chert
* 110	Burin	DE 85	II	N45/E38	chert
111	Burin	DE 85	III	N13/E25	chert
112	Burin	DE 85	III	N95/E20	chert
113	Burin	DE 85	III	N95/E85	chert
* 114	Burin	DF 85	III	N90/E40	chert
115	Burin	DB 86	III	N43/E43	chert
* 116	Burin	DC 86	II	N80/E50	chert
* 117	Burin	DC 86	III	N37/E28	chert
118	Burin	DC 86	III	N42/E26	chert
* 119	Burin	DD 86	II	NW quadrant	chert
120	Burin	DD 86	III	N70/E20	chert
* 121	Burin	DD 86	III	N70/E20	chert
* 122	Burin	DE 86	III	N63/E59	chert
123	Burin	DF 86	III	N45/E97	chert
124	Burin	Structure 12	III	N0/E137	chert
125	Burin	Structure 12	IV	N55/W100	chert
126	Burin	Structure 12	IV	N75/E50	chert
* 127	Burin	DE 85	I	NE quadrant	chert
* 128	Burin	Structure 12	III	N100/E100	chert
* 129	Burin	DE 85	III	N82/E89	chert
130	Burin spall	DB 81	II	N56/E93	chert
131	Burin spall	DE 83	II	N87/E19	chert
132	Burin spall	DE 83	II	N98/E5	chert
133	Burin spall	DB 85	III	N90/E95	chert
134	Burin spall	DC 85	II	N50/E65	chert
135	Burin spall	DC 85	II	N73/E84	chert
136	Burin spall	DC 85	II	N70/E45	chert
137	Burin spall	DC 85	II	N55/E30	chert
138	Burin spall	DD 85	II	N77/E80	chert
139	Burin spall	DD 85	II	N90/E90	chert
140	Burin spall	DD 85	II	N70/E90	chert
141	Burin spall	DD 85	III	N94/E54	chert
142	Burin spall	DE 85	I	SE quadrant	chert
143	Burin spall	DE 85	II	N43/E36	chert
144	Burin spall	DE 85	II	NE quadrant	chert
145	Burin spall	DE 85	II	SE quadrant	chert
146	Burin spall	DE 85	III	N16/E29	chert
147	Burin spall	DE 85	III	N18/E24	chert
148	Burin spall	DE 85	III	N64/E55	chert
149	Burin spall	DE 85	III	N80/E58	chert
150	Burin spall	DE 85	III	N90/E10	chert
151	Burin spall	DF 85	III	N44/E42	chert

Appendix 2. Catalogue of Lithic Specimens.

Cat. No.	Object	Excavation Unit	Level	Coordinates	Raw Material
152	Burin spall	DF 85	III	N84/E58	chert
153	Burin spall	DF 85	III	N70/E38	chert
154	Burin spall	DF 85	III	N60/E41	chert
155	Burin spall	DC 86	III	N38/E22	chert
156	Burin spall	DD 86	II	NW quadrant	chert
157	Burin spall	DD 86	II	NW quadrant	chert
158	Burin spall	DD 86	II	N87/E89	chert
159	Burin spall	DD 86	II	N60/E75	chert
160	Burin spall	DD 86	III	N70/E20	chert
161	Burin spall	DF 86	II	NW quadrant	chert
162	Burin spall	DF 86	III	N23/E95	chert
163	Burin spall	DF 86	III	N10/E10	chert
164	Burin spall	Structure 12	III	NW quadrant	chert
* 165	End scraper	DD 85	II	N10/E10	chert
166	End scraper	DE 85	I	N15/E25	chert
167	End scraper	DE 85	II	N40/E33	chert
168	End scraper	DF 85	II	N55/E95	chert
*169	End scraper	DF 85	II	N77/E60	chert
* 170	End scraper	DF 85	III	N60/E45	chert
171	End scraper	DB 86	II	N80/E50	chert
* 172	End scraper	Structure 5	I	N30/E40	chert
* 173	End scraper	Structure 7	II	S20/E60	chert
* 174	End scraper	Structure 12	IV	N15/E65	chert
175	End scraper	Collection Zone AI	surface	-	chert
176	Side scraper	DE 85	I	N70/E20	chert
177	Adze blade	DE 83	II	N35/E35	sandstone
178	Adze blade	Structure 2	-	N5/W15	metabasalt
179	Adze blade	Structure 2	-	S60/E70	metabasalt
180	Knife	DD 86	II	N60/E75	chert
181	Retouched flake	DB 80	II	N68/E95	chert
182	Retouched flake	DB 81	II	N95/E95	chert
183	Retouched flake	DB 81	II	N93/E90	chert
184	Used flake	DE 81	-	-	chert
185	Retouched flake	DE 83	II	N98/E5	chert
186	Used flake	DE 84	II	NE quadrant	chert
187	Retouched flake	DD 85	II	N25/E58	chert
188	Retouched flake	DE 85	I	N36/E36	metabasalt
189	Retouched flake	DE 85	I	NE quadrant	chert
190	Retouched flake	DE 85	I	NE quadrant	chert
191	Retouched flake	DE 85	I	SE quadrant	chert
192	Retouched flake	DE 85	II	NE quadrant	chert
193	Used flake	DE 85	II	NW quadrant	chert
194	Retouched flake	DE 85	II	N60/E35	chert
*195	Retouched flake	DE 85	III	N96/E40	chert
196	Retouched flake	DF 85	II	N20/E25	chert
197	Retouched flake	DF 85	II	SW quadrant	chert
198	Used flake	DF 85	II	SW quadrant	chert
199	Retouched flake	DF 85	II	N60/E10	chert
200	Retouched flake	DF 85	III	N40/E40	chert
201	Retouched flake	DB 86	I	N79/E30	chert
202	Used flake	DC 86	III	N13/E22	chert

Appendix 2. Catalogue of Lithic Specimens.

Cat. No.	Object	Excavation Unit	Level	Coordinates	Raw Material
203	Retouched flake	DC 86	III	N19/E19	chert
204	Retouched flake	DD 86	II	N67/E43	chert
205	Retouched flake	DD 86	III	N30/E18	chert
206	Retouched flake	DE 86	II	N48/E68	chert
207	Used flake	Structure 2	-	N35/E137	chert
208	Used flake	Structure 2	-	N87/E137	chert
209	Retouched flake	Structure 12		N100/E15	chert
210	Retouched flake	Structure 12	IV	-	chert
211	Used flake	Structure 12	III	N105/E75	chert
212	Retouched flake	Structure 12	III	N100/E55	chert
213	Retouched flake	Structure 12	IV	S80/E90	chert
214	Knife	Collection Zone A1	surface	-	chert
215	Retouched flake	Collection Zone A1	surface	-	chert
216	Retouched flake	Collection Zone A1	surface	-	chert
217	Used flake	Collection Zone A1	surface	-	chert
218	Knife	Collection Zone A1	surface	-	chert
219	Retouched flake	Collection Zone A1	surface	-	chert
220	Retouched flake	Collection Zone A1	surface	-	chert
221	Flake core	DE 84	II	N26/E30	chert
222	Flake core	DE 85	I	N25/E36	chert
223	Flake core	DF 85	I	N63/E94	chert
224	Flake core	DF 85	II	SW quadrant	chert
225	Flake core	DF 86	III	N18/E18	chert
226	Flake core	Structure 12	IV	N0/W110	chert
227	Flake core	Collection Zone A1	surface	-	chert
√339	Hammerstone	DD 86	III	NE	undetermined
390	Used flake	Structure 5	I	N35/E50	chert
⅓391	Burin	Structure 12	IV	NE quadrant	quartz crystal
√392	Microblade core	Structure 12	IV	S80/E110	quartz crystal
393	Retouched flake	Structure 5	I	NW quadrant	chert
398	Retouched flake	Structure 5	I	NW quadrant	chert

Appendix 2. Catalogue of Lithic Specimens.

2. Waste Flakes

Cat.No.	Excavation Unit	Quadrant	Level	Raw Material	Number of flakes
228	DF 70	NW	I	chert	1
229	DF 70	NW	III	chert	2
230	DF 71	NE	III	chert	21
231	DF 71	NW	III	chert	2
232	DF 71	SE	III	chert	11
233	DF 71	SW	III	chert	1
234	DF 73	SW	surface	chert	1
235	DF 73	NW	I	chert	1
236	DF 73	SE	I	chert	2
237	DF 73	SW	I	chert	12
238	DF 73	NW	II	chert	4
239	DB 79	SE	I	chert	3
240	DB 79	NE	II	chert	11
241	DB 80	NW	I	chert	2
242	DB 80	SE	II	chert	2
243	DB 80	SW	II	chert	3
244	DA 81	SE	II	chert	8
245	DB 81	SW	II	chert	46
246	DE 81	NW	II	chert	14
247	DE 81	NW	I	chert	3
248	DE 83	NE	I	chert	18
249	DE 83	NW	I	chert	27
250	DE 83	NE	II	chert	11
251	DE 83	NE	II	chert	19
252	DE 83	NW	II	chert	6
253	DE 83	NW	II	chert	31
254	DE 83	NW	II	chert	13
255	DE 83	SE	II	chert	78
256	DE 83	SE	II	quartz crystal	1
257	DE 83	SE	II	chert	29
258	DE 84	NE	II	chert	42
259	DE 84	NE	II	quartz crystal	1
260	DE 84	NW	II	chert	9
261	DE 84	SE	II	chert	1
262	DE 84	SW	II	chert	14
263	DB 85	NW	I	chert	2
264	DB 85	NE	II	chert	33
265	DB 85	NW	II	chert	9
266	DB 85	SE	II	chert	2
267	DB 85	SE	II	chert	5
268	DB 85	SE	II	chert	4
269	DB 85	SW	II	chert	12
270	DB 85	SW	II	quartz crystal	1

Appendix 2. Catalogue of Lithic Specimens.

Cat. No.	Excavation Unit	Quadrant	Level	Raw Material	Number of flakes
271	DB 85	NW	III	chert	4
272	DB 85	SW	III	metabasalt	1
273	DB 85	SW	III	chert	1
274	DB 85	SE	III	chert	16
275	DB 85	-	-	chert	21
276	DC 85	SW	I	chert	1
277	DC 85	NE	II	chert	1
278	DC 85	NW	II	chert	2
279	DC 85	SW	II	chert	3
280	DC 85	SW	II	chert	6
281	DC 85	SW	II	chert	4
282	DC 85	SW	II	chert	5
283	DC 85	SW	II	chert	14
284	DC 85	SE	II	chert	127
285	DC 85	SE	II	chert	31
286	DC 85	SE	II	chert	99
287	DC 85	NE	III	chert	3
288	DD 85	SW	I	chert	2
289	DD 85	NE	II	chert	27
290	DD 85	NE	II	chert	12
291	DD 85	NW	II	chert	10
292	DD 85	NW	II	chert	223
293	DD 85	SE	II	chert	13
294	DD 85	SW	II	chert	58
295	DD 85	SW	II	chert	159
296	DD 85	NW	III	metabasalt	1
297	DD 85	NW	III	chert	6
298	DD 85	SW	III	chert	12
299	DE 85	NE	I	chert	54
300	DE 85	SE	I	chert	58
301	DE 85	NE	II	chert	96
302	DE 85	NE	II	sandstone	1
303	DE 85	NW	II	chert	77
304	DE 85	SE	II	chert	129
305	DE 85	SE	II	metabasalt	1
306	DE 85	SW	II	chert	2
307	DE 85	NE	III	chert	47
308	DE 85	NW	III	chert	1
309	DE 85	SE	III	chert	82
310	DE 85	SW	III	chert	70
311	DF 85	SW	I	chert	44
312	DF 85	NE	II	chert	48
313	DF 85	NW	II	chert	1
314	DF 85	SE	II	chert	71

Appendix 2. Catalogue of Lithic Specimens.

Cat. No.	Excavation Unit	Quadrant	Level	Raw Material	Number of flakes
315	DF 85	SW	II	chert	61
316	DF 85	NE	III	chert	5
317	DF 85	NW	III	chert	9
318	DF 85	SE	III	metabasalt	2
319	DF 85	SE	III	chert	104
320	DF 85	SW	III	chert	35
321	DF 85	SW	III	quartz crystal	1
322	DB 86	SE	I	quartz crystal	1
323	DB 86	SE	I	chert	3
324	DB 86	SW	I	chert	1
325	DB 86	SE	II	chert	9
326	DB 86	SE	II	chert	3
327	DB 86	SW	II	chert	5
328	DB 86	SE	III	chert	2
329	DB 86	SW	III	chert	3
330	DC 86	NE	II	chert	1
331	DC 86	SW	II	chert	1
332	DC 86	NE	III	chert	303
333	DD 86	NW	II	quartz crystal	1
334	DD 86	NW	II	chert	111
335	DD 86	SE	II	chert	22
336	DD 86	SE	II	chert	7
337	DD 86	SW	II	chert	15
338	DD 86	SW	II	chert	29
340	DD 86	NE	III	chert	29
341	DD 86	NE	III	chert	4
342	DD 86	SE	III	chert	67
343	DD 86	SW	III	chert	23
344	DE 86	NW	II	chert	24
345	DE 86	SW	II	chert	2
346	DE 86	NE	III	chert	42
347	DE 86	NE	III	sandstone	3
348	DE 86	NW	III	chert	43
349	DE 86	SE	III	chert	1
350	DE 86	SW	III	chert	5
351	DE 86	SW	III	metabasalt	1
352	DE 86	SW	III	chert	15
353	DE 86	SE	I	chert	11
354	DE 86	NE	II	chert	5
355	DF 86	NW	II	sandstone	3
356	DF 86	NW	II	chert	64
357	DF 86	SW	II	sandstone	3
358	DF 86	NE	II	chert	6
359	DF 86	SE	II	chert	2

Appendix 2. Catalogue of Lithic Specimens.

Cat. No.	Excavation Unit	Quadrant	Level	Raw Material	Number of flakes
360	DF 86	NE	III	chert	42
361	DF 86	NW	III	chert	20
362	DF 86	SE	III	chert	4
363	DF 86	SW	III	chert	5
364	Structure 1	NW	-	chert	1
365	Structure 1	SW	-	chert	3
366	Structure 1	NE	-	chert	1
367	Structure 2	NE	-	metabasalt	2
368	Structure 2	NE	-	chert	7
369	Structure 2	NW	-	metabasalt	1
370	Structure 5	NE	surface	chert	2
371	Structure 5	NE	I	metabasalt	1
372	Structure 5	NE	I	chert	15
373	Structure 5	SW	I	chert	3
374	Trench W	-	III	chert	6
375	Structure 7	NE	II	chert	9
376	Structure 7	SE	II	chert	12
377	Structure 12	NE	IV	quartz crystal	3
378	Structure 12	NE	IV	chert	189
379	Structure 12	NW	IV	chert	69
380	Structure 12	NW	IV	quartz crystal	2
381	Structure 12	SE	IV	chert	180
383	Structure 12	SE	IV	metabasalt	1
384	Structure 12	SE	IV	slate	3
385	Collection Zone A1	-	surface	chert	563
386	Collection Zone A1	-	surface	metabasalt	1
388	ATV trail	-	surface	chert	13
389	ATV trail	-	surface	metabasalt	1
394	DD 86	SE	III	chert	5
395	DD 86	SE	III	quartz crystal	1
396	Structure 12	NE	IV	chert	6
397	Structure 12	NW	IV	chert	81

3. Unworked Quartz Crystals

Cat. No.	Excavation Unit	Quadrant	Level	Number
382	Structure 12	SE	III	1
387	Collection Zone A1	-	surface	2