ARCHAEOLOGY IN NEWFOUNDLAND & LABRADOR 1988

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Bifaces from Triton Brook 1 (DdAp-02) Schwarz

Heritage Division
Provincial Archaeology Office
Government of Newfoundland and Labrador

Archaeological Research Permits (1988)

Permit Number	Location
88.01	Paradise River
88.02	Change Island/Fogo Island
88.03	Roddickton
88.04	Saglek
88.05	Avalon Peninsula
88.06	Isle aux Morts
88.07	Burin Peninsula
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88.09	Northwest River
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88.17	Mint Brook
88.18	Conception Bay - Bay Robers, Harbour Grace, Bristol’s Hope & Brigus
88.19	Burnt Pond
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88.24	St. John’s
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88.29	Holyrood Bay
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88.32	Croque

Please note:
*Some permits may not have resulted in a report.
*The quality of these reports may vary as most were not intended as publications.
*Some of the data in some of the reports may be out of date.
*This document may not contain all of the archaeology data for 1988.

Tuck, James 1988 A Stage 1 Historic Resources Overview Assessment of the Proposed Petit Forte Road.	565
Tuck, James 1988 Archaeological Resources at Isle aux Morts, Newfoundland A Stage 1 and Stage 2 Historic Resources Impact Assessment and Management Summary.	582
Tuck, James 1988 Archaeology at Red Bay, Labrador 1988.	606

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AN HISTORIC RESOURCES OVERVIEW ASSESSMENT OF THE PROPOSED CONCEPTION BAY SOUTH BY-PASS FROM MANUELS - SEAL COVE

A report submitted to:

Planning & Research Division
Department of Transportation
Government of Newfoundland & Labrador

submitted by:

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October 28, 1988

Permit No.: 88.25

Stuart C. Brown

Dr. Stuart C. Brown

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CREDIT SHEET

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Report Author:	Dr. Stuart C. Brown, Archaeology Unit, Dept. of Anthropology, Memorial University of Newfoundland.

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MANAGEMENT SUMMARY

An archaeological survey of the route of the proposed Conception Bay South Highway By-pass from Manuels River Bridge to Seal Cove was undertaken from October 17-19 (inclusive), 1988. The study area was not considered to be one of great potential for either prehistoric or historic archaeological resources since the route of the proposed by-pass traverses a densely forested and deeply incised landscape. In addition to a walking survey and visual inspection of the proposed by-pass route, test excavations were conducted at all points such as river and stream crossings where there was even the slightest potential for human occupation. The results of these investigations and accompanying background research were negative and indicate that the route of the proposed by-pass does not threaten any known archaeological resources.

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INTRODUCTORY STATEMENT

This study was carried out at the request of the Planning Division, Department of Transportation, Government of Newfoundland and Labrador. The study was prompted by the proposed construction of a four-lane divided highway running from the area immediately south-south-east of the Manuels River bridge for a distance of ca. 14 kms. to join the Conception Bay South highway in the vicinity of the Conception Bay South Vocational School in Seal Cove.

The purposes of the study were (a) to conduct a Stage 1 Archaeological Assessment to determine the prehistoric and historic archaeological potential of the study area that will be directly affected by the by-pass road and related construction activities and (b) to recommend, if necessary, apropriate mitigation procedures to preserve or salvage any significant archaeological resources. To accomplish this, the director of the project, Dr. Stuart C. Brown, and a field assistant, Mr. Kevin McAleese, conducted a walking survey of the study area from October 17 to October 19, 1988. The results of this survey and of background research were negative inasmuch as no evidence was found for any prehistoric or historic archaeological resources within the study area.

The following pages describe the background research and the conduct and results of the field research following the format stipulated by the Historic Resources Division, Department of Culture, Recreation, and Youth, Government of Newfoundland and Labrador, dated June 23, 1983.

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PROPOSED DEVELOPMENT PROJECT

As shown in the accompanying figure 1, the project involves the construction of a four-lane divided highway which will by-pass the Conception Bay South highway between Manuels and Seal Cove. The proposed by-pass will begin in the area immediately south-south-east of the Manuels River bridge where the present Manuels - Trans-Canada highway connection descends towards the bridge. The route of the proposed by-pass initially continues the west-north-west line of the Manuels - TCH connection until it crosses the Manuels River at which point it swings off to the south-east in the direction of Seal Cove and running more or less parallel to the coastline. The by-pass then connects with the Conception Bay South highway in the vicinity of the Conception Bay South Vocational School near Seal Cove. Major installations which will be required during construction of the proposed by-pass will include a bridge across the Manuels River and access/exit ramps at Talc Mine Road, the Foxtrap Access Road, and Legion Road. Clearly, any archaeological resources falling within the 90 m. wide right-of-way, or within areas where major construction activities will extend even further from the centre line, would be completely destroyed. Fortunately, it seems that no archaeological resources are threatened by the proposed development.

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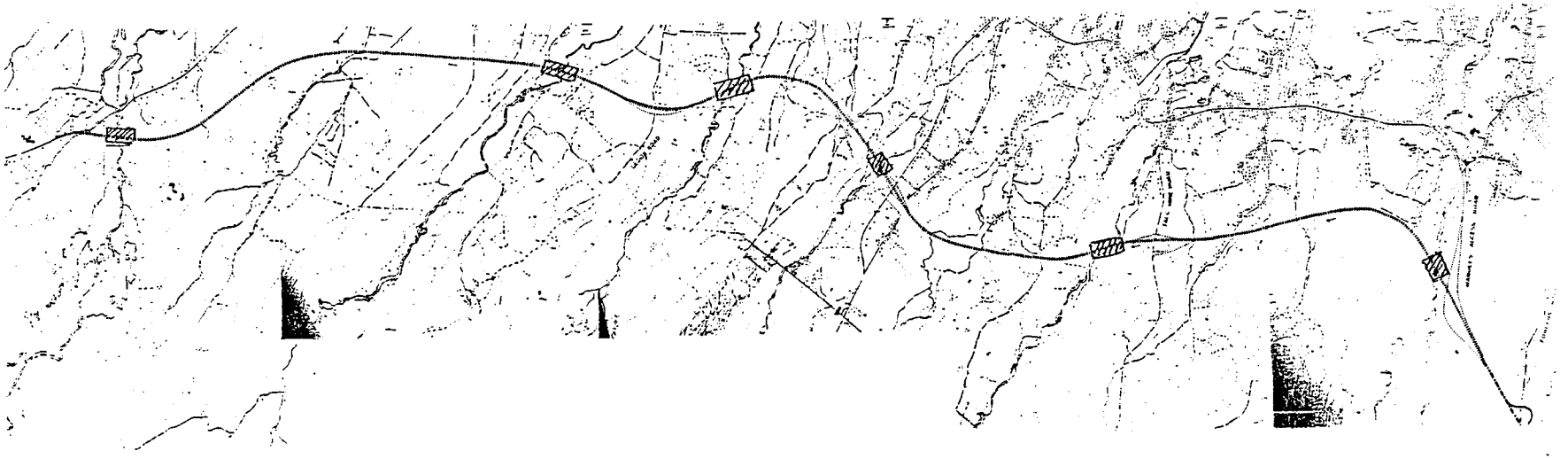
THE STUDY AREA

The general and specific location of the proposed by-pass have already been described. The route commences at an elevation of ca. 110 m. above sea level at the Manuels-TCH connection and descends to ca. 30 m. above sea level near Seal Cove. For the most part, the route runs at an elevation of ca. 70 m. above sea level cutting transversely over a series of steep ridges and small valleys. Both ridges and valleys are covered by extremely dense boreal forest with black spruce (Picea mariana) as the dominant species and some balsam fir (Abies balsamea). This is typical of ground with low productivity where there has been no recent interference (i.e. within the last 120 years) with the natural vegetation (Mednis 1981:245). There are frequent pockets of marshy ground, particularly in the valleys in the immediate vicinity of the numerous small streams and rivers which the route crosses. In a few small areas the route cuts through open spaces which have been recently cleared for farming activities or for wood cutting. Apparently, the terrestrial fauna in the study area is extremely impoverished and virtually no evidence was seen of the presence of a mammalian population.

Palynological studies from Sugarloaf Pond, a lake at an altitude of ca. 100 m. ASL on the Atlantic coast of the eastern Avalon Peninsula provide information on vegetational successions since the end of the last glaciation of the Island. Basal sediments of the immediate post-glacial period from ca. 9,000 B.P. indicate a shrub dominated tundra-like vegetation (Macpherson 1985:271). The major

MANUELS - SEAL COVE
CONCEPTION BAY SOUTH HIGHWAY BY-PASS



▨ = AREAS TESTED BY EXCAVATION.

BASEMAP: DEPT. OF TRANSPORTATION
1980/11/05

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constituents of the boreal forest were present by ca. 8300 B.P. when climatic conditions were probably as warm as present. However, the presence of shrub birch suggests that the vegetation was still quite open and without any modern analogue. Around 5400 B.P., i.e. a few centuries before the earliest human occupation of the Island, pollen profiles become similar to modern surface spectra from the boreal forest. For the following 2,500 years, optimal climatic conditions prevailed with maximum warmth and increased precipitation. In the deteriorating climatic conditions of the last 3,000 years, temperatures have cooled while precipitation has continued to be abundant (Macpherson 1985:273). Extrapolating from these data, it is possible to state that within the period of human occupation of the Island, there has been little vegetational change within the survey area. Environmental change has been limited to a cooling trend after ca. 3000 B.P. Since this was relatively minor and since precipitation levels remained more or less constant, the effect on the boreal forest of the study area would have been negligible.

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PREVIOUS OCCUPATION IN THE REGION OF THE STUDY AREA

Prehistoric Occupation:

The earliest known occupation of the Island apparently commenced ca. 5000 B.P. when Indians of the Maritime Archaic Tradition crossed the Strait of Belle Isle from southern Labrador to establish a presence on the west and northeast coasts. Though the Maritime Archaic subsistence orientation remains poorly documented, such data as are known from both living and burial sites suggest that sea mammals, fish, and birds formed a primary focus with lesser amounts of such terrestrial species as caribou, beaver, and other small game (Tuck & Pastore 1985:70). To date, known sites are strictly coastal but the presence of smaller, more ephemeral, hunting stations and camps in the interior should not be discounted. This tradition persisted for nearly two millennia after which it disappears from the known archaeological record of the Island though it apparently continued in southern Labrador and the Maritimes (Tuck 1982:209). It is not possible to link this Maritime Archaic retrenchment simply to environmental change and attendant resource crisis; instead, it is likely that an explanation must be sought in a nexus of environmental, historical, and cultural-ecological factors (Fitzhugh & Lamb 1985). It is marginally possible that a diminished Maritime Archaic presence was maintained on the Island, perhaps more oriented to the interior which is still poorly known in archaeological terms, and that this attentuated tradition ultimately gave rise to the later Recent Indian occupation.

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Although the Maritime Archaic and Early Palaeo-Eskimo traditions overlap in space and time in northern Labrador, there is presently no evidence for a similar cohabitation in Newfoundland where their occupations were apparently sequential. Thus the next widespread occupation of the Island around 2800 B.P. unambiguously represents the arrival of a new ethnolinguistic group, the Palaeo-Eskimo. Early Palaeo-Eskimo Groswater and Late Palaeo-Eskimo Middle Dorset sites are known to occur on all coasts of the Island. Again, on the basis of present evidence, the settlement pattern is strictly coastal. There are some indications that the Late Palaeo-Eskimo tradition underwent some shifts in settlement pattern and subsistence oriented towards a more intensive exploitation of outer coast resources (at least in Labrador) and flow-edge hunting. Faunal remains from Middle Dorset sites in Newfoundland suggest that caribou hunting was of greater importance there than in Labrador. This Late Palaeo-Eskimo population persisted on the west coast of Newfoundland until shortly after ca. 1400 B.P. when it apparently disappeared, although similar occupations in the rest of the Island evidently continued on for a few centuries (Tuck & Pastore 1985:71).

A widespread Indian re-occupation of the Island, or a resurgence of an attentuated Maritime Archaic tradition, evidently took place during the late Middle Dorset period, and is assumed to be ancestral to the historic Beothuk who died out in the 19th century.

While there have been numerous isolated finds, substantial evidence of Maritime Archaic, Palaeo-Eskimo, or Recent Indian occupation in any area of the Avalon Peninsula is remarkably meagre. Appendix 3

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lists known prehistoric occurrences on the Avalon Peninsula. As is immediately apparent from this list, no occurrences are known for the study area and only isolated finds have been made in the general region of inner Conception Bay.

Historic Occupation:

There was apparently no overlap between Recent Indian and historic occupation in the Conception Bay area and in A.D. 1582, Captain Richard Whitbourne noted the total absence of aboriginals in the entire area south of Trinity Bay (quoted in Howley 1915:20-21). Settlement in the Manuels-Seal Cove area did not begin until the early 19th century when a book of miscellaneous plantations in Newfoundland lists William Williams (1803) and William Smith (1810) as having cut and cleared land in Manuels (Hyde 1973:2). It may be inferred from the notice of land clearance that actual settlement was involved. This initial settlement was apparently related to fishing activities supplemented to a limited degree by agriculture. The population of the area expanded to a maximum of ca. 400 until the decline of the Conception Bay fishery after 1857. Thereafter, the population of the area dwindled until the post-W.W. II period when the area began to function as a dormitory suburb of St. John's (Hyde 1973:8). Virtually all of this settlement was restricted to the coastal apron with only very limited clearance and exploitation of the coastal hills for agriculture. No evidence was noted in the survey area of any early agricultural activities or associated ruined structures. Nor were there any open stands of pure black spruce (Picea mariana) or larch (Larix laricina) which frequently

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characterise areas which have been cleared over a century ago and which have subsequently been allowed to revert to forest. Evidence of old land clearance in the form of rock piles were noted west of the Manuels River in the area immediately north-west of the junction of Eason's Road and the by-pass route. These old fields, which are partly re-forested, lie outside the survey area and, in any case, are not of any particular historical importance.

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METHODOLOGY

It was initially proposed to conduct a walking survey of the entire 14 kms. of the route. This proved to be impossible in the two days allotted for fieldwork. During the original survey of the route in 1977, a cut line of three to four metres in width was established and pegged or flagged. Some limited stretches of this cut line were still discernible and could be followed without too much difficulty. However, in the intervening ten years, most of the cut line has been filled in and obscured by new vegetation and survey pegs have completely disappeared. In addition, numerous cut lines have been established more recently in the study area running parallel to or crossing and diverging from the DOT line and many of these newer cut lines were also flagged with marker tape. The combination of extraordinarily dense boreal forest growth, the disappearance of much of the old cut line, the lack of unambiguous line markers, and the presence of numerous more recent cut lines caused great difficulty in following the route of the proposed by-pass. By the end of the second day of fieldwork (October 18), it was clear that at least one more day in the field was necessary to complete the survey and that was done the following day (October 19). In addition to visual inspection of the by-pass route, small test excavations down to sterile subsoil or bedrock were conducted in all areas with any potential for prehistoric or historic occupation. Given the ecological conditions of dense boreal forest, it is not surprising that no indications were observed of either prehistoric or historic occupation within the study area. It is unlikely that the nature of the vegetation in the study area has

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altered significantly in the last few thousand year in such a way as to make the study area more conducive to human occupation. There are no unique resources in the study area that cannot be more easily obtained closer to the coastline and it is likely that there was little or no prehistoric exploitation of the area traversed by the by-pass route. The only feasible routes of access to the study area would have been by following the river and stream beds from the coastline into the interior. None of these rivers or streams are presently navigable by boat, nor would they have been in the period of human occupation of the Island, and in most cases can be followed on foot along the banks or in the stream bed only with some difficulty. Nevertheless, in case these routes were used in prehistory to penetrate the study area, all points at which the route crossed streams and rivers were investigated by test-pitting (fig. 1). Considering the dense forest cover over the entire by-pass route, aerial photographs could not be of any assistance in detecting surface indications of previous occupation.

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RESULTS

The results of these investigations were negative. No evidence of prehistoric occupation was noted in the survey. Historic occupation has penetrated the study area only at a limited number of points and only very recently in the form of road construction, farming, and housing. No evidence of historic occupation of a date earlier than the last few decades was obtained either from the field survey or from background historical research.

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DISCUSSION & EVALUATION

Our present archaeological knowledge of the prehistory of Newfoundland suggests that human occupation has largely been restricted to coastal margins except where open country or navigable rivers have facilitated access to the interior. Interior sites, where they exist, are likely to be smaller and more ephemeral in character. Since interior areas are less subject to erosion than coastal areas, interior sites are also likely to be obscured by peat and soil formation and vegetation build-up. For all these reasons, interior sites are extremely difficult to locate. This is particularly the case in heavily forested areas such as the route of the proposed by-pass. Visibility is frequently limited to a radius of only a few metres, movement is severely impeded, and the possibility of detecting surface indications of occupation is very low. Under these circumstances, absence of evidence of human occupation cannot be construed as evidence of absence of human occupation for undetected sites may still exist. However, despite the restraints imposed on the survey by the environmental conditions, the negative results of the survey can be accepted with a high degree of confidence. All areas with any significant potential for past human occupation were investigated by test excavations. Moreover, the virtually impenetrable boreal forest which has changed little during the period of prehistoric human occupation of Newfoundland and the rugged nature of the deeply incised landscape suggest that the study area as a whole has little potential for past human occupation.

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RECOMMENDATIONS

Ground reconnaisance, ground testing, background research, and evaluation of the nature of the past environment in the study area all suggest that the negative results of this research can be viewed with a high degree of confidence. Consequently, it is possible to state that, on the basis of present evidence, the proposed by-pass route from Manuels to Seal Cove poses no threat to any significant archaeological resources. However, it should be understood that some slight possibility remains of encountering evidence of past human occupation in the study area. Consequently, the Department of Transportation is advised that contractors and construction crews should be made aware of this and instructed to immediately notify Ms. Linda Jefferson, Provincial Archaeologist, should their activities lead to the discovery of evidence for past human occupation. With that one proviso, it is therefore recommended that construction of the by-pass proceed as scheduled.

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APPENDIX 1
PERSONS INTERVIEWED DURING BACKGROUND RESEARCH

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APPENDIX 2
PREHISTORIC FINDS ON THE AVALON PENINSULA

The following list is based on information supplied by Drs. Ralph Pastore and James Tuck, Archaeology Unit, MUN, and sites files kept at the Historic Resources Division, Newfoundland Museum.

Ferryland (CgAf-2):
Recent Indian/Beothuk material comprising the corner of a hearth and associated bifaces and flakes were located during investigations of what is probably the mansion of Lord Baltimore in Ferryland on the southern shore. The material was found under a wall in conjunction with late 16th/early 17th century historic materials.

Soldier's Pond:
Artefacts including a corner-notched point were recovered by collectors from the vicinity of Soldier's Pond. The material is probably of the Maritime Archaic tradition.

St. John's Area:
Howley (1915:341) refers to a ground slate projectile point found "at the mouth of the small river flowing into St. John's harbour." The point, which is illustrated in pl. XXXVII, is clearly Maritime Archaic in origin. In the legend to pl. XI, Howley also refers to implements found at some unspecified location in the interior of the Avalon Peninsula. He further mentions unidentified material recovered from the Colliner River (Howley 1915:323) and "stone implements . . . found in many places in Conception and Placentia Bays, and over the Peninsula of Avalon, even in the immediate vicinity of St. John's city" (Howley 1915:21, n.1). None of these sites have been located and professionally excavated.

Manuels:
Don MacLeod (National Museum of Man) excavated a burial near the Manuels River in 19... Thought at first to be prehistoric Indian, it was evidently not possible to firmly establish the ethnic identity of the remains and it could possibly have been European.

Bell Island:
A ground slate point or spear (Maritime Archaic) was found.

Holyrood:
Divers recovered a corner-notched point (probably Maritime Archaic) close to shore.

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APPENDIX 3
LETTERS OF AGREEMENT & PERMIT

See attached.

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A Report of An Archaeological Survey: The Come By Chance River and Dildo Pond

Prepared by
William Gilbert & Ken Reynolds
for
The Department of Culture, Recreation and Youth
Government of Newfoundland and Labrador
April 2, 1989.

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Introduction

Between May 16 and June 11, 1988, archaeological survey work was conducted in the Dildo Pond/Wigwam Pond and the Come By Chance River areas (see Map 1). The objectives of the survey were to:

A. Determine the location of sites mentioned in historical documents (see "Documentation" below).

B. Determine the spatial limits of any site located.

C. Determine the cultural relationship (if any) of Dildo Pond and Wigwam Pond.

D. Add to our knowledge of the role played by the Isthmus of Avalon as a link between the resource areas of Trinity Bay and Placentia Bay.

E. Determine whether any site that may be located would be worthy of further detailed excavation.

Relationship to Previous Work

Previous archaeological work in these two areas had been limited to surveys conducted by Linnamae in 1970 and Penney in 1978; and excavations conducted by Evans at Frenchman's Island in 1980 and 1981 and by Robbins at Stock Cove in 1981 (see Map 2). Both the Frenchman's Island site and the Stock Cove site consist of at least three components - Dorest, Recent Indian and European. The European cultural remains have been dated to the last half of the 17th century for the former and the early 18th century for the latter (Evans 1981: 215-216/Robbins 1981: 199). The excavation of French military sites has been restricted to work conducted by Parks Canada in and around the Placentia area (Proulx 1979).

Methodology

A walking survey was conducted in both areas. Special attention was paid to anomalies such as eroding banks, depressions, mounds and areas of lush vegetation that suggested possible human activity.

Selective test pitting was conducted in promising areas. In areas where testing was conducted, a line was established running either north to south or east to west, depending on the topography, with test pits dug at regular intervals. In cases where private ownership of land was involved, the owner's permission was obtained before conducting tests.

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Documentation

These locations were chosen for study on the basis of information contained in two documents: "John Guy's Journal of a Voyage into Trinity Bay"written in 1612 ; and Archdeacon Edward Wix's *Six Months of a Newfoundland Missionary's Journal from February to August 1835*.

On October 7, 1612, John Guy and 18 others set sail from Cupers Cove (now Cupids) in Conception Bay on a voyage of discovery into Trinity Bay. The main purpose of this voyage was to establish friendly contact with the Beothuk Indians. On October 26 they arrived at "a harbour in the South bottome of Trinitie Bay" where they found an abandoned Indian encampment and a trail leading into the woods. Following the trail inland, they discovered a "great freshe water lake" on the side of which was a Beothuk camp consisting of three dwellings. The Indians had left the camp and taken shelter on an island in the lake.

From there Guy proceeded up the western side of Trinity Bay and arrived at the bottom of Bull arm on November 4. There he succeeded in making friendly contact with the Beothuk. He also undertook to explore the surrounding area. A trail was found leading into the woods which led to "a harborough in the bay of Placentia distance only two miles [west]". A river flowed into the harbour from the north east and on it was found further evidence of aboriginal habitation (Cell 1981: 68-76).

Archdeacon Edward Wix was an Anglican cleric who, during the winter of 1835, conducted a walking tour of the Avalon Peninsula. In March of that year, having spent the previous night on a mountain known as the Powder Horn, he descended to the Come By Chance River and noted that "... on the shores of this Come-By-Chance river ruins of buildings, bolts and nails are found: relics of frame structures and cannon balls are also frequently picked up, as though there had formerly been some engagement, if not a fort in this neighbourhood" (Wix 1836: 44-45).

The most likely candidate for the "great fresh water lake" described by Guy is Dildo Pond, a large fresh water lake located 1.6 km south of and draining into Dildo Arm in the bottom of Trinity Bay (see Map 3). Despite its obvious correlation with the description given by Guy, an archaeological survey of the area had never before been undertaken. Wigwam Pond is a small body of fresh water located 1 km east of and draining into the southern end of Dildo Pond. It was included in the survey because of a local tradition that links it with Indian activity (see Map 4).

The river which Guy describes as flowing from the north east into Placentia Bay can be none other than the Come By Chance River (see Map 2). Originating from a number of small ponds and marshes to the north west of the Isthmus of Avalon, it flows

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south west for 16 km and empties into Come By Chance Harbour. As mentioned above, Guy speaks of Indian activity along the banks of this river. The "fort" alluded to by Wix, if it existed, was most likely of french origin and dating from before 1713. During King William's War and Queen Anne's War (1689-1713), the French from Placentia and their Micmac allies staged numerous raids on the English settlements in Trinity Bay. Usually they entered Trinity Bay via the overland route, crossing the Isthmus of Avalon between Come By Chance and Bull Arm (Prowse 1896: 209-273). Some sort of defence works along the banks of the Come By Chance River might have served both as a base of operations for these raids and as a first line of defence should retreat prove necessary. After 1713 Placentia Bay fell under British jurisdiction, thus eliminating the need for such an outpost. With the exception of the beach on the eastern side of the mouth of the river, the Come By Chance River area had never been surveyed.

Come By Chance River

For the purpose of this report the Come By Chance River area has been divided into three topographical zones:

1. The Beaches. These are the two large sand flats located on the eastern and western banks of the river at the point where it empties into Come By Chance Harbour (See Photo 1).

2. The Estuary which extends upstream for roughly 1/2 mile from the Beaches and varies in width from 100 to 200 metres.

3. The lower portion of the river proper which extends up stream for roughly 3.2 kilometres. In this area the river is on average 30 metres wide and can be easily navigated in a small boat.

Beyond this point the river narrows, the velocity of the water increases dramatically and numerous boulders and large rocks render travel by boat impossible (see Map 2).

The Beaches

Come By Chance Beach West
CkAm-6

Previous archaeological research had been carried out on the eastern side of the Come By Chance Beach in 1970 by Linname. Therefore, we limited our testing to the western side. Rising about 4 metres above sea level, this area is roughly 200 metres across (north to south) and extends east from the western side of

Come By Chance Harbour for approximately 400 metres. The river once flowed into the harbour farther to the west and the old dried up river bed is still visible cutting south across the area. A small salt water pond is located to the south west. The area was once covered by small spruce and fir trees but settler activity over the past 100 years or so has transformed it into a grassy meadow. Evidence of this activity is quite pronounced. It includes two very large rectangular depressions both cut into the dried up river bed; a number of circular depressions - likely the remains of root cellars; numerous abandoned potato gardens; a cart track cutting west across the meadow into the woods; and areas where the sod has been intentionally removed.

Testing in and around these features produced artifacts of 19th and early 20th century origin. Refined white earthenware, window glass, fragments of red brick, clay pipe fragments and cut and wire nails were found throughout the area. Three large patinated flakes of undetermined cultural affiliation, similar to those found by Linnamae in 1970, were also found. Two of these were found at the southern end of the beach and the third at the extreme northern end of the beach.

Several rectangular depressions were located on a grassy slope to the south west of the beach. Testing inside these depressions produced late 19th and early 20th century material. A cemetery dating from this time period is located here as well.

The Estuary

The banks of the estuary alternate between heavily wooded hills rising up from the beach and low boggy areas between the hills. There were few areas of dry open ground. However, testing was carried out where ever the topography allowed. A small 19th century site was found in this area.

Come By Chance River West
ClAl-2

The site is located on the western side of the estuary, approximately 100 metres south of the islands and 50 metres west of the beach, just past the point where the land begins to rise up from the bog. A total of five test pits were sunk in this area. Testing revealed a thin lens of charcoal below a 6 cm deposit of sod and humus. In association with this charcoal we found: one wrought iron nail, some small fragments of roof slate - one with a square hole for the roofing nail; fragments of refined white earthenware - some of it burnt; one piece of blue transfer printed white earthenware; and one piece of clear, flat bottle glass with a slightly greenish tint - possibly from a medicine bottle.

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The River

We walked both sides of the river and examined any likely looking areas. The first area we looked at was on the eastern side of the river where the land has been cut over for a transmission line. The area was thoroughly tested but no evidence of human activity was found. The two largest islands in the river were also examined. Several circular depressions were found on the largest of the two islands. However, testing in and around these depressions produced no cultural material. These appear to be modern day duck blinds. Farther up stream, on the eastern side of the river at the point where it turns more towards the north, is a low, level area that was once a clearing but is now becoming overgrown by alders. This was the best looking place we had seen on this section of the river and we dug a total of 18 test pits here. No cultural material was recovered.

Dildo Pond/Wigwam Pond

Dildo Pond is a large fresh water lake measuring approximately 5 km by 1 km and located in a valley extending south from Dildo Arm in the bottom of Trinity Bay (See Map 3). Wigwam Pond is a small body of water located 1 km east of and draining into Dildo Pond (see Map 4). Into Dildo Pond flow the waters of numerous marshes and ponds from the hills to the east, south and west. The waters of the lake empty into Dildo Arm to the north down a short (1 km), rapidly flowing river arising in the north west of the lake. The hills to the east, south and west were, and for the most part still are, covered with forests of largely coniferous trees (fir and spruce) interspersed with stands of deciduous (mostly birch) trees. Bogs are common in low lying areas between the hills. At one time the forest would have encircled the pond right down to the beach and, indeed, in many places it still does. However, along the western side of the pond, where the community of Blaketown now stands, much of the forest has given way to meadow land extending west to the forest's edge for approximately 500 metres.

Logging has long been important in the area. As early as the 1750's crews of men were coming from places such as Trinity to cut lumber for ship building and export at nearby Old Shop. It was during this period that the community of New Harbour, 8 km to the north, was established and from there settlement gradually spread to such places as Dildo, South Dildo, Old Shop and Spread Eagle. The community of Blaketown was established in the 1880's as a farming and lumbering town and today logging is still an important part of the local economy.

A total of five days were spent surveying the Dildo Pond/Wigwam pond area. Most of the survey was conducted on foot.

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However, on the last day a boat was used to examine the two islands in the lake and a wooded area along the south western shore.

Wigwam Pond proved disappointing. The banks of this small pond are low and marshy and seem an unlikely location for any kind of human activity other than trout fishing of which there was abundant evidence in the form of recent refuse left behind by fishermen.

The typical stratigraphy of the Dildo Pond area consists of a layer of humus, varying from 10 cm to 20 cm in depth, followed by a deposit of sterile grey clay and rock. This proved to be the case both along the banks and on the two islands in the lake. In several instances, both at the north end of the lake and on a level, grassy area on the lake's eastern bank just north of the bridge, a thin (2cm - 4cm) black organic lens was found either directly below the humus or sandwiched between layers of humus. Testing in these areas failed to produce any evidence of aboriginal or European occupation. Indeed, only one location on the lake produced evidence of anything other than 20th century occupation.

Russell's Point
CiAj-1

Russell's Point (CiAj-1) is located just off the main highway through the community of Blaketown and directly behind the Russell's Esso service station. Here a low grassy point of land extends east for 32 metres from the base of a gently sloping bank that rises approximately 3 metres above the beach. The point is roughly triangular in shape and 70 metres wide at its base. To the north it is bordered by wet ground and a small stand of fir trees. To the south a track runs easterly down the bank and across the point to the water (see Photos 2,3 and 4).

During recent times the point has been used as a place for parking school buses; a campground; a launching and hauling up place for boats; and a playground. Consultation with local residents indicated that no permanent structures were ever built there. However, recent activity has flattened the area. This may have obliterated any surface features that might once have existed.

A total of eight 35 cm x 35 cm test pits were opened here. The first two were located close to the eastern end of the site: one on the edge of the north bank and one on the edge of the south bank. These were designated test pits 1 & 2 respectively. Both produced sterile humus above beach gravel. A third test pit (test pit 3) was sunk roughly two thirds of the way between the beach and the slope (approximately 10 m east of the slope) and 10

m south of the north bank. It produced flakes and fire cracked rocks in a greasy black organic matrix. East-west and north-south lines were then established and a further five test pits were opened.

Test pit 4 and test pit 5 were sunk four metres to the north and four metres to the south of test pit 3 respectively; test pit 6 was sunk four metres to the west of test pit 3 and test pits 7 and 8 were established at four metres and eight metres east of test pit 3 respectively. Five of the six test pits (i.e. test pits 3 to 8) produced flakes, fire cracked rocks, stratification and, in some instances, recent material. Test pit 6 produced an early historic Beothuk corner notched projectile point and two biface fragments also of early Beothuk origin. Surface reconnaissance produced a triangular biface of black chert, two biface fragments (all typically Beothuk) and a number of flakes (See Photo 5).

Conclusions

Come By Chance River

The Come By Chance River portion of our survey did not live up to our expectations. We were unable to locate either the fortification referred to by Wix or the Beothuk camp mentioned by John Guy. If there was some sort of fortification on the river and if, as we have postulated, it was used by the French during the period 1689 to 1713, it may well have been located on the western beach at the river's mouth. From a defensive point of view, this would certainly be the best location for guarding the overland route from Placentia Bay into Trinity Bay. It may be that the camp described by Guy was also located on either the eastern or western beach. Certainly the presence of flakes here attests to some type of aboriginal utilization. However, this is a big area (the western beach alone is approximately 80,000 square metres) and it was impossible for us to conduct a thorough survey of it given the limited amount of time and man power at our disposal. A proper survey would require a crew of eight to ten people over a period of several weeks.

Dildo Pond

Assuming that the fresh water lake described by Guy is Dildo Pond (and really there is no other likely candidate) and considering that an intensive survey of the area around Dildo Pond produced a Beothuk site on the lake at Russell's Point, it seems likely that this site and the one visited by Guy are one and the same. This being the case, further excavation at the site could provide answers to a number of questions about the early Beothuk period.

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While Recent Indian material has been found at both Stock Cove and Frenchmen's Island on the Isthmus of Avalon, Russell's Point is the first Beothuk site to be found on the Avalon Peninsula. We know that the site was occupied in the fall of 1612, however, it is highly unlikely that it would have been utilized for much longer into the 17th century. The abandonment of the Avalon during this period was no doubt related to European incursions. Further work at Russell's Point could help us to both more accurately pin down the time at which abandonment occurred and to study an early phase of a process that was to become a pattern over the next two centuries.

We know that by 1612 the Beothuk had access to some European goods. Among the things Guy mentions seeing at Dildo Pond were "a copper kettle ... ane old [sail] ... a fishing reele ...[and]... a biskaine oare". He also mentions that one of their structures was covered in "a [sail] which they had gotten from some christain" (Cell 1981: 71). We have no way of knowing whether these goods were acquired by trade or by theft. However, we know from Guy's experience both at Dildo Pond and later at Bull Arm that the Indians were familiar with the system of dumb barter (Cell 1981: 71, 75-76). It is likely that some of this material still survives at the site. Any such material that might be recovered from the site, and any evidence of modifications to this material, could be very important in determining the nature of early Beothuk adaptation of European goods. At present the earliest site at which this process of adaptation has been studied is Boyd's Cove in Notre Dame Bay. This site has been tentatively dated to ca. A.D. 1650-1720 (Pastore 1985: 218) by which time the Dildo Pond site was, in all likelihood, abandoned. The study of this site could provide us with an earlier example of this process.

Guy also mentions finding abandoned Indian structures at Dildo Arm, 1.6 km north of Dildo Pond (Cell 1981: 70). Since this was late October, the time of the annual caribou migration, the Russell's Point site may have been chosen because of its strategic location. Situated in close proximity to a number of marine and terrestrial resources it could have acted either as a semi-permanent base camp or as a seasonal camp (late fall to mid-winter) for intercepting caribou. Guy mentions seeing the remains of caribou, seal and beaver at Dildo Pond (Cell 1981: 71). Only further excavation will enable us to establish the exact nature of the site.

Although no evidence of the Little Passage Complex (i.e. the assumed ancestors of the Beothuk) was found during the course of the survey, there is a possibility that such material may exist at Russell's Point. Little Passage material has been found both at Frenchmen's Island and Stock Cove farther north in Trinity Bay (Evans 1981: 215-216/Robbins 1981: 199). One of our test pits produced evidence of two distinct cultural levels suggesting an

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older, possibly Little Passage component. Detailed excavation may help to clarify the nature of the transition from Little Passage to Beothuk.

Perhaps the most important aspect of the Russell's Point site is that it is the oldest Beothuk site for which we have a detailed description. The next description of a Beothuk encampment comes from Lieutenant John Cartwright and was recorded during his trip up the Exploits River in 1768 (Howley 1915: 29). Guy's description predates Cartwright's by 156 years. If we were to excavate the site and combine the recovered archaeological data with the documentary data we would have a unique opportunity to construct a picture of Beothuk life during the early historic period.

Acknowledgements

This survey would not have been possible without the assistance of many people. We would especially like to thank: Dr. Ralph T. Pastore and Dr. James A. Tuck of Memorial University of Newfoundland for their help and encouragement and their willingness to act as our sponsors; Linda Jefferson and the Department of Culture, Recreation and Youth for the permit; Carmelita McGrath for her help with the computer; Mrs. Susie Gilbert for accommodations and home cooking during our stay in Blaketown; Mrs Sonia Reynolds for the use of her vehicle; Mrs Ada Barrett for the loan of the boat; Jeff Webb who spent a day volunteering; and Mr. and Mrs James Gannon, Mr. and Mrs James Morgan, and Cyril and Lorne Russell for kindly allowing us to test on their property.

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Appendix 1
Dildo Pond Test Pits: Stratigraphy and Materials Recovered

Test Pit 1. Sterile.

Test Pit 2. Sterile.

Test Pit 3. Brown humus directly under sod and extending down to sterile (no depth recorded). Nine flakes were recovered from the brown humus. They included three of a chalk grey or patinated chert, five of different shades of bluish grey chert and one of a translucent grey chert. There was also one fragment of recent glass recovered.

Test Pit 4. Directly beneath the sod is a brown humus. This is followed by a cultural level, approximately 7 cm deep, consisting of a black humus containing fire cracked rocks. Beneath this is a second deposit of brown humus. This is followed, at 15 cm below the surface, by a second level of black humus, approximately 10 cm thick. Below this is a sterile substrata consisting of an orange brown gravel. Material recovered from this test pit includes three flakes of a chalk grey chert, a small brick fragment, one shard of porcelain, and four wire nails. Since there is so much recent material present it is possible that the two black strata in this test pit are the result of recent activity.

Test Pit 5. Directly below the sod is a brown humus. This is followed by a black organic level containing charcoal which is, on average, 4 cm thick. Below the black organic is a sterile orange brown humus. Four flakes were recovered from this test pit between 0 cm and 3 cm below the surface. One is of a chalk grey chert, another of a bluish grey chert and two of green chert. Between 4 cm and 10 cm below the surface we found one glass fragment, one slightly retouched flake of green-grey chert and nine flakes of various shades of grey. Flakes and fire-cracked rocks were found in both the brown humus and the black organic levels.

Test Pit 6. In this pit there was a brown humus containing a few specks of charcoal directly below the sod. It extended below the surface for 9 cm and was directly above the sterile orange-brown gravel. This pit appears to be extremely disturbed. There was no evidence of a distinct cultural level. It

did, however, produce five flakes of a chalk-grey chert and two flakes of grey chert. There was also some recent material recovered including five fragments of burnt glass, one fragment of window glass, two pieces of refined white earthenware (one of which was burnt) and several wire nails.

Test Pit 7. Brown humus extends below the surface for 9 cm. This is followed by what appears to be a thin (1-2cm) deposit of bone mash below which is a charcoal layer 5 cm thick. Below this is the typical orange-brown gravel. This is followed by a grey clay. Both the orange-brown gravel and the grey clay appear to be sterile. However, there are pockets of charcoal extending down into these two strata to a maximum depth of 22 cm below the surface. This test pit produced the greatest number of flakes and fire-cracked rocks. Altogether 23 flakes were found. They include: one of quartz, one light blue-grey retouched flake and 21 flakes of different shades of grey. Two fragments of calcined bone were also recovered. The only recent material consisted of two tiny fragments of what appear to be red brick. Although there is charcoal and fire-cracked rock throughout the unit, the greatest concentration was in the north-east corner. It is likely that Test Pit 7 cut through a hearth or the debris from one or more hearths.

Test Pit 8. This unit consist mostly of brown humus directly above the sterile orange-brown gravel. There was, however, a lens of black organic, some charcoal and fire-cracked rocks in the north-eastern corner of the unit. Between 0 cm and 8 cm below the surface the humus produced six flakes: one was of brown chert, one of chalk-grey chert and the remainder of grey chert. One recent nail was also recovered from the unit at this depth. Between 8 cm and 14 cm below the surface the unit produced three flakes of grey chert; two biface fragments and a corner notched Beothuk projectile point.

Surface Finds. An examination of the track cutting across the site and the beach produced more cultural material. Two biface fragments, one of green chert and one of bluish-grey chert; one slightly retouched flake of a chalk grey chert; three flakes of grey-green chert and two of chalk-grey chert were recovered from the track. A triangular biface of black chert and a retouched flake of a high quality grey chert were found on the beach.

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Appendix 2
Dildo Pond Test Pits: Flakes

Test Pit 1

Grey	1
Translucent Grey	1
Chalk Grey	3
Light Blue Grey	3
Light green Grey	1
Total	9

Test Pit 2

Retouched	1
Chalk Grey	3
Total	4

Test Pit 5

Green	1
Chalk Grey	1
Light Green Grey	1
Light Blue Grey	7
Dark Blue Grey	4
Total	14

Test Pit 6

Chalk Grey	5
Light Blue Grey	1
Dark Blue Grey	1
Total	7

Test Pit 7

Retouched	1
Grey	1
Chalk Grey	1
Mottled Grey	1
Light Green Grey	3
Dark Green Grey	1
Light Blue Grey	10
Dark Blue Grey	5
Total	23

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Test Pit 8

Brown	1
Grey	1
Chalk Grey	1
Light Blue Grey	4
Dark Blue Grey	1
Total	8

Surface Finds

Retouched	3
Grey	1
Chalk Grey	4
Light Blue Grey	2
Dark Blue Grey	1
Total	11

Total Flakes	71
Retouched Flakes	5

All specimens are of chert. The above classifications are of a preliminary nature. Further research may result in a certain amount of reclassification at some time in the future.

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Maps

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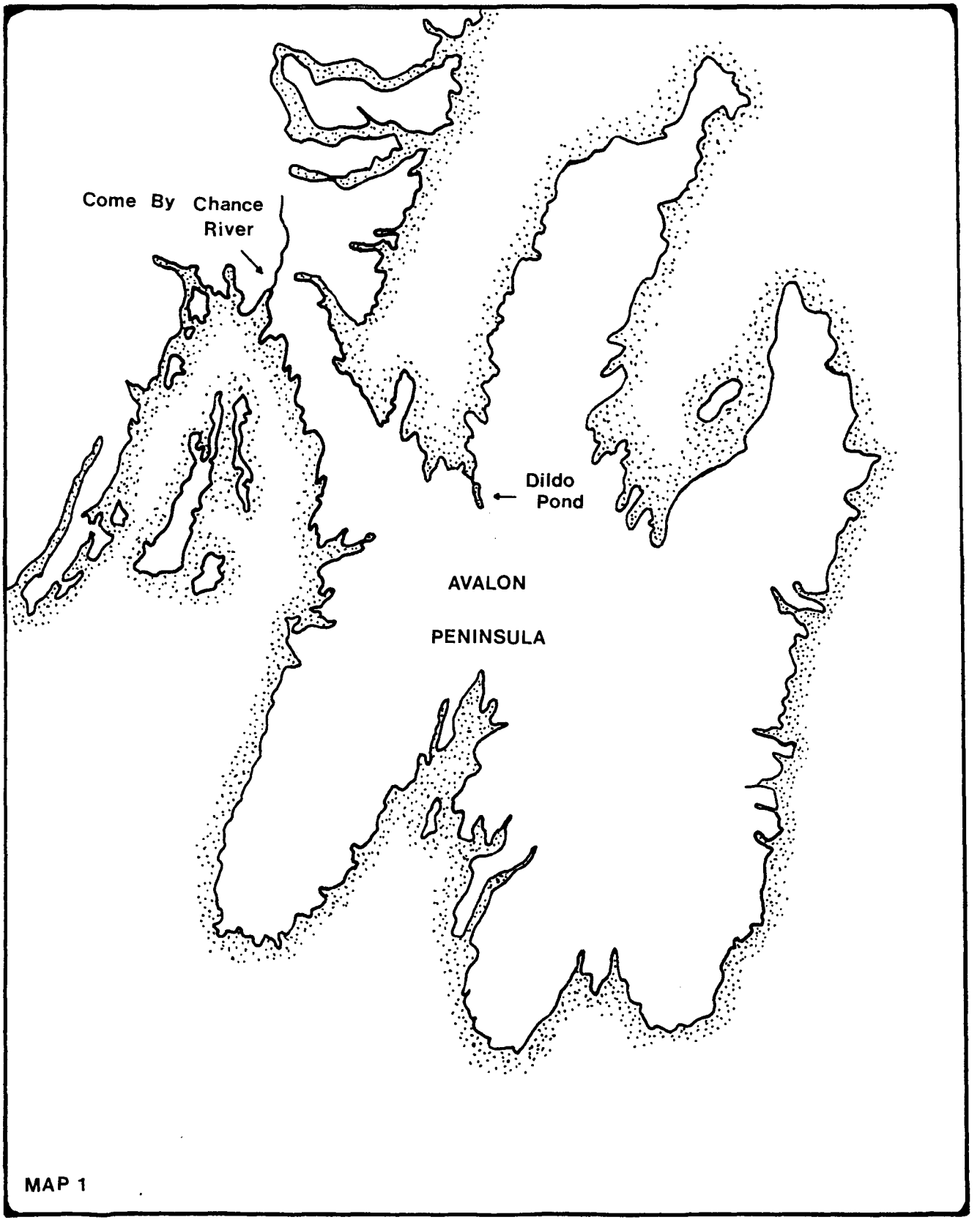

MAP 1

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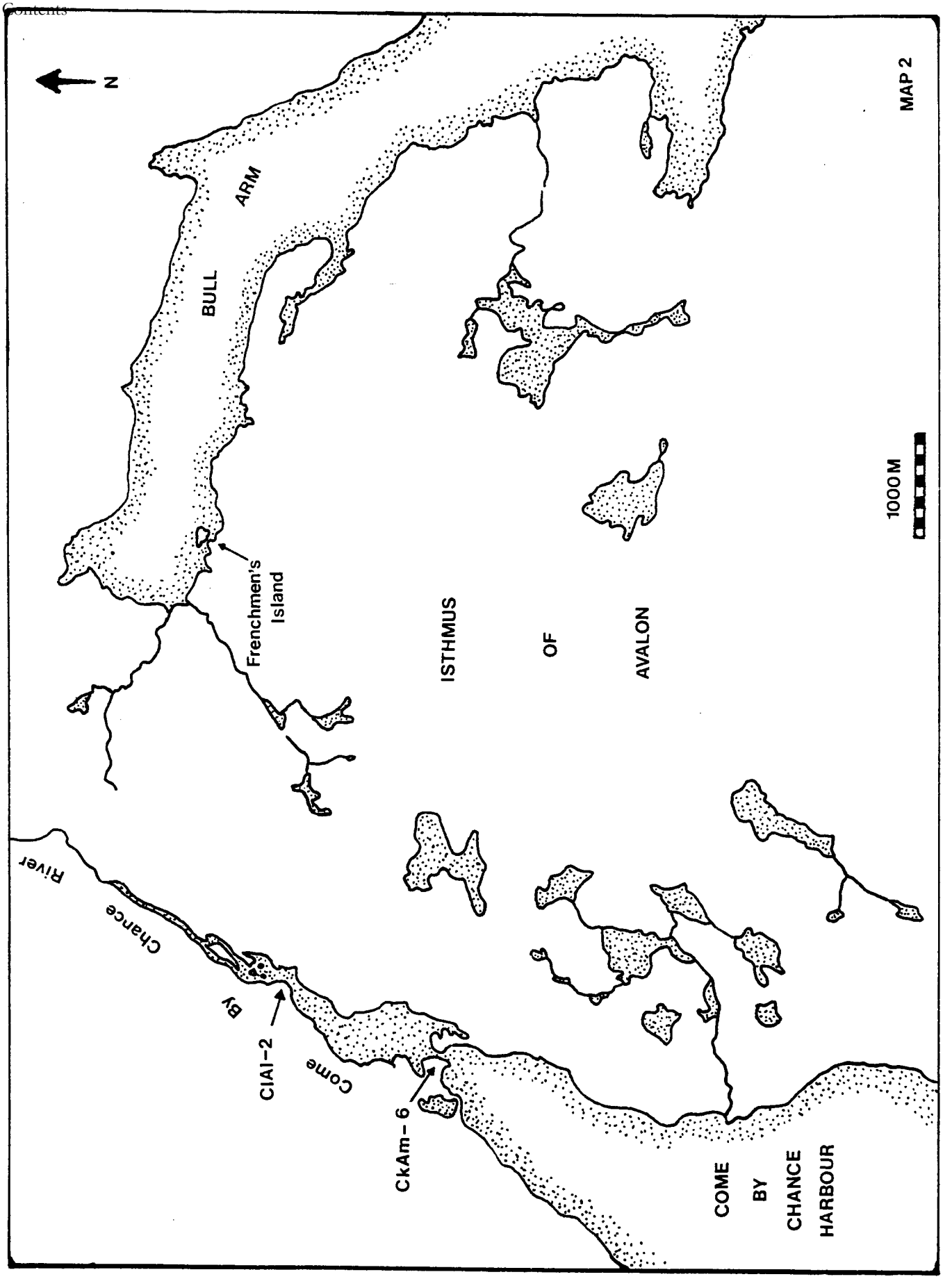

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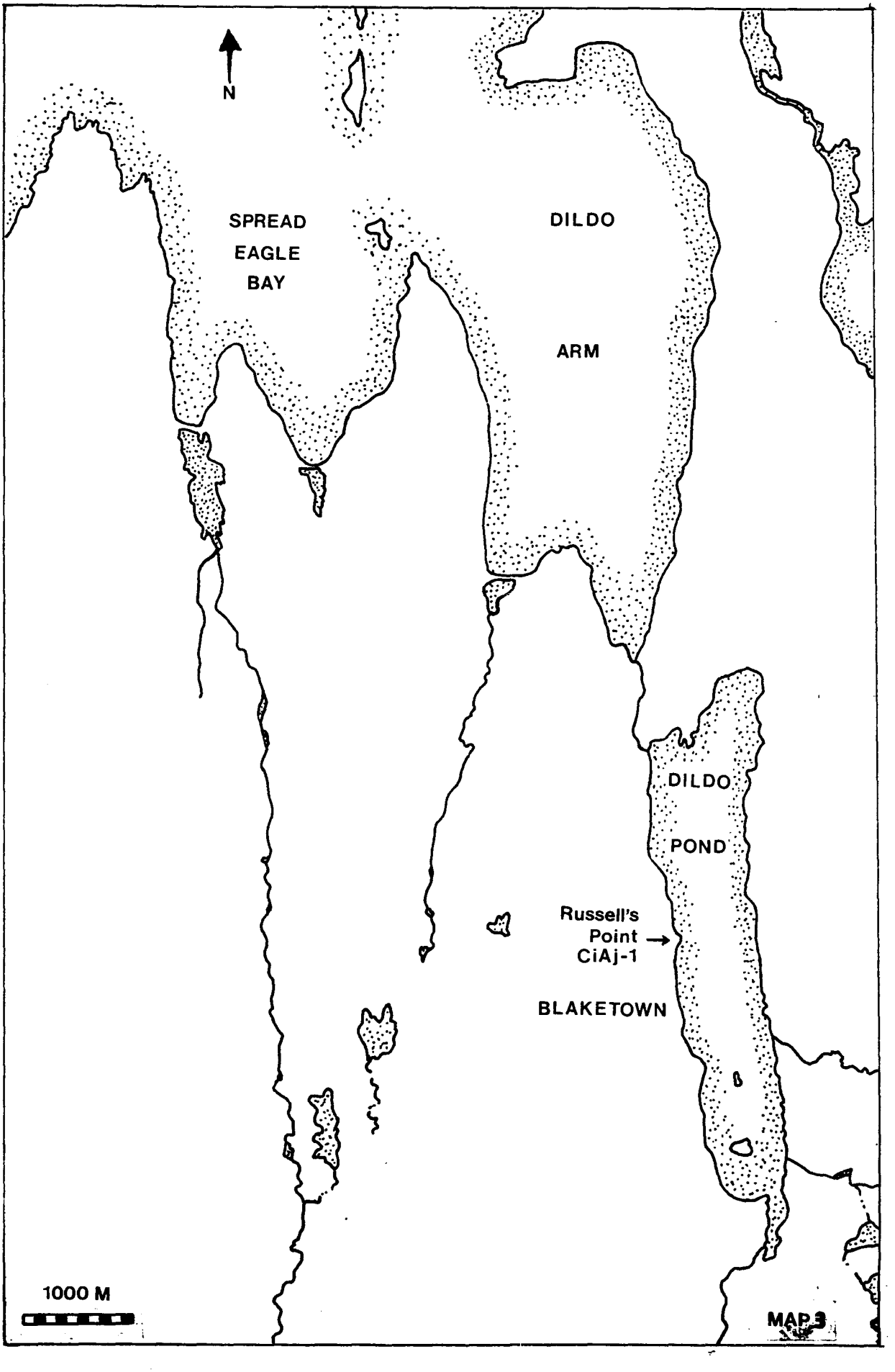

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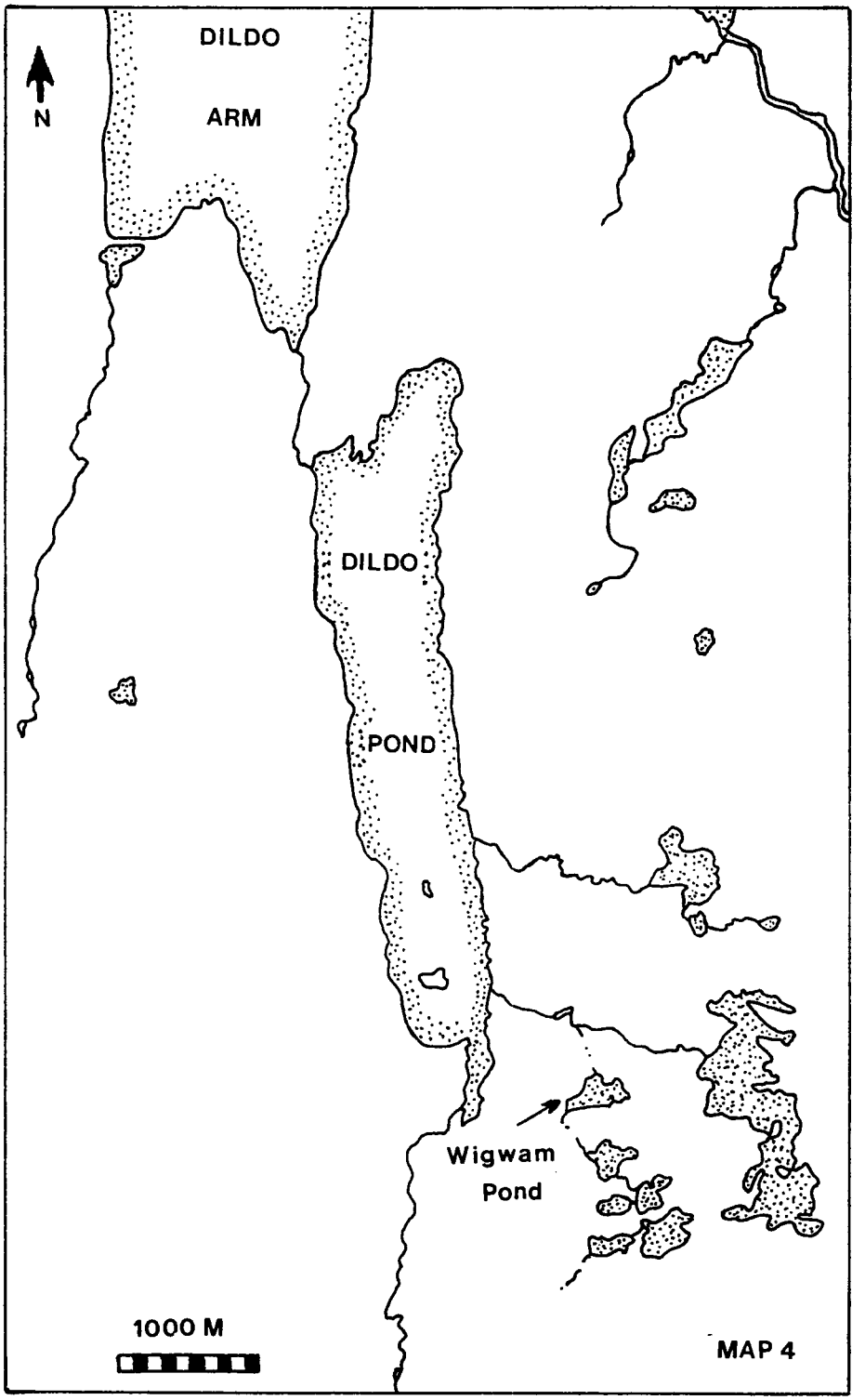

Photographs

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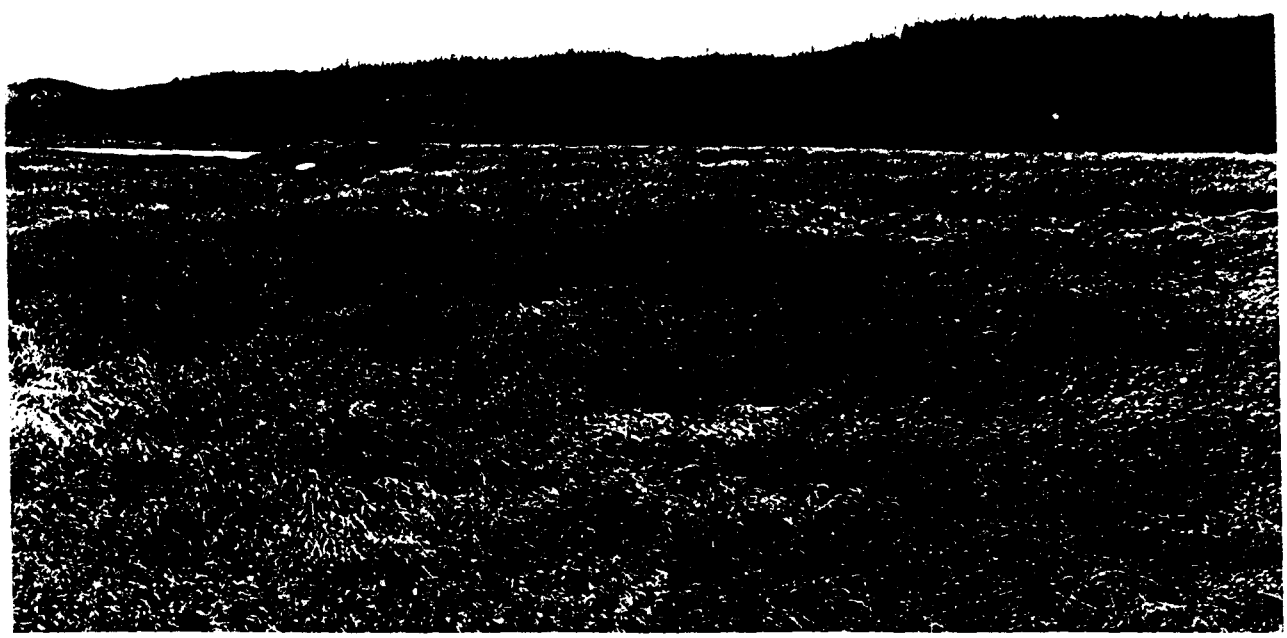
PHOTO # 1



A PORTION OF THE WESTERN BEACH, COME BY CHANCE RIVER

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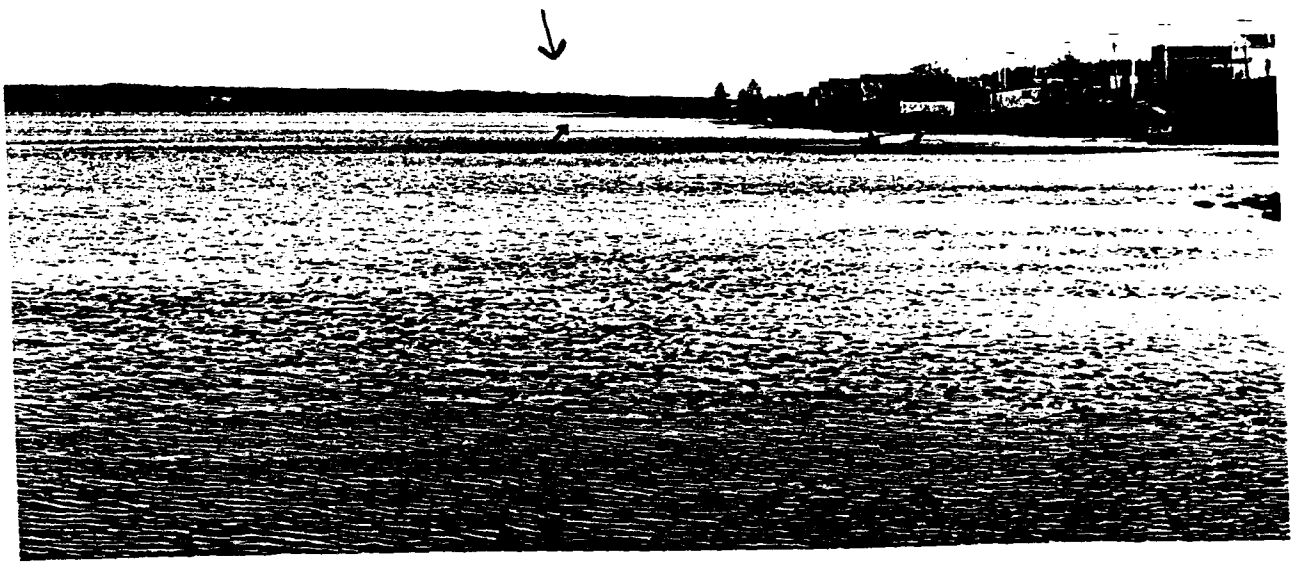
PHOTO # 2



LOOKING SOUTH UP DILDO POND.
THE ARROW INDICATES RUSSELL'S POINT.

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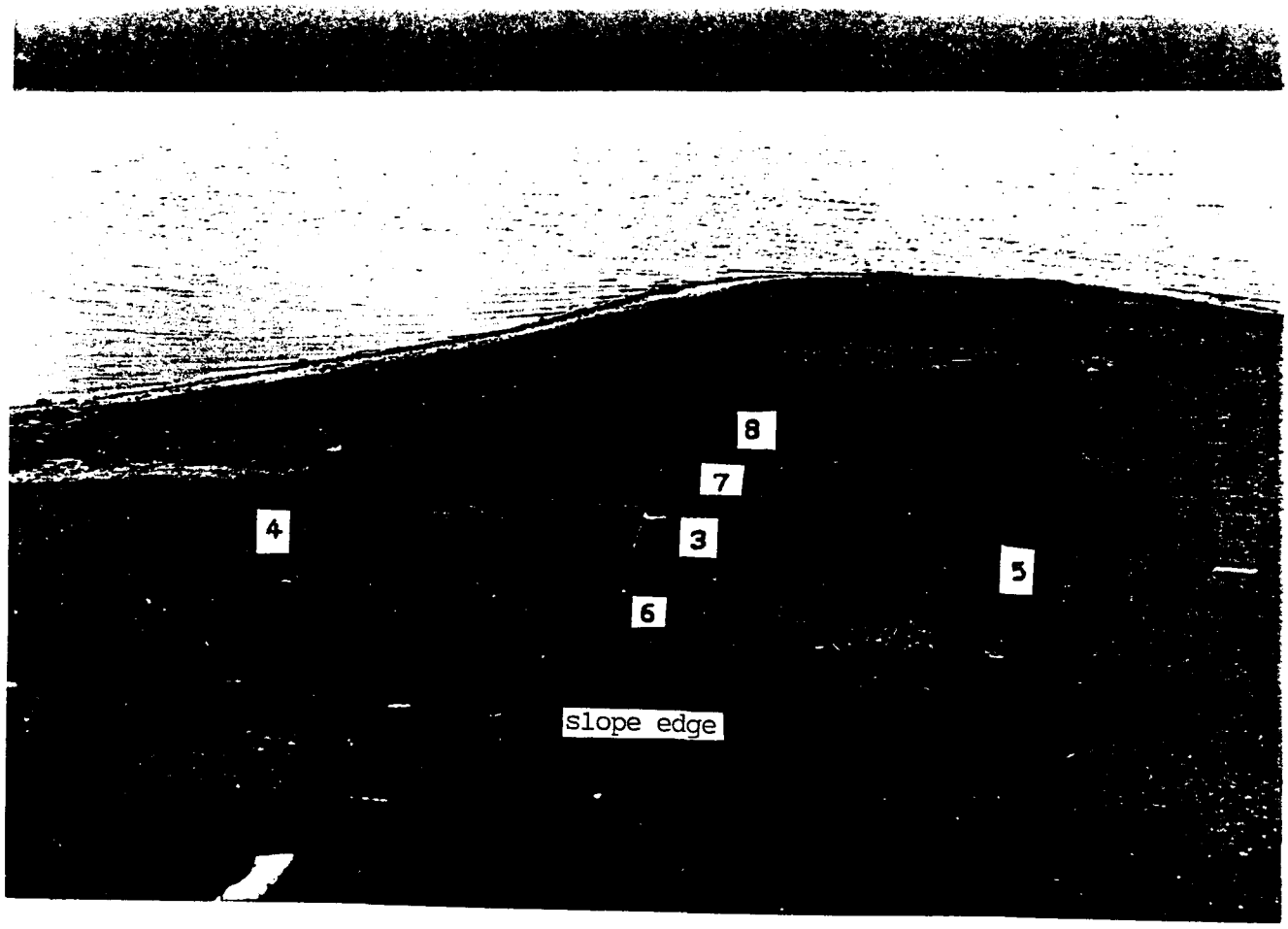
PHOTO # 3



LOCATION OF TEST PITS AT RUSSELL'S POINT. LOOKING EAST.

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PHOTO # 4

RUSSELL'S POINT. LOOKING WEST FROM THE BEACH.

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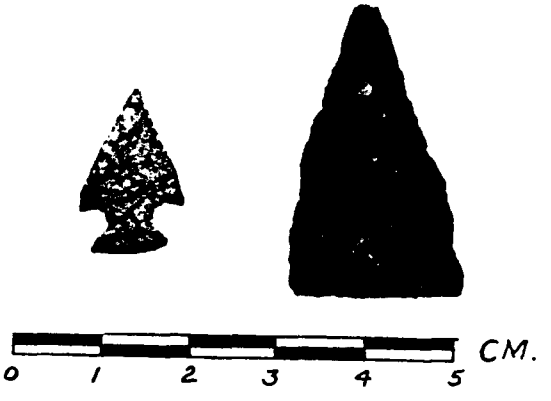
PHOTO # 5



LEFT: PROJECTILE POINT FROM TEST PIT # 8.
RIGHT: TRIANGULAR BIFACE FOUND ON THE BEACH.

Permit 88.18

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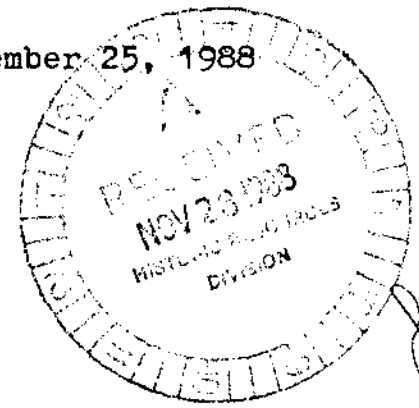
November 25, 1988



To: Linda Jefferson
Resource Archaeologist
Historic Resources Division

From: Janette Ginns
President, NMAS

Dear Linda:

Please find a copy of the preliminary report on the Conception Bay Underwater Archaeological Survey 1988 undertaken by the NMAS. I have sent this to Norm Easton, Whitehorse, Yukon, for inclusion in the CMHF/FCHM newsletter. Thought you might appreciate having the information on file. The main report for Historic Resources Division is being put together.

Best wishes,

Janette

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CONCEPTION BAY UNDERWATER ARCHAEOLOGICAL SURVEY 1988: a preliminary report

Documentary sources indicate that Conception Bay, on the northern shore of the Avalon Peninsula of Newfoundland, was known to Europeans early in the 16th century. John Guy established his colonies at Cupids in 1610 and at Harbour Grace and Bristol's Hope within the next few years. This was the first area of English influence in Newfoundland. Throughout the 17th century the settled population would increase gradually and strong mercantile interests would be established in the 18th and 19th centuries. Therefore, it could be anticipated that material culture remains, from varied European nations and chronological periods, would be found in most sheltered harbors around Conception Bay. This evidence could provide indicators of early European activities in Newfoundland.

Underwater archaeological surveys had not been undertaken in Conception Bay, although there are divers in the area and the region is within easy access from St. John's. Collections of artifacts from Bay Roberts, registered by Dan Porter and Steve Dawson under section 11 of the Historic Resources Act (1985), would indicate that sport divers have located significant artifact assemblages in the area. At the C.A.A. Meeting, Whistler 1988, slides of some of the coarse earthenwares were viewed during my paper entitled "Finders-keepers?". To investigate these matters, the Newfoundland Marine Archaeology Society (NMAS) proposed that several mini-projects be undertaken in Conception Bay for the 1988 field season. This included systematic diver searches to identify underwater sites at Brigus, Bay Roberts, Harbour Grace and Bristol's Hope. Sites could include shipwrecks, anchorage points, and areas of shoreline activity of potential significance.

The underwater survey was successful, despite the limited time spent in each community. NMAS divers spent each weekend in September exploring the harbors in Conception Bay. The water was warm, with average temperatures recorded at 12-14°C. During the 7 diving days, 71 individual dives were performed, providing a total of over 50 hours bottom time. Twenty divers were involved. New divers on the team were able to practice different search techniques and learnt to identify artifacts and features on the bottom. This was a completely different diving experience for many in the group. During the Brigus Project, two wreck sites (possibly three), an older anchorage point and a more recent garbage dump, were located. There was such a large mound of ballast on one wreck site that divers believed at first that it was rock from the cribbing of a wharf. One morning was spent in pouring rain and cold winds in an unsuccessful search for a wreck site in Bay Roberts Harbour. Fortunately, the weather improved and for the remainder of the weekend divers were able to produce data for the location of an

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anchorage site in a more exposed area in the bay. The evidence of piles of dumped ballast rock and broken pottery sherds dating from the 17th and 18th centuries, hopefully to be combined with data from the Dan Porter/Steve Dawson collections, is very exciting news. In shallow water, off the old mercantile/whaling activity area of Harbour Grace, divers did see numerous bottles, storage jars, clay pipes, and miscellaneous pieces of iron chain and machinery. No evidence of 17th century activity was found in the search areas in Harbour Grace, although the rich oral tradition of Peter Easton (pirate) is a stimulous to return. Searches in Bristol's Hope Cove did indicate some shoreline activity. In an attempt to provide supporting evidence for a 17th century land archaeological site, divers went into Mosquito Pond, behind the beach. However, the crew did not seem to appreciate the fresh water experience--maximum of 4 feet depth of water, but a much deeper depth of gooey mud on the bottom. Perhaps we need some advice on low visibility searches from our counterparts in central Canada.

At this time, data are being put together for a report on the Conception Bay Underwater Survey 1988. The photographic record is extensive and additional oral information is being compiled. There is a strong interest in Newfoundland history in the Conception Bay region, indicated by the museums in Harbour Grace, Port de Grave and the historical society at Brigus. Through this local interest and diver participation, it is hoped to increase knowledge of the underwater historic resource and to provide encouragement to protect the marine heritage.

Acknowledgements

The Conception Bay Underwater Archaeological Survey 1988 was made possible by a permit granted to the NMAS (per J. Ginns) by the Historic Resources Division, Department of Culture, Recreation and Youth, Government of Newfoundland and Labrador and financed from that agency. I would like to thank Julie Huntington and Dan Porter, Project Diving Supervisors, who covered the important aspect of diver' safety during the survey. Very special thanks are extended to the avocational divers who participated in the projects. It is hoped that the new divers on the team enjoyed the experience and will join other NMAS activities.

Janette M. Ginns
Project Director
Newfoundland Marine Archaeology Society
P.O. Box 181
St. John's, Nfld.
A1C 5J2

Selkirk occupations as well as between them. In fact, intrasite variability in style, manufacture and use of ceramics can reflect a wide variety of human interactions that are usually not detectable at the regional, inter-site level of interpretation. Some of these intrasite ceramic behaviours have profound implications for our understanding of regional Selkirk variability as reflected in the ceramic record. This paper will discuss some types of intrasite ceramic behaviour which are of potential import to regional interpretation of the Selkirk Composite, drawing upon specific data collected from Bushfield West, a large single component Selkirk camp-site located in central-eastern Saskatchewan.

Ginns, Janette M. (Newfoundland Marine Archaeology Society)

Conception Bay Underwater Survey 1988

Four harbors in Conception Bay, on the northern shore of the Avalon Peninsula of Newfoundland, became the target of a series of short surveys undertaken by avocational divers with the Newfoundland Marine Archaeology Society. A total of eleven underwater sites were identified at Brigus, Bay Roberts, Harbour Grace and Bristol's Hope. These sites have been registered and include shipwrecks, anchorage points, old wharves, middens, and related shoreline activity areas.

Documentary sources indicate that Conception Bay was known to Europeans in the 16th century and was the first area of English influence in Newfoundland in the early 17th century. The settled population gradually increased and strong mercantile interests were established in the 18th and 19th centuries. Archaeological surveys on land have produced limited historical data for the area and no systematic underwater archaeological surveys had been conducted until this time. The results of the underwater survey in Conception Bay will be discussed. This will include an assessment of the contribution made to the inventory of submerged cultural resources in Newfoundland waters, communications with historical societies and people in local communities to protect the marine heritage, and the experience provided to divers to become involved in archaeological surveys in the province.

Ginns, Janette M. (Newfoundland Marine Archaeology Society)

Sub Aqua 1, Holyrood, Newfoundland: A Field School Experience For Scuba Divers

The inventory of submerged cultural resources in Newfoundland waters is limited. Archaeological surveys conducted by avocational groups have covered only a very small percentage of underwater areas in a systematic manner. Site assessments and surveys of specific areas conducted for archaeological clearance for proposed development projects will add to that data base. However, it is only when individual archaeological resources are recorded in specific areas that a clearer understanding of the distribution and types of submerged cultural resources will result. Thus, the requirement for accurate reporting of underwater sites is important. In recent years a problem has arisen in providing scuba divers with sufficient theoretical and practical knowledge of the technical skills required by the underwater archaeologist. The situation needed to be improved through diver education. In the fall of 1988, a diving course specifically in underwater archaeology was set up with Sub Aqua 1982 Ltd. in St. John's. The course was taken by a small group of students for the NASDS (National Association of Scuba Diving Schools) Expert Diver Program. The introductory course provided a sound background in technical skills and emphasized hands-on experience. Open water work, to include the survey of a wreck site at Holyrood, Conception Bay, formed the interface between the theoretical knowledge gained by students in the classroom and the practical knowledge required for archaeological field-work. The successful field school experience, operated under an archaeological research permit granted by the Historic Resources Division, Department of Culture, Recreation and Youth, Government of Newfoundland and Labrador, will be outlined using the highly visual format of still photography and video presentation.

Gregory, Fred (Save Ontario Shipwrecks)

Non-Disturbance Archaeology is OK, Too

Most archaeological activity in Ontario is performed by amateurs employing non-disturbance techniques. They are recording valuable data without excavating (destroying) sites. However, their work is equally

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THE GRANITE CANAL PROJECT

A STAGE 1 HISTORIC RESOURCES
OVERVIEW ASSESSMENT CONDUCTED
UNDER HISTORIC RESOURCES
DIVISION PERMIT 88.26

SUBMITTED TO:

NEWFOUNDLAND AND LABRADOR HYDRO
COLUMBUS DRIVE
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Bevin R. LeDrew, President

9 July 1992

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MANAGEMENT SUMMARY

This study of the proposed Granite Canal generating station and associated transmission line was conducted in accordance with the **Terms of Reference** for that project and the **Guidelines** for Historic Resources Overview Assessments issued by the Historic Resources Division, Department of Culture, Recreation and Youth (June 23, 1982).

The initial step involved a review of existing literature on the prehistory and history of the area including both published and unpublished sources. Notes on interviews conducted with Micmac residents of Conne River during 1987 were then consulted. Following this an aerial reconnaissance of the area was undertaken by helicopter and selected areas including the area between Granite Canal and the tailrace, borrow pits and areas along the transmission line, particularly along the course of Noel Paul 's Brook, were surveyed from the ground and test-pitted.

The initial investigations (*i.e.* literature review and previous discussions with Conne River residents) indicate that the area was utilized as a travel route, and to a lesser extent as hunting and trapping territory, by both Montagnais and Micmac people and possibly in earlier times by the Beothuck Indians. In no case, however, could specific sites be located.

Aerial and ground reconnaissance revealed no sites of definite aboriginal occupation or other use. A single location on the east side of Noel Paul 's Brook, first located from the air and then test-pitted, revealed evidence of human activity in the form of a large clearing containing a small buried deposit of wood charcoal and a number of tree stumps which appeared to have been sawn to fell the trees. Similar cut stumps were observed in the surrounding area. Except for the charcoal, which **could** have been of natural origin, no additional evidence of human utilization was found.

It is not recommended, therefore, that the assessment process proceed to Stage 2. However, it is recommended that surveyors and construction personnel be made aware of the relatively high potential of the Noel Paul 's Brook area and that any sign of human activity, no matter how seemingly insignificant, be reported immediately to the Provincial Archaeologist, Historic Resources Division, Department of Culture, Recreation and Youth.

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1.0 INTRODUCTORY STATEMENT

This study was carried out under contract to LeDrew Environmental Management on behalf of Newfoundland and Labrador Hydro. The proposed development which is one of three alternatives for additional hydroelectric power for Newfoundland, would divert the Granite Canal at the east end to install a generation station at that point. A transmission line, approximately 100 km long would connect the development to the Island Grid at the Upper Salmon Generating Station. The section of line from the proposed Island Pond Development to the Upper Salmon Generating Station is the same as for the Island Pond transmission line which has been examined as part of the Island Pond E.I.S. (Tuck 1988). The study was carried out in order to assist in planning the location of the transmission line in the event that significant historic resources might be located in the area and to recommend mitigative measures for potential sites in that area and in the area of the generating station and tailrace.

The objectives of the study were those outlined in the **Terms of Reference** for the Granite Canal project (Appendix A) and in the **Guidelines** for Stage 1 Historic Resources Overview Assessment issued by the Historic Resources Division, Department of Culture, Recreation and Youth (June 23, 1982). In general, these documents require an initial assessment to assess the development areas of high potential regardless of whether or not actual sites are reported.

The study was carried out by Atlantic Archaeology Ltd; background and field research were conducted by James A. Tuck who also authored this report.

Background research took place on October 3 and 4, 1988; fieldwork on October 14, 1988.

The organizational format of this report follows the Historic Resources Division **Guidelines** for Stage 1 Historic Resources Overview Assessment (June 23, 1988).

2.0 PROJECT DESCRIPTION

The proposed Granite Canal Development would utilize the head of approximately 40 m between Granite Lake and Meelpaeg Reservoir. Granite Lake is connected to Meelpaeg Reservoir by the Granite Canal (approximately six km long). The proposed development would divert water from the Canal via a 1950 m long power canal to an intake structure where it would be conducted through two 160 m long penstocks to the powerhouse. The powerhouse would be situated at the base of a sidehill near the west shore of Meelpaeg Reservoir, and the water would flow from the powerhouse via a 1450 m long tailrace canal into an arm of Meelpaeg Reservoir (Figures 1 and 2).

The proposed development would not change the existing flooded area. At present, the water level in Granite Lake fluctuates between 303.34 m and 306.34 m. The normal operating level in the Lake after the development will be 305.88 $\pm$ 0.3 m with minimum and maximum water levels of 303.00 m and 306.64 m, respectively.

The proposed development would not require large quantities of construction materials as it does not include a dam. The power canal, as conceived, would be excavated primarily in rock and would require limited quantities of dyke building material. Three previously developed deposits containing suitable materials for impervious fill, filter, sand and gravel have been identified. Two of the deposits are located along the existing Granite Lake road (T_1 and T_2) and the third deposit (T_3) is located southwest of Pudops Dam. A limited amount of material for concrete aggregates will also be needed from the existing Granite Lake road (T_1 and T_2) and the third deposit (T_3) is located southwest of Pudops Dam. A limited amount of material for concrete aggregates will also be needed from the existing Snowshoe Pond borrow pit located on the access road about 18 km north of the development.

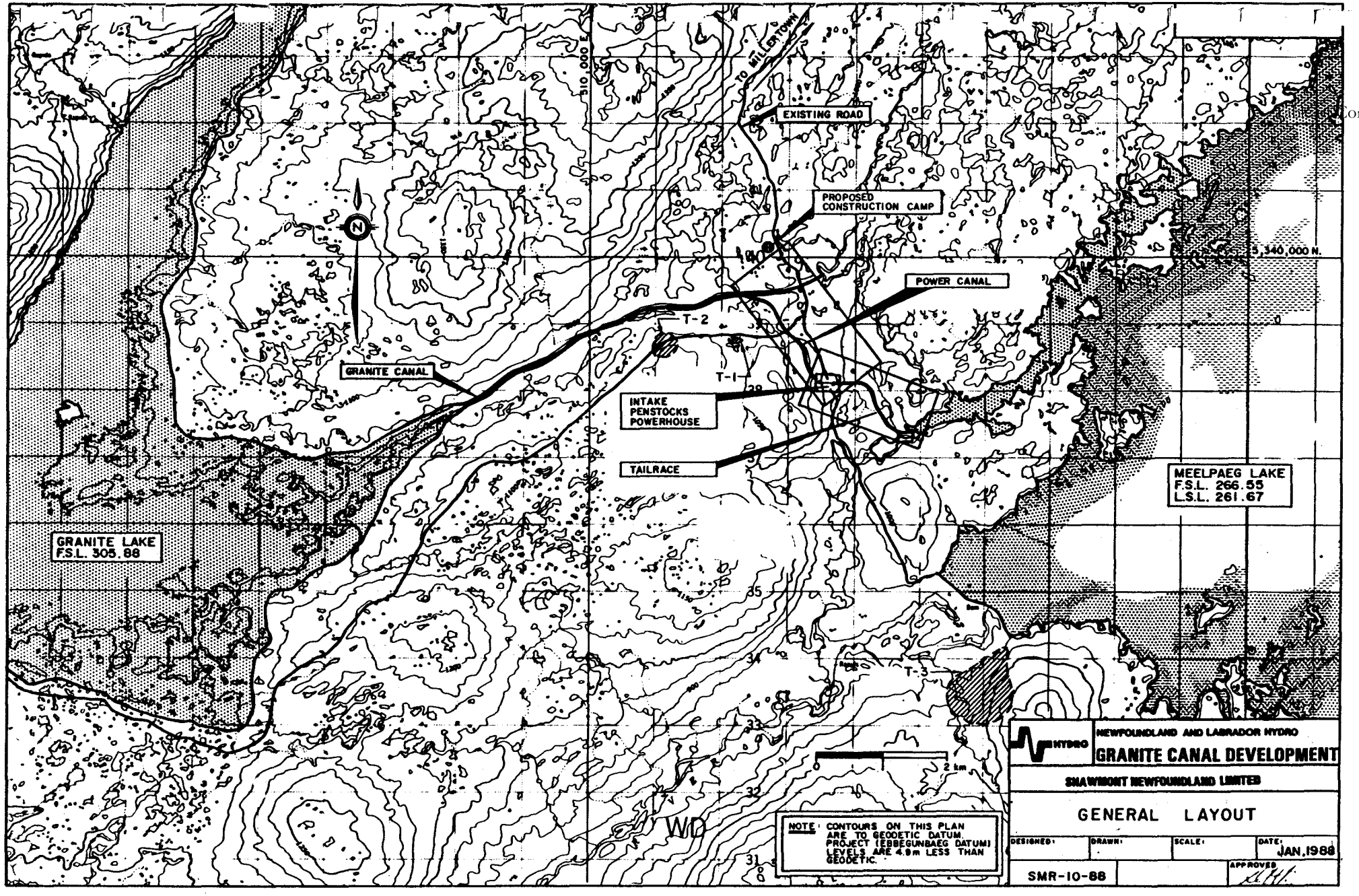

Figure 1 : Granite Canal Development - general layout

waterways, the distance from Meelpaeg Lake, Island Pond, *etc.* which drain to the south and the north-draining streams and lakes is short and was undoubtedly travelled by native groups. Temporary travel camps may have been located along these routes but their nature and short duration of occupational combine to make their archaeological visibility extremely low.

In short, the study area, while containing caribou and other resources, was probably not utilized to a great extent by aboriginal peoples; the extend to which it was used, primarily for travel, is uncertain and the visibility of temporary campsites extremely low.

Present-day land use patterns are largely recreational. The construction of the Granite Canal, as part of the original Bay D'Espoir hydroelectric development, opened the area to vehicles which arrive throughout the fishing season with recreational anglers and into the fall season bringing hunters of caribou and moose.

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4.0 METHODOLOGY

The methodology for this study follows the **Guidelines** produced by the Historic Resources Division. An informant program was conducted in 1987 - 88 which included interviews with three residents of Conne River, regarding historical usage of the area, and three hunters familiar with the area, regarding any sightings of unusual features or artifacts. The informant program was limited to these two groups because of their familiarity with, and their historical usage of the area. Residents of other communities (eg. Millertown) were not included in the informant program because of their distance from the study area. Following a review of published and unpublished sources, previous discussions of the use of the area with residents of Conne River, and study of 1:50,000 contour/vegetation maps, the area was surveyed from a helicopter. Selected portions (excluding particularly bogs and steep hillsides) of the diversion canal, generating station site, and tailrace area were explored on foot, cut banks inspected and test pits dug in areas where hunting or travel camps might have been constructed. There areas marked as potential borrow pits were observed from the air and two of these investigated on the ground by inspecting cut banks and test-pitting in adjacent areas. The transmission line was flown at low altitude and low speed throughout its length. In one case a clearing (see below) seemingly of human origin, was inspected and test-pitted.

Knaps site revealed the presence of a Micmac camp which might be dated to the early twentieth or late nineteenth century. Surveys conducted in 1987 by J. Tuck and D. Robbins, at times accompanied by Michael Joe, Sr., a Conne river Micmac, also failed to locate any archaeological remains of significance (Tuck 1988).

To the north and west of the study area archaeological investigations, or at least reports, date to the latter part of the nineteenth century. T.G.B. Lloyd includes "...Grand Lake, Sandy Lake, Red Indian Lake, *etc.*" among the places where aboriginal implements were found (from Howley 1915:323). Gerald Penney (personal communication) reported a small collection of Dorset Eskimo artifacts from Cross Pond.

While these locations are far removed from the study area, they do serve to indicate the presence of aboriginal people in the interior regions of Newfoundland. Of particular interest to the study area is the historically well-documented presence of natives on the shores of Red Indian Lake and along the Exploits River. This has been confirmed archaeologically by the investigations of Frank Speck (1922:22), Don Locke (n.d.a., n.d.b), Helen Devereaux (1970) and Jane Sproull Thomson (1982) at Indian Point near Millertown and by Don Locke (n.d.b) and Callum Thomson (1983) along the exploits River at the mouth of Noel Paul 's Brook. The latter discovery raises the possibility that Noel Paul 's Brook was used as a travel route to the interior by residents of the northeast coast and as part of a south to north travel route by residents of the south coast. Ethnographic and historical information coincide in indicating that this was the case, but present-day residents of Conne River indicate that the preferred travel route from the south coast intercepted Noel Paul 's Brook below (*i.e.* to the north of) Lake Douglas, hence did not include that portion of Noel Paul 's Brook Crossed by the proposed transmission line between Snowshoe Pond and Lake Douglas.

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5.3 PRELIMINARY FIELD RECONNAISSANCE

A description of the initial field reconnaissance is as follows (all areas investigated are shown on Figure 3):

Area A

This area comprises the location of the proposed generating station and tailrace. The area was first overflown by helicopter at slow speed and at low altitude. The terrain is uneven and a large portion (especially to the southeast) is comprised of bog. A great deal of the remaining area was apparently disturbed during the original construction of the Bay D'Espoir reservoir; indeed at the tailrace end at Meelpaeg Lake the water level has been raised to such an extent that the original shoreline is no longer discernable and any archaeological remains in the area have long since been flooded.

The road at the southern end of the area was walked, cut banks inspected, and transects made into undisturbed areas, largely hillsides of little apparent promise, where test pits were dug. Other than obvious evidence of recent and continuing utilization of the area by hunters, no features or objects of archaeological importance were found.

Area B

This area was marked as a potential borrow pit for the construction of the proposed generating station dam. It was inspected from the air and had clearly been virtually completely disturbed by previous construction activities, probably related to the dam located immediately to the north. No ground testing was undertaken.

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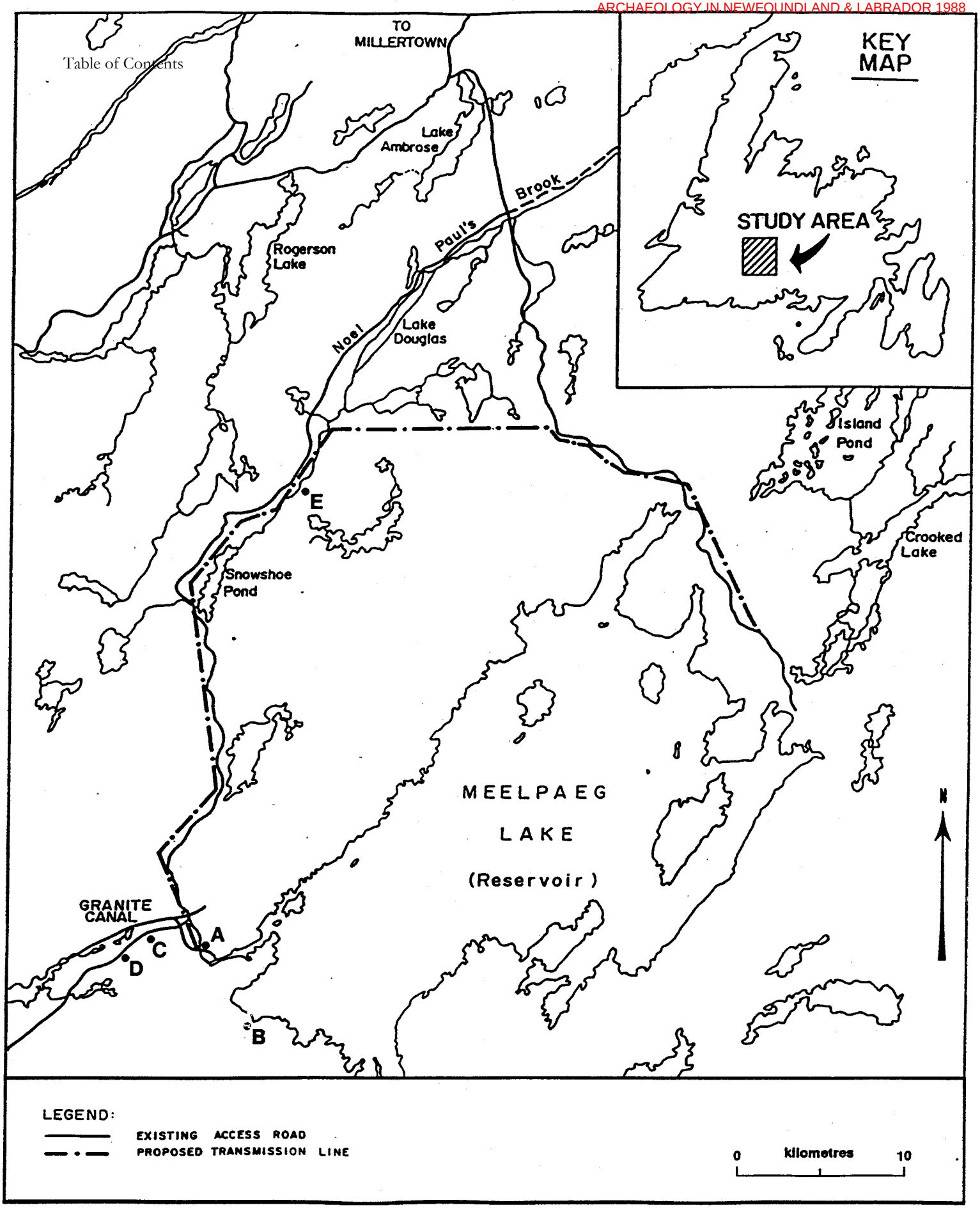

Figure 3 : Locations of areas surveyed and areas test-pitted

Area C

Also a potential borrow pit, this area was inspected from the ground, the cut banks observed and test pits dug in undisturbed adjacent areas. No artifacts or features other than modern refuse were found.

Area D

A procedure identical to that at the previous area was followed, with identical results.

5.4 TRANSMISSION LINE

The transmission line was flown at low speed and low altitude three times. During one flight a video of the area was made by Bruce Bennett, biologist employed by LeDrew Environmental Management. Only one area of archaeological potential was observed and is described below.

Area E

This area was first located from the air and appeared as a seemingly artificial clearing in the forested hillside of the east bank of Noel Paul 's Brook. A landing was made on the bank of the brook and the area investigated further. The irregular shaped clearing measured approximately 25 by 30 metres. Tree stumps measuring up to 30 cm in diameter were found in the clearing and for as far as 100 m to the north, south and east. The stumps which were well enough preserved to allow observation of the cut surfaces showed clearly that the trees had been felled by sawing. The resulting logs had been removed and no trace of slash or branches remained; apparently the trees were felled sufficiently far in the past that the slash had decomposed completely.

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Test pits within the clearing, particularly near a small patch of grass which resembled the vegetation often associated with abandoned structures, revealed no cultural material. The soil profile consisted of a very thin sod layer underlain by a peat-like forest duff not more than 2-3 cm thick which rested on grey podsol grading into a gravelly substrate. In one apparently isolated area, within the grassy vegetation mentioned above, a layer of wood charcoal up to 2 cm thick was observed in and below the forest duff. Discrete chunks up to 5-6 cm long graded into amorphous charcoal. Testing immediately adjacent to the area did not reveal a similar layer, hence the deposit does not appear to have resulted from a general forest fire. On the other hand, no intensive *in situ* burning was indicated by fire-reddened soil and no rocks, fire-cracked or otherwise, were associated with the deposit. As in other areas of the clearing, no artifacts of any kind were recovered.

While the cut stumps clearly indicate human activity it remains uncertain whether the charcoal represents a hearth or some other human activity or natural occurrence. Further comment on this "site" and the Noel Paul's Brook area generally are contained in the following section.

6.0 EVALUATION AND DISCUSSION

Background research and field survey indicate only limited utilization of the study area prior to the construction of the Bay D 'Espoir project which opened parts of the area to hunting and other recreational use. Documentary sources and oral history coincide in indicating limited use of the area for travel and, to a lesser extent, hunting and trapping by Micmac and Montagnais prior to and during the first half of the twentieth century.

Prior to this study, there has not been any archaeological studies undertaken within the study area itself. Sanger 's study of Meelpaeg Lake in the mid - 1960's was the closest survey to the study area, however as previously indicated, the results of that study were entirely negative. Except for the studies mentioned in this report, and this study, few other studies of archaeological remains, or surveys directed at locating them, have been conducted in the interior of the Province, therefore, the available information is limited.

The possibility that the area was used in early contact and prehistoric times as a travel route by the Beothuck Indians is **suggested** by the presence of native material at the mouth of Noel Paul 's Brook at the Exploits River. However, it is not certain whether they proceeded as far up the brook as the study area; Conne river people indicate that the north-south route left Noel Paul 's Brook well to the north of the proposed transmission line crossing.

Given the nature of land use during the late historic period, and presumably during the earlier historic and prehistoric periods as well, it is doubtful if most of the area was ever heavily utilized; such sites as might exist there would be of extremely low archaeological visibility and hence extremely difficult to find. The probability of finding significant archaeological resources in the study area is very low.

An exception might be the Noel Paul 's Brook crossing where at least some human activity was detected and where both the possibility for earlier human activity and site visibility are somewhat higher. Since, however, the transmission line itself avoids the brook (except for the actual crossing) impact should be minimal. This is further discussed in the following section.

7.0 RECOMMENDATIONS

Based upon the various lines of investigation outlined above it is not recommended that the Granite Canal project proceed to a Stage 2 Detailed Impact Assessment.

However, in view of the **relatively** high potential of the transmission line crossing at Noel Paul 's Brook it is recommended that the transmission line structures be kept as far from the brook as possible and that disturbance of the area within 300 m of the brook be kept to an absolute minimum. Further, employees engaged in preliminary work and construction should be made aware of the possibility of archaeological remains in the area.

It is also recommended that the importance of historic resouces which might be discovered accidentally during the course of construction operations be stressed to supervisory personnel. These resources are made all the more important by the meagre nature of archaeological information from the interior of the Island of Newfoundland. Any unusual features such as:

a) rock or earthen mounds, alignments or depressions not obviously of natural origin;
b) traces of rock hearths or other evidence of confined burning;
c) concentrations of bone, no matter how small or how fragmented; and
d) any suspected artifacts, whether stone tools or European materials, should be reported immediately to the Historic Resources Division, Department of Culture, Recreation and Youth. Work in areas where such materials or features are reported should stop immediately and not resume until the location has been inspected by a qualified individual.

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APPENDIX A

Study Terms of Reference

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GRANITE CANAL

HISTORIC RESOURCES COMPONENT STUDY

TERMS OF REFERENCE

EXECUTIVE SUMMARY

The executive summary will briefly describe the project, and state the findings and conclusions, predicted environmental impacts, and mitigative measures to be implemented.

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1. INTRODUCTION

1.1 Background

The Granite Canal project Area is located near the boundary between Beothuk and Micmac Indian territories to the north and south respectively, and may contain sites pertaining to both cultural groups. Consequently an archaeological survey and literature search will be conducted to determine the historical resources potential of the Granite Canal Development area.

1.2 Study Area

The proposed study area for this component study is the immediate project area between Granite Canal and Meelpaeg Reservoir (Figure 1) and the proposed transmission line route (Figure 2).

1.3 Study Objectives

The objectives of this historic resources study are:

(1) to identify and assess the historic resources potential which may be adversely affected by the proposed development;

(2) to increase our knowledge of prehistoric and historic native utilization of this region; and

(3) to recommend the appropriate methodology and scope for more detailed impact assessment studies, if required.

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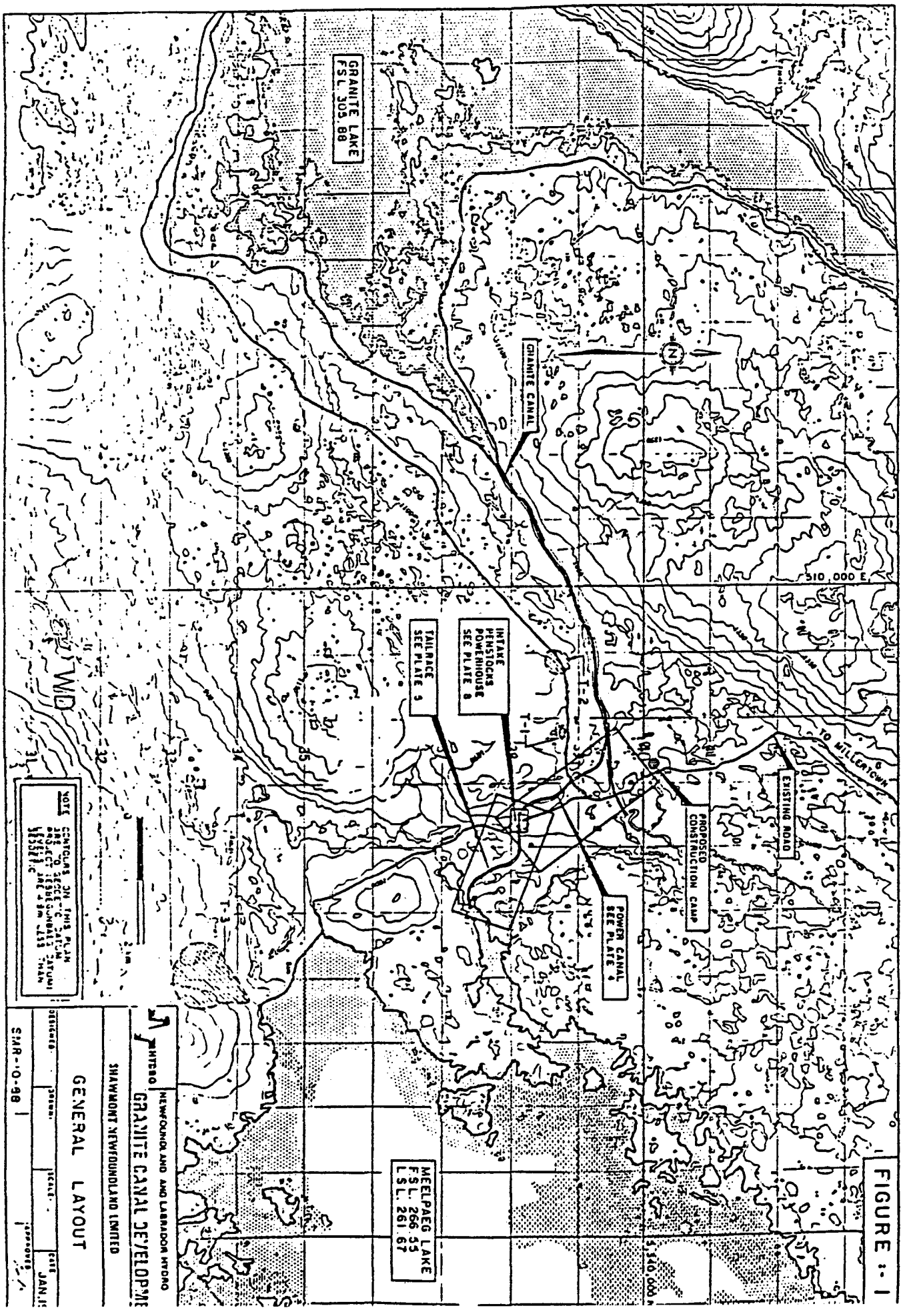
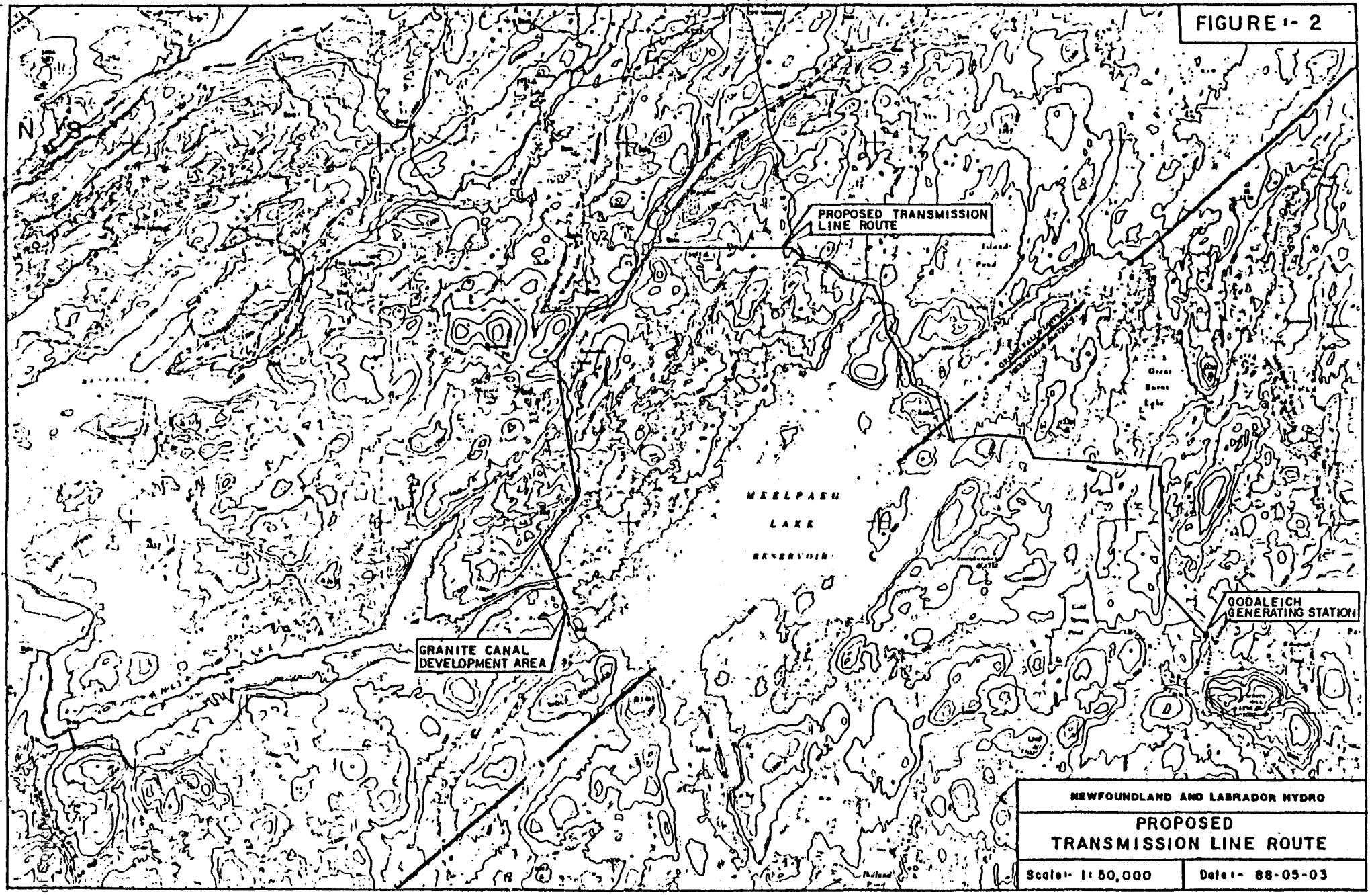


FIGURE 1

FIGURE 1- 2



NEWFOUNDLAND AND LABRADOR HYDRO

PROPOSED TRANSMISSION LINE ROUTE

Scale:- 1:50,000 | Date:- 88-05-03

1.4 Methods

This study will be conducted in accordance with the requirements for the Stage 1 historic resources overview assessment (Appendix 1) Components will be:

(1) a documentary search of library and archival literature and other relevant sources;

(2) direct consultation with individuals and organizations with knowledge of the historic resources of the study area, prior to fieldwork;

(3) a helicopter survey of the proposed transmission line right-of-way (the consultant will use professional judgement and the results of this survey to determine the need for ground surveys and test pitting in areas of potential historic resources interest);

(4) a walking survey of the area to be disturbed between Granite Canal and the mouth of the tailrace (areas walked and test pitted will be clearly noted on maps of appropriate scale);

(5) conservation methods approved by the Historic Resources Division will be employed, both in the field and laboratory, to ensure the preservation of any items requiring same (financial responsibility for conservation /preservation measures will be borne by Hydro); and

(6) Surveyors and personnel with responsibility for environmental compliance monitoring will receive instruction from a professional archaeologist.

2. THE PROPOSED UNDERTAKING

2.1 Proponent

The proponent (Hydro) will be identified clearly.

2.2 Project Rationale

The purpose and need for the proposed development will be discussed.

2.3 Project Description

a brief description of the following will be provided:

- Location
- Project Concept
- Access
- Canal
- Penstock, Powerhouse and Tailrace
- Spillway
- Transmission Line
- Manpower and Machinery
- Pits/Quarries
- Camps and Other Buildings
- Fuel Storage Areas
- Construction
- Operation

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The description of the project elements presented in this component study report will be less detailed than that presented in the Project EIS.

3. RESULTS

This section will present the results of documentary research, direct consultation, and preliminary field reconnaissance as they relate to the basic objectives of the overview assessment.

Results of background research will include:

(a) a description of past land uses, and land use patterns;

(b) a summary of informant interview results;

(c) a summary of previous historic resources surveys, investigations, or other projects within, or immediately adjacent to, the study area;

(d) a brief narrative description of the types of sites reported; and

(e) a map showing the precise or approximate location of all reported sites.

Results of the preliminary field reconnaissance will include:

(f) maps showing areas surveyed by each method (helicopter, foot);

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(g) maps showing the precise location of all sites observed and recorded;

(h) a brief narrative and photographic description of all sites;

(i) locations and results of subsurface testing and surface collecting;

(j) a description of negative data (where and why sites identified by informants and documentary sources were not found: eg. covered by water, etc.); and

(k) a report on any field tests designed to determine the most suitable survey strategy for the study area in Stage 2, if appropriate.

4. EVALUATION AND DISCUSSION

This section will evaluate the major findings of background research and preliminary field reconnaissance for the purpose of assessing historic resources potential in the study area. This assessment will be made from local, regional, and provincial perspectives, and will be based on known sites, as well as reported and predicted sites. Based on research results, the consultant will:

(a) identify major inadequacies in existing knowledge regarding the historic resources base;

(b) state predictions about the type and number of sites to be expected;

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(c) discuss and, as far as possible, interpret the nature, distribution, and potential significance of historic resources values within the study areas;

(d) discuss in general terms, or to the extent possible, potential impacts on the historic resources base, and possible options available for managing impacts, including a program of monitoring during project construction of sites unaffected by direct impacts, and an education program for field workers; and

(e) discuss attitudes among users of the region's resources toward the proposed development project, from a historic resources perspective.

5. RECOMMENDATIONS

Based on 4 and 5 above, this section will:

(a) where appropriate, recommend preferred project alternative(s);

(b) identify and discuss the need for further studies in Stage 2; and

(c) discuss the appropriate scope of future studies and monitoring programs which are deemed necessary.

This discussion will include:

(d) maps showing precise areas requiring intensive field survey;

(e) justification, where appropriate, for a no-survey recommendation;

(f) a description of areas requiring special field consideration and;

(g) a recommendation indicating the intensive field survey strategy to be used in Stage 2; and

(h) a recommended monitoring program to ensure the continued safety, during project construction, of sites recorded but not affected directly by the construction and operation of the undertaking.

6. LITERATURE CITED

This section will provide a comprehensive list of all literary sources cited in the overview report such as publications, documents, records, etc. The reference list shall also include the names of persons consulted and cited in the report, as well as the date on which each communication was made.

APPENDIX 1

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STAGE 1 - HISTORIC RESOURCES OVERVIEW ASSESSMENT/DETAILED GUIDELINES

INTRODUCTION

An Historic Resources overview assessment is normally the initial step in the Historic Resources assessment process. The study will serve as a necessary basis for determining the level of continued involvement required within the Historic Resources assessment process.

The overview assessment is intended to

(a) identify and assess Historic Resources potential or sensitivity within the study area, and

(b) recommend the appropriate methodology and scope for detailed impact assessment studies in Stage 2.

Although this may entail locating some Historic Sites in the field, a comprehensive inventory of the project area is not required at this stage.

The overview assessment will, on occasion, involve one or more supplemental objectives. For example, where detailed inventory and impact assessment are clearly required in Stage 2, it may be appropriate at this time to test the feasibility of implementing certain site survey strategies. The objective is to determine the most efficient and effective approach given local conditions.

1 - A Documentary Search

This aspect of background research should involve a thorough review of library and archival literature and other relevant data sources. The research should include, but need not be limited to:

* a check of extant records including the Newfoundland & Labrador Archaeological Site Inventory, the Canadian Inventory of Historic Buildings, legal land survey records, and other pertinent records and inventory files,
* a review or summarization of all previous Historic Resources investigations or surveys in the study area, or in immediately adjacent areas,
* a review of relevant information from published and unpublished sources on local and regional history, prehistory, architectural history, ethnohistory, cultural geography, paleontology, and other pertinent disciplines,
* a review of relevant paleoecological studies to assess past environmental conditions that may have influenced cultural adaptations, and
* examination and interpretation of aerial photographs and geomorphological and pedological information as an aid for assessing potential for human habitation.

1 - B Direct Consultation

Individuals and organizations with knowledge of the Historic Resources in the study area should be contacted where appropriate. The research objective shall be to compile information concerning the location, distribution, and significence of reported sites. In particular, interviews should be designed to elicit information which may facilitate constructing or confirming ethnographic and historic patterns of settlement, land use, and subsistance. Among those who should be consulted are local informants such as native groups, heritage societies, 'Oldtimers', and specialists having local or regional expertise in the area. Specialists may include archaeologists, historians, ethnohistorians, paleontologists, among others.

Interviews with various persons will provide the researcher with an opportunity to document public or community attitudes toward impacts on local historic resources which the proposed development may impose. These local perceptions and attitudes may have a significant bearing on resources management decision-making, and therefore must be reported. This is especially true when there is strong local interest and concern regarding the safety of a particular site, or a group of such sites. In some cases, it may be more appropriate to reserve this phase of research until Stage 2, when impacts are better understood.

1 - C Preliminary Field Reconnaissance

The Historic Resources overview assessment may require some preliminary field reconnaissance. Preliminary reconnaissance may involve a simple overflight of the study area, or, if greater intensity is demanded, a field survey. Reconnaissance survey is intended to supplement background research and should be undertaken in the event that historical, ethnological, or other documentary sources necessary for assessing historic resources potential are insufficient or unavailable. It is also warranted in the case where many alternatives are under consideration for location of project facilities. In this case, an overview statement of resources potential in an area, based entirely on background research, may be inadequate for providing effective guidance in project planning. Historic Resources Division will provide assistance in determining the need or the appropriate intersity of preliminary field reconnaissance for specific development projects.

Reconnaissance survey should be primarily designed to provide a sufficient indication of Historic Resources potential in the study area and to identify both the need and the appropriate scope for further field studies. Although this may involve some ground reconnaissance, area coverage will usually be quite small relative the overall size of the area being studied. The survey will seldom provide sufficient data to ensure an adequate estimate of all sites in an area. Information resulting from preliminary field reconnaissance should however,

* confirm or refute the existence of sites reported or predicted from background research,
* allow further predictions to be made about the distribution, density and potential significance of sites within the study area,

* identify areas where sites are apparently absent, implying low or no potential,
* verify, wherever possible, potential impacts imposed by the development projects, and
* suggest the most appropriate survey methods or techniques to be used in an intensive field survey should such a survey be necessary.

By accomplishing these research objectives, the reconnaissance survey serves as a useful preliminary for designing and subsequently implementing a more effective and efficient site inventory survey in Stage 2 .

Techniques employed in reconnaissance survey will vary depending on such factors as terrain, vegetation, land use, ease of access, urbanization, the size of the project area, or the types of historic resources being sought. Where archaeological sites are anticipated, reconnaissance survey may require an on the ground inspection of selected areas. It may also be necessary for archaeologists to undertake some subsurface testing at this time to locate sites lacking surficial evidence, to delineate site boundaries, or, where necessary, to obtain sufficient information for preliminary site evaluation. For structural and architectural resources, a different approach from reconnaissance survey is normally required. A comprehensive drive-through or pedestrian inspection of areas having potential historical or architectural value would be generally appropriate for preliminary field reconnaissance.

In undertaking an historic resources overview assessment, the development proponent, or his consultant, is encouraged to develop innovative approaches to predicting or evaluating overall resource sensitivity or potential within the study area. In this respect, it is important to consult all relevant data sources. Furthermore, the services of varied specialists such as ethnohistorians, architectural-historians, cultural anthropologists, and paleontologists should be drawn upon so as to make the fullest use of the information. Extended efforts at this initial stage in the assessment process will result in more efficient and cost-effective research in Stage 2.

1 - H Overview Report Content and Recommended Format

Although the precise nature and activities of overview assessment will occasionally vary, the reporting guidelines which follow will generally be appropriate . The development proponent is encouraged to include the recommended types of information in the overview report, and, where possible, to present this information in approximately the same format illustrated below. Compliance with these reporting guidelines will greatly facilitate or expediate the review process. Overview assessment reports submitted to the Historic Resources Division for review should contain, as a minimum, the following sections:

1. letter of transmittal
2. title page
3 credit sheet
4. management summary
5. table of contents
6. list of figures, plates, tables, appendices
7. introductory statement
8. proposed development project

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9. study area
10. methodology
11. results
12. evaluation and discussion
13. recommendations
14. references cited
15. appendices

1. Letter of Transmittal

2. Title Page

The title page should include:

(a) the official development project name and location,

(b) the type of historic resources assessment report,

(c) the number of the permit under which the research activities were authorized,

(d) the name and address of the agency for which the report was prepared,

(e) the date of the report, and

(f) the author's signature and title..

3. Credit Sheet

The credit sheet should indicate the names, addresses and professional affiliations of the principal contributors to the overview study, including:

(a) the director or supervisor

(b) researcher(s), and

(c) report author(s)

4. Management Summary

The management summary consists of a brief overview of the study. Important findings and major recommendations should be emphasized.

5. Table of Contents

The table of contents must be arranged in accordance with the sequence of topical headings and their corresponding page numbers.

6. List of Figures, Plates, Tables, Appendices

All figures, plates, tables, and appendices must be referenced by title and page number, and listed according to the order in which they appear in the text of the report.

7. Introductory Statement

The introduction should include, but need not be limited to:

(a) the name of the proponent and the general nature of the proposed development,

(b) Stage 1 project planning objectives

(c) the objectives and general scope of the historic resources overview assessment,

(d) the agency and person(s) conducting the assessment and the kinds of professional expertise involved.

(e) the dates and duration of the research, and

(f) the organizational format of the report.

8. Proposed Development Project

This section shall provide a brief summary, based on the initial prospectus, of all pertinent development aspects of the proposed project. With the aid of maps, engineering plans, photos, and other materials, and insofar as possible at this stage of project planning, the discussion should include:

(a) boundaries of the projected impact zone or study area for each project alternative considered in Stage 1.

(b) the kinds of impacts the proposed development action(s) would likely have on historical resources in the study area.

(c) the kinds and anticipated locations of all ancillary activities and facilities,

(d) all aspects of project scheduling,

(e) the role the overview assessment played in project planning (e.g. how were the results of the overview assessment incorporated into preliminary project design; or how did the assessment assist in determining a preferred alternative?), how

(f) the preferred project alternative selected on the basis of environmental, socioeconomic, or engineering considerations,

9. Study Area

This section shall provide a brief description of the study area. The discussion should emphasize biophysical characteristics, both past and present, that may have influenced the density, distribution, variety, and potential significance of historic resources.

10. Methodology

The methodology section shall outline the basic research design or plan of study, and document the precise methods and equipment used to implement the research plan.

11. Results

This section shall present the results of documentary research, direct consultation, and, if applicable, preliminary field reconnaissance. Information should be reported here only to the extent that it relates to the basic objectives of the overview assessment. Results of background research should include:

(a) a description of past land uses, and land use patterns,

(b) a summary of previous historic resources survey, investigations, or other projects within, or immediately adjacent to, the study area,

(c) a brief narrative description of the types of sites reported, and

(d) a map showing the precise or approximate location of all reported sites.

Results of preliminary field reconnaissance should include:

(e) maps showing areas surveyed, and not surveyed,

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(f) maps showing the precise location of all sites observed and recorded,

(g) a brief narrative description of all recorded sites,

(h) results of subsurface testing, surface collecting, or both, if applicable,

(i) a description of negative data (e.g.where and why were sites not found?), and

(k) a report on any field tests designed to determine the most suitable site survey strategy for the study area.

12. Evaluation and Discussion

This section will evaluate the major findings of background research and preliminary field reconnaissance for the purpose of assessing resources potential in the study area. This assessment should be made from a local, regional, and provincial perspective, and should be based on known sites, as well as reported and predicted sites. Based on research results, the assessor should:

(a) identify major inadequacies in existing knowledge regarding the historic resources base,

(b) state predictions about the type and number of sites to be expected,

(c) discuss and, as far as possible, interpret the nature, distribution, and potential significance of historic resources values within the study areas,

(d) discuss in general terms, or to the extent possible, potential impacts on the historic resources base, and possible options available for managing impacts, and

(e) discuss local public attitude toward the proposed development project, from a historic resources perspective.

13. Recommendations

Based on 11 and 12 above, this section will:

(a) where appropriate, recommend preferred project alternative(s),

(b) identify and discuss the need for further studies in Stage 2, and

(c) discuss the appropriate scope of future studies.

This discussion should include:

(d) maps showing precise areas requiring intensive field survey,

(e) justification, where appropriate, for a no-survey recommendation,

(f) a description of areas requiring special field consideration and,

(g) a recommendation indicating the intensive field survey strategy to be used in Stage 2.

14. References Cited

This section shall provide a comprehensive list of all literary sources cited in the overview report such as publications, documents, records, etc. The reference list shall also include the names of persons consulted and cited in the report, as well as the date on which each communication was made.

15. Appendices

A variety of information items may be appended to the overview report. Minimally, this section should include:

(a) a copy of the proponent's or consultant's terms of reference for Stage 1 studies,

(b) a comprehensive bibliography of data sources consulted, but not necessarily cited in the report, which may be useful for future research,

(c) names and addresses of persons or organizations interviewed during the background research phase of the study, and

(d) all [previously] recorded sites in the study area, referenced by their appropriate Borden classification number, as well as sites reported in the literature or through informant interviews.

A detailed Stage 2 research proposal, indicating specific objectives, survey techniques, work schedules, and other information may also be appended to the overview assessment report. However, it must be recognized that significant changes may be required of the proposal before authorization to undertake Stage 2 research is given. Such changes can only be determined once the Historic Resources Division has had an opportunity to review the Stage 1 submission.

APPENDIX B

Persons Consulted

Three hunters who have hunted in this area for the past four years were questioned as to whether they had noticed any unusual features or artifacts during the course of their travels in the vicinity of the proposed generating station. Features such as housepits and hearths were described to them but none could recall observing any such features. The hunters are:

Barry Pike	Hunter	Mt. Pearl, Newfoundland
Aubrey Pike	Hunter	Mt. Pearl, Newfoundland
Wm. Barrett	Hunter	Blaketown, Newfoundland

During the course of a survey of Island Pond in 1987 a day was spent at Conne River discussion the area with residents familiar with the region and the interior with Michael Joe, Sr. who attempted to locate sites of aboriginal origin. The Conne river people reported utilization of the area for trapping and hunting during this century and before, but could provide no specific information regarding sites older that the 1930s. A further conversation with Mr. Jerry Wetzel resulted in essentially the same information. The question of the use of Noel Paul 's Brook as a travel route was specifically discussed and the point repeatedly made that the traditional travel route did not include the portion of Noel Paul 's Brook between Snowshoe Pond and Lake Douglas. The persons contacted are:

Jerry Wetzel
Michael Joe, Sr.
Michael Joe

In 1988 Mr. Wetzel was again contacted with regard to the study area and specifically the portion of Noel Paul 's Brook between Snowshoe Pond and Lake Douglas. He reported that the Conne River people may have had traplines in that area, but repeated that the preferred travel route was to portage between the northernmost part of Island Pond to Noel Paul 's Brook below (*i.e.* to the north of) Lake Douglas, hence outside the study area.

Given that there is no mining in the study area, and logging activity is limited to domestic cutting participants, these two industries were not consulted with respect to historic resources.

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REPORT
DRAFT ONLY

HISTORIC RESOURCES IMPACT ASSESSMENT
PROSSER ROCK BOAT BASIN
ST. JOHN'S

submitted to

PUBLIC WORKS CANADA
Atlantic Region
P.O. Box 2247
Halifax, Nova Scotia
B3J 3C9

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787
St. John's, Newfoundland
A1B 4G3

NOVEMBER 1988

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MANAGEMENT SUMMARY

A detailed impact assessment of the proposed Prosser Rock boat basin concludes that part of the development area, Anchor Point, contains the remains of one of the oldest military fortifications in St. John's. Dating from the late 17th - 18th centuries it had previously gone unrecognized.

Project re-design to avoid impacting the Anchor Point-1 (CjAe-3) site is recommended as is its protection during construction.

This find and its location within the project area presents an opportunity to integrate a significant historic resource into the proposed project.

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INTRODUCTION

An historic resources overview assessment (Penney 1988) of the proposed Prosser Rock development identified military features at Anchor Point (Figure 1). This document is a Detailed Impact Assessment (Stage 2), undertaken for Public Works Canada, under Archaeological Research Permit 88-24, issued by the Department of Culture, Recreation and Youth to further assess the area. The site is named Anchor Point-1. Its Borden number is CjAe-3.

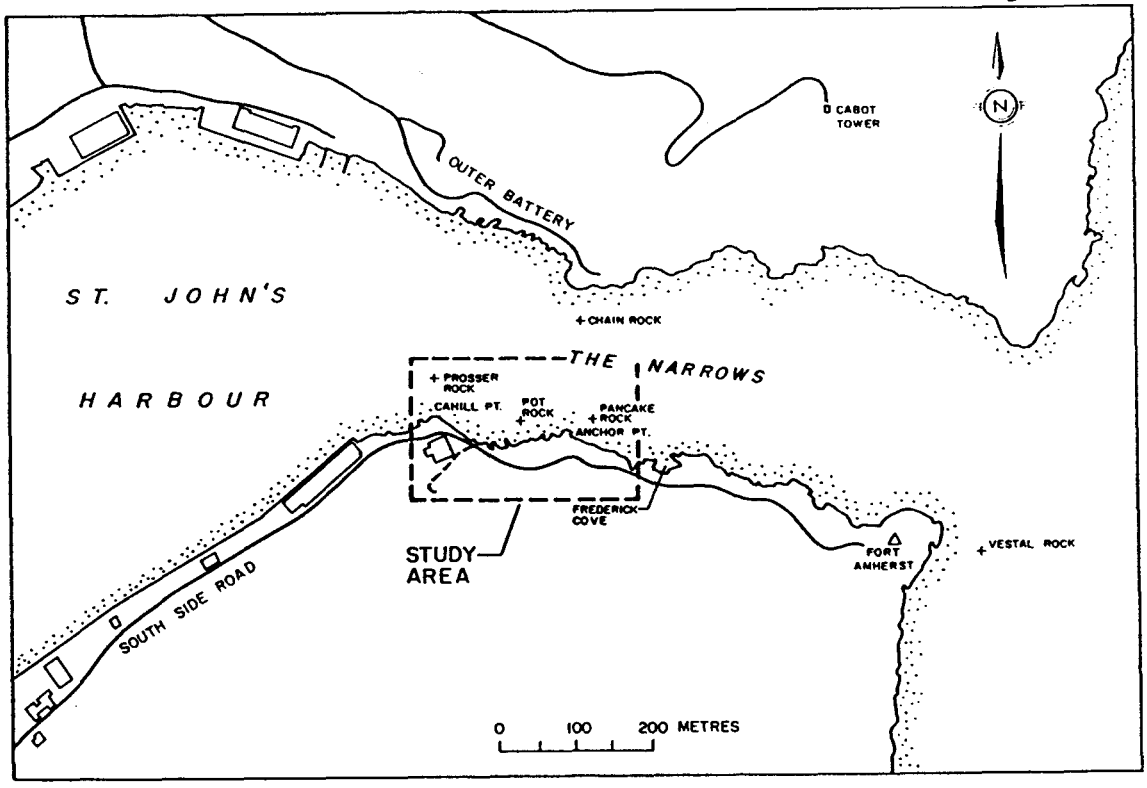

Figure 1: St. John's Harbour and the Narrows

PROPOSED DEVELOPMENT

A proposed boat basin for harbour fishermen includes a breakwater over Prosser Rock shoal from Cahill Point on the west, with a wharf apron, adjacent parking lot and breakwater to be built at Pancake Rock to the east (Figure 2). Plans call for the construction of a 60 m approach breakwater (3 m high) at Prosser Rock and a 110 m main breakwater at Pancake Rock (5 m high). Both will be constructed with treated timber, have concrete decks and armour stone at the seaward face.

The enclosed basin will contain finger piers and a landing wharf to accommodate fishing vessels. The main breakwater will be constructed first with the remainder of the project scheduled for construction in 1989-1990.

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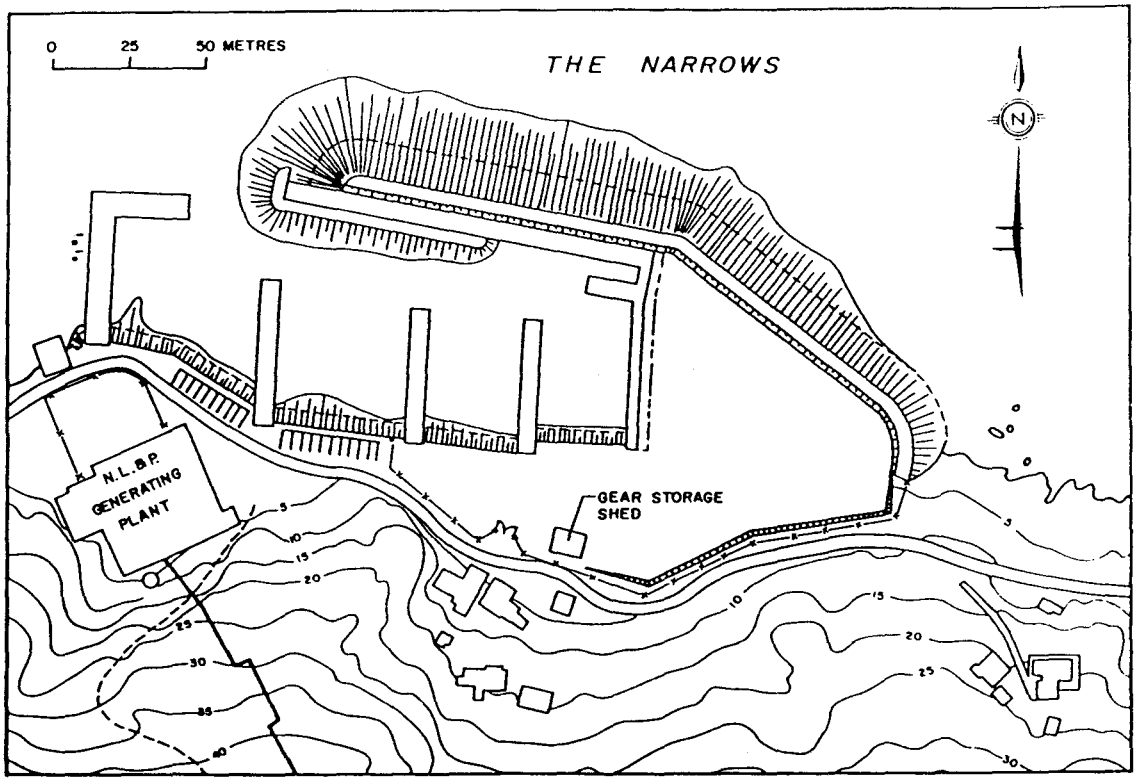

Figure 2: Proposed Prosser Rock boat basin

PROJECT AREA

A cannon and an anchor, cemented into the rock at Anchor Point, are part of chains or booms extended across the Narrows used to prevent the entrance of enemy ships. Numerous drill holes and ring bolts in the rocks at Anchor Point indicate long-term use of the point for marine/military related installations.

An historic resources overview assessment (Penney 1988), conducted in June, identified a mortared stone wall in the cove immediately east of Anchor Point (Figure 3 and Plate 1). Test pits in the field lying south of this wall yielded glass, metal and ceramic artifacts, many with 18th and early 19th century origins.

A Government of Newfoundland and Labrador Historic Sites marker, to the west of Anchor Point, indicates the South Castle, (which it dates from 1690 to 1708), was located in the area. It states the area first had a civic fort which was captured and destroyed by the French under d'Iberville in 1696. Rebuilt as an open battery, with an earthwork parapet in 1697 by Col. John Gibson it was again destroyed by d'Iberville in 1700. Having acquired "substantial new masonry... with bomb proof vaults" it withstood Subercase in 1705, before being totally destroyed by St. Ovide be Brouillon in 1708.

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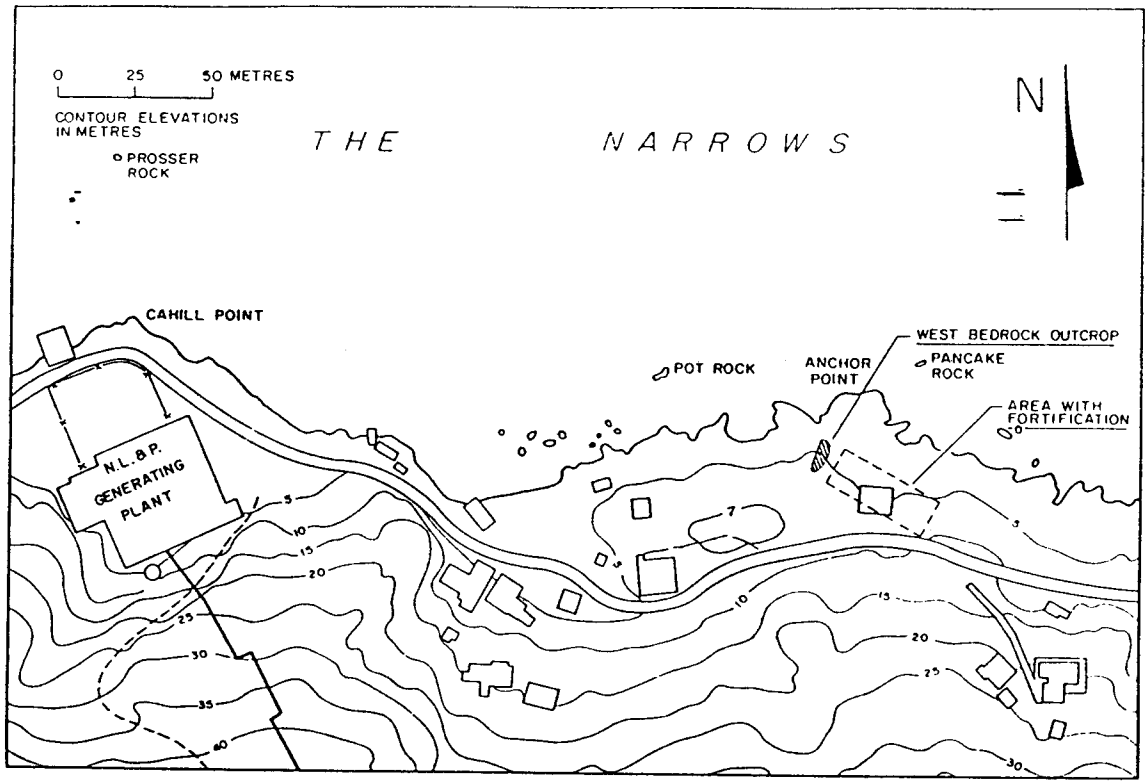

Figure 3: Anchor Point-1 feature location

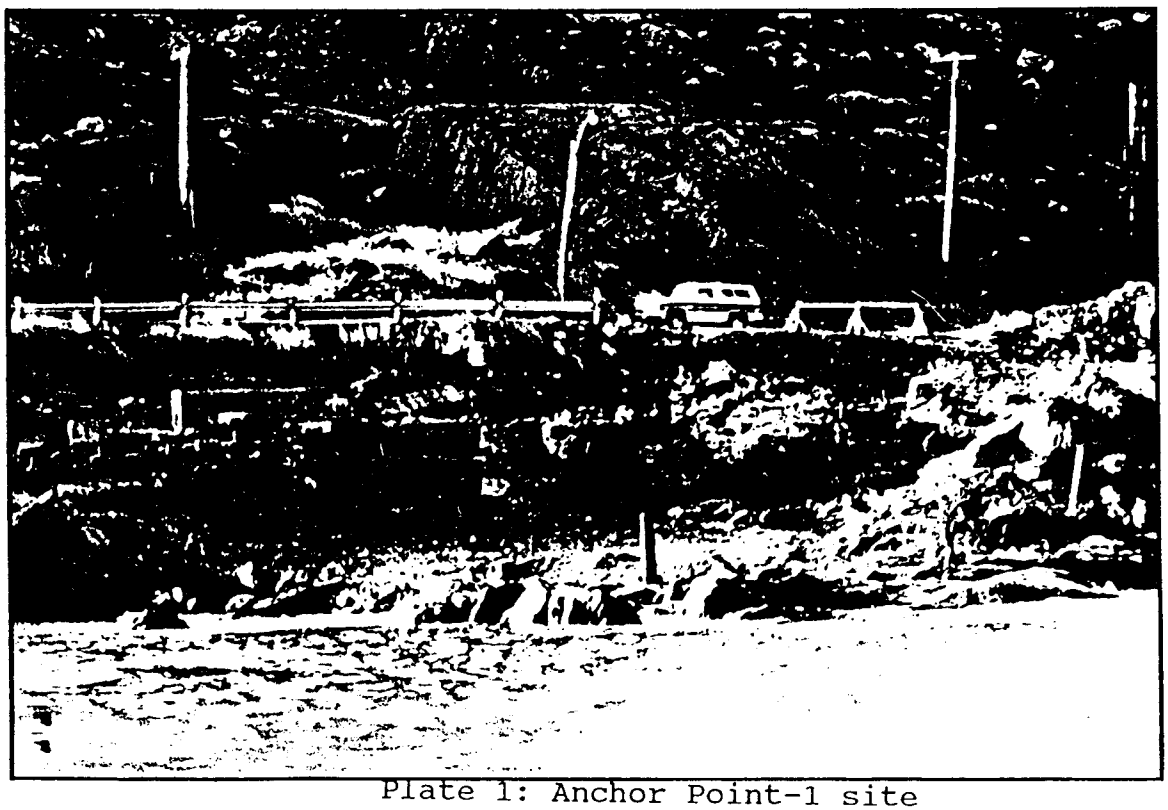

Plate 1: Anchor Point-1 site

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METHODOLOGY

A document search at the Newfoundland Archives, the Centre for Newfoundland Studies and the Map Room, Memorial University, and private collections established the study area's military history.

Field work (03 October 1988 to 31 October 1988) further exposed a wall feature identified in the overview assessment. Artifacts recovered during the excavation were conserved and recorded. Field methodologies followed standards described in Historic Resources Impact Assessment Guidelines (1982) and are described in Appendix 1.

Residents were consulted as to their awareness of historic resources in the study area. Professional advise was sought.

DATA

Documentary data

Both sides of the Narrows were first fortified against pirates, by emerging community leaders, in the last half of the 17th century. Military engineers arrived on the scene only after the outbreak of French / English hostilities in 1689. The south shoreline (from Cahill Point, where the Narrows ends, to Fort Amherst) and north shoreline (from Piggs Point, now the Outer Battery, to North Head) are associated with military installations over the past 350 years.

Fortifications in the Narrows were first consolidated by Capt. Christopher Martin in 1665 and 1667, and used in 1673 against "Hollanders on their way to New York" (Prowse 1972:175). Ring Noone, an earthen platform and embankment, built by local residents sometime in the late 1600's, was abandoned by 1700 in favour of military engineered fortifications. A similar platform, situated nearer the site of the much later Fort Frederick (Janzen 1987:24), was also abandoned by 1700.

Capt. Lilly, of the 1693 Wheler expedition, who laid out the plans for Fort William at the request of St. John's citizens, suggested that guns on the south side of the Narrows be moved to the north side. Whether this took place is unknown, but, by 1698 the Narrows fortification efforts were concentrated at Anchor Point (ibid:26).

Prowse (1972:215) places a small fort east of the study area which, in conjunction with a fort at Chain Rock, helped repel a 1696 French invasion. A French chronicler (ibid:232) places three forts in the harbour (one at the Narrows) but he does not locate them; his account mentions that an eastern fort was burned by the French in 1697.

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Capt. Michael Richards (1703:203) wrote that the most important defensive position in the harbour was the south redoubt which he finished rebuilding in 1702. An unsuccessful 1705 French raid was in part repelled by this new harbour fortification. A Mr. Jackson, chaplain of the St. John's garrison in that year, described the south side battery as a "pretty little castle all of stone and substantial timber" accommodating 30 men (Candow 1979:12).

For the next 40 years St. John's fortifications were allowed to fall into disrepair. A 1748 building effort took place at Frederick Cove with the Narrows chain still fixed at Anchor Point. Four eighteen-pounders were located "on or near the site of the former Southside castle in the Narrows" (ibid:15-16).

By 1779, Fort Frederick (named after Capt. T.L. Frederick, commander of the Newfoundland station from 1777-1778) had taken over the main duties of guarding the harbour. In 1811, Capt. Elias W. Durnford, charged with renewing the city's defenses, reported the barracks at Fort Frederick were "decaying" and that an

> "old stone building on the southside, northwest of Frederick's Battery was used as a barrack for the civilian workmen employed on that side of the narrows. The cable and purchases for laying the boom across the Narrows were also kept there" (ibid:48).

By 1835 the southside forts were abandoned as the positions were not defensible from landward French attacks, such as those from Placentia, in 1708 and 1762. In 1848 the Fort Frederick barracks burned.

The Registry of Deeds has an entry for 26 December 1860 granting the land between the southside and Freshwater Bay to the Board of Ordnance. It is suspected a state of international unrest, including the American Civil War, required use of the area for military purposes. This fortification effort, as well as those of 1915 and 1940, concentrated at Fort Amherst. However, a boom in World War I and an anti-submarine net in World War II were fixed at Anchor Point.

Reciprocal transfers of southside lands from private to military possession were common, the most recent being of the Anchor Point area back to the Holiwell family, from Department of National Defense, after World War II (Layman 1988:personal communication).

Buildings constructed in the 1940's housed men associated with a signals operation at Fort Amherst as well as those with duties pertaining to the anti-submarine nets (Candow 1979:85; Murphy 1981:10-11; O'Neill 1975:94).

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Thornton's map of 1689 shows two fortifications on the south side of the Narrows, Ring Noone west of Anchor Point, and South Forte, east of Anchor Point (Prowse 1972:204). A 1698 map, "A Draught of St. John's Harbour", shows a South Battery east of Anchor Point while Sir Martin Beckman's map of the same year shows a rectangular South Fort, with a battery extending east, at Anchor Point.

An undated map (presumably drawn by Richards, and signed "Brig. M. Richards") shows an eight gun battery (about 30 m long) proximal to the excavated feature and an Old Platforme further to the east at Frederick's Cove. The map is notated on its reverse, "This is related to the Beckman chart - the Old Platform deals with the earliest fortifications of St. John's."

Informant data

Area residents expressed surprise that the wall and its features existed. Generally, they followed the lead provided by the placement of a provincial historic sites marker, on the west side of Anchor Point hill, and indicated they thought any forts or 'castles' would have been located on the hill, the Innis garden (Figure 4; page 22).

Some residents have pipes, musket and cannon shot, buttons, coins and other metal artifacts collected throughout the south Narrows, but especially from Fort Frederick.

The Anchor Point-1 site was last used for building when the Holiwell family erected a house on the site of a burned wartime barracks. After the Holiwell house burned, by 1965, the field was used for gardening and as an animal pasture. To the west, at the rock outcrop forming the west end of the cove, a fishing stage and shed, a small store, and, an early 20th century house stood until the late 1960's.

Over the past 20 years rubble, road gravel, asphalt, concrete and wood debris was dumped along the east and north facing slopes of Anchor Point hill. This fill overlay foundations of 19th and 20th century buildings and has extended the north edge of the hill about 5 m. According to residents most of this fill was deposited over the past 10 years.

Several residents in their 80's recall fishing flakes, wharves, stages and stores throughout the Anchor Point area in the mid-1950's.

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Field data - features

Excavations were carried out over a three week period in October and are described in Appendix 1.

From the bedrock outcrop on the east side of Anchor Point hill a mortared stone wall 1.52 m wide and 4 m high (at its greatest remaining height) extends 29.9 m east south east over a cobble beach (Plate 2 and figure insert). At 20 m east, the wall base rises over another bedrock outcrop. The wall consists of a mixture of rough and cut stones varying in size from cobble to extremely large (as much as 2 tonnes).

Five short, mortared stone walls (Features 1 to 5) extend south, at right angles, from the main wall. Measurements, made at the inside of the main wall, are:

Feature 1, the west wall, is 1.37 m long. It ends shortly before it reaches bedrock.
Feature 2, located 9.74 m east of Feature 1, is 1.67 m long and 2.06 m deep.
Feature 3, 4.87 m east of Feature 2, is 1.22 m long and of undetermined depth.
Feature 4, 4.87 m east of Feature 3, is of undetermined length and depth due to World War II construction disturbance.
Feature 5, the east wall, is 1.95 m long and 50 cm deep.

All are 91 cm wide where they join the main wall.

These divide the structure into four internal units, labelled (west to east) as chambers 1 to 4. Chamber 1, at 9.74 m, is exactly twice the width of the other three (4.87 m) positing a sixth wall between Features 1 and 2. Walls and chambers are classification terms as neither feature is completely defined.

Under a deposit of dark silt, varying in depth from 30 cm to 70 cm, containing a mixture of 18th century to 20th century material, a heavy overburden of rubble extends about 10 m south of the main wall. This rubble is a mixture of rough and cut stones, some with mortar affixed, in a matrix of dark silt and ash. The overburden reaches depths of 2 m below the top of the remaining wall. Three areas were excavated below the rubble fill; in the northwest and northeast corners of chamber 1 (Plate 3), and, all of chamber 4 (Plate 4). All three have a sub-floor of mortared stones containing artifacts of early 18th century origin.

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Plate 2: Main wall looking east

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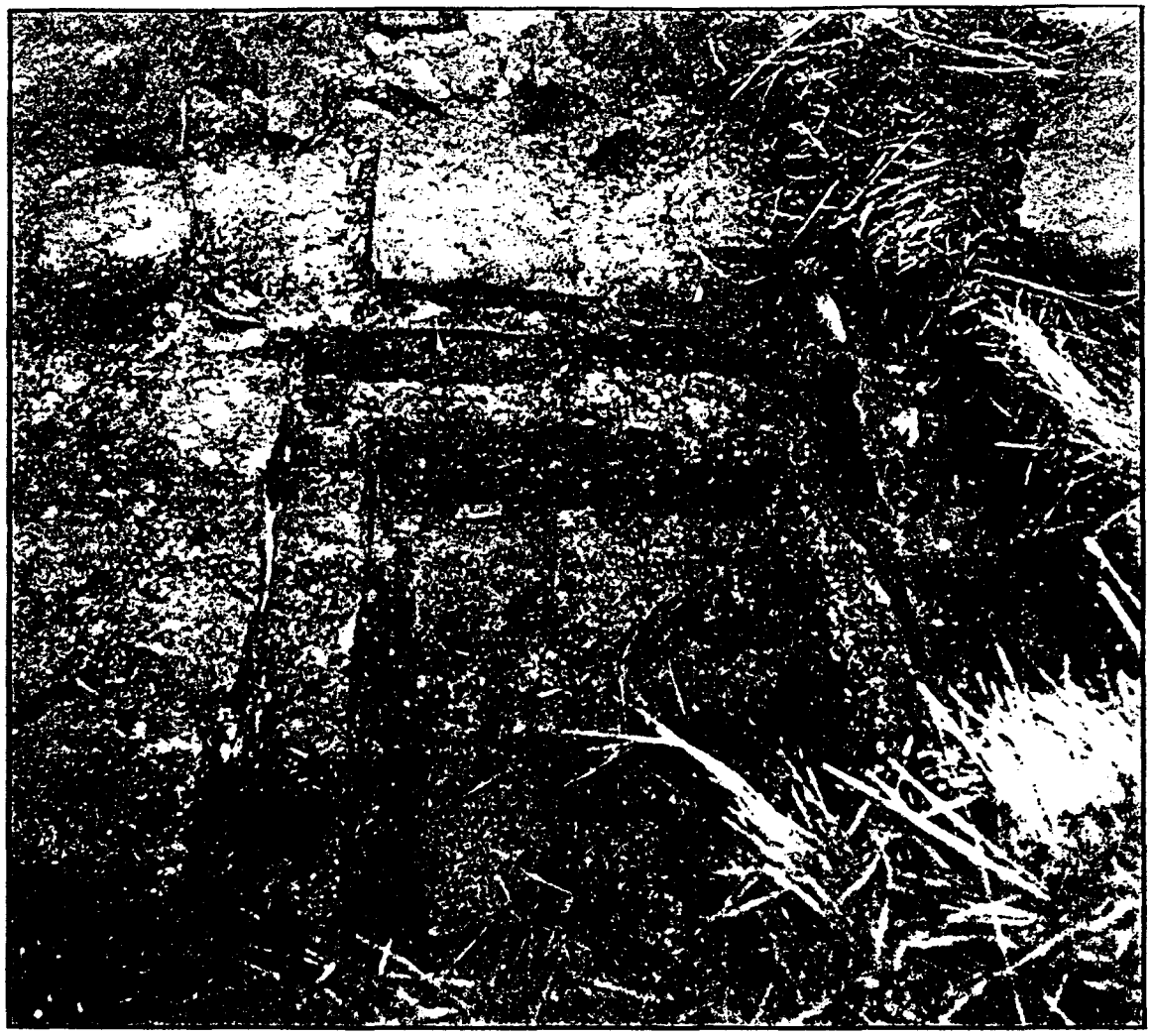

Plate 3: Northwest corner of chamber 1

The sub-floor of chamber 4 has a mortared, cut stone drain. Bedrock, immediately south of the drain, was blasted to more effectively sluice ground water. Efforts to locate the north end of the drain were unsuccessful.

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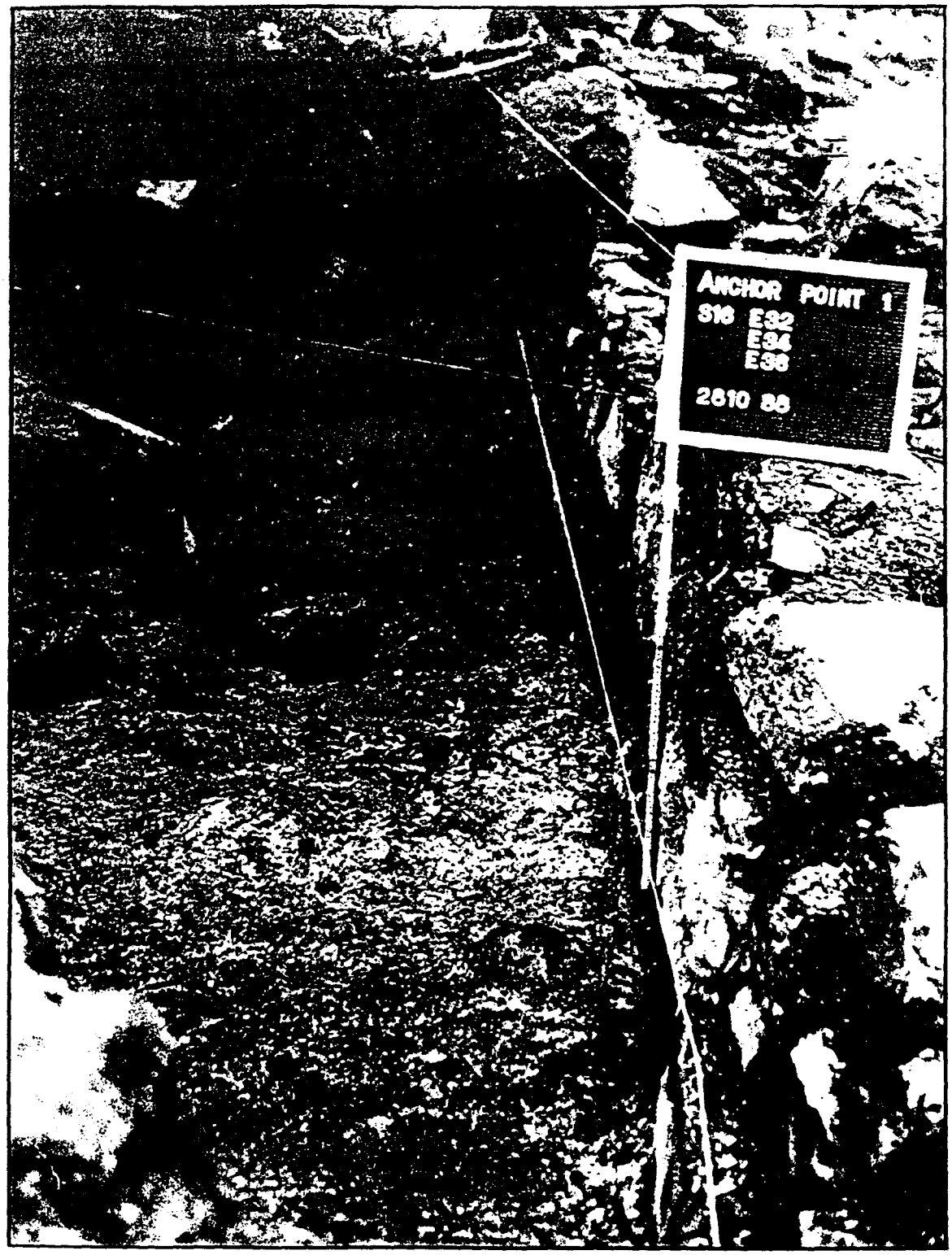

Plate 4: Northwest corner of chamber 4

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Field data - artifacts

Table 1 shows artifact types and numbers from the excavation and includes those recovered during the historic resources overview assessment. An artifact index was compiled and forms Appendix 6.

TABLE 1: Artifacts from Anchor Point-1 (CjAe-3)

ARTIFACT TYPE	# RECORDS	# ITEMS
Bone	67	373
Brass	11	11
Copper	18	28
Earthenware	247	1045
Glass	109	267
Gun flint	13	14
Iron	134	346
Lead	18	20
Pipe	187	1280
Stoneware	51	85
Other	23	32
Total	878	3501

A mixture of 19th century and 20th century artifacts including transfer printed white earthenware, refined white earthenware, cut and wire nails, recent bottle glass and window glass were found throughout the study area. Many 18th and early 19th century artifacts were included in the disturbed level at the plateau.

Eighteenth century artifacts include coarse, red earthenwares with various lead glazes, predominantly green. Some are North Devon wares while others (Plate 5 a,e) are probably of Iberian origin. Such coarse earthenwares were common throughout the 17th century and into the mid-18th century (Grant 1983:51-52).

Gray and blue (salt glazed) Westerwald stoneware sherds found at Anchor Point (Plate 5b) are identified stylistically as dating from the early 18th century (Noel Hume 1970:280). Fragments of English (tin glazed) Delftware earthenware (Plate 5c) were found in undisturbed areas. These are stylistically dated to the early 18th and late 17th centuries (Garner and Archer 1972:19-27).

Fragments of Rhenish stoneware (Plate 5f), of a type commonly found in 'Bellarmine' bottles of the late 16th and 17th centuries, were recovered (Noel Hume 1969:276-278). Examples of 18th century French Saintonge earthenware, with an apple green lead glaze, (Plate 5d) were also found (Barton 1981:68).

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Pipe bowl fragments, found in undisturbed context, are period specific. Many date to the period 1680-1710 (Plate 6a,b, d,f,g) while others (Plate 6c,e) date to the first half of the 18th century as does a stem fragment (Plate 6h) with ornamental bands and the maker's initials, "LE" (Noel Hume 1969:303).

Bottle glass, less common than pipe and ceramic material, found in undisturbed areas, can be dated to circa 1700. One rim fragment (Plate 7a) and a neck fragment (Plate 7e) are diagnostic of the 17th century (ibid:63-64).

A bottle seal (Plate 7b), with the inscription, "A Holdsworth Dartm.", refers to Arthur Holdsworth (1668 - 1726), of Dartmouth. A merchant and fishing admiral (1700 to 1711) he participated in Capt. Richards' plan to have ships deliver Portland stone as ballast for the fortification effort (Hayne and Vachon 1969:291). One such shipment is recorded in a Richards letter from 1702 (Richards 1703:197).

Artifacts highlighting the military occupation of the area include 13 British gun flints (Plate 8a,b,c) and one other, possibly French (Plate 8d); numerous .75 calibre lead musket balls (Plate 8e,f,g); brass friction tubes, used to ignite cannon, (Plate 8h,i); a brass musket band, used to bind the barrel to the wooden stock (Plate 8j); and, a brass button bearing the crest of the Royal Artillery (Plate 8k). The button, found in disturbed context above the rubble, probably dates from the 1790's. Another brass button, with attached wire loop (Plate 7e) is of early 18th century make (Bailey 1971:20-25; Jelks 1973:84-90). Two fragments of broken cast iron cannon balls, one from a 32-pounder the other an 8-pounder, were found in the rubble overburden.

Wrought iron nails (Plate 9a), many with 'rose' heads (Plate 9b) dating to the 18th century, were recovered (Noel Hume 1969:252). Iron tools, including an ax (Plate 9c) and a boat hook (Plate 9d) have an undetermined age. Most iron artifacts are partially mineralized.

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RESOURCE EVALUATION

Any historic resources evaluation of the Anchor Point-1 site must be placed in the historical context of one of the oldest harbours in the New World. Anchor Point, which may at first have been a civilian defense, was fortified by military engineers at the turn of the 18th century.

The site's main wall, with associated features and artifacts, is a well-preserved, intact, example of British colonial fortification.

Considerable effort has gone into Signal Hill National Historic Park and its reconstruction while water level fortifications on both sides of the Narrows, including Anchor Point-1, Fort Frederick and Chain Rock Battery, which predate Signal Hill by a century, are undeveloped.

IMPACT IDENTIFICATION

Technical information contained in Public Works Canada tender document #730481 outlines construction activities to take place at Anchor Point. It calls for complete removal of the Anchor Point-1 site by blasting and earth removal to secure access to the main breakwater planned for Pancake Rock.

IMPACT MANAGEMENT RECOMMENDATIONS

The protection and preservation of the Anchor Point-1 site (CjAe-3) is the major recommendation of this report. This is to be achieved through re-designing the proposed boat basin to exclude the destruction of Anchor Point-1 and by providing adequate protection to the site during construction.

The wall and its features should be further excavated with a plan of incorporating it as part of the proposed Prosser Rock boat basin development.

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Plate 5: Ceramic artifacts

a. coarse earthenware rim sherd with lead glaze (pre 1760)
b. Westerwald rim fragment (pre 1740)
c. Delftware with tin glaze (circa 1700)
d. Saintonge (French) base fragment (circa 1700)
e. coarse earthenware rim sherd with lead glaze (pre 1750)
f. Rhenish stoneware fragment (pre 1740)

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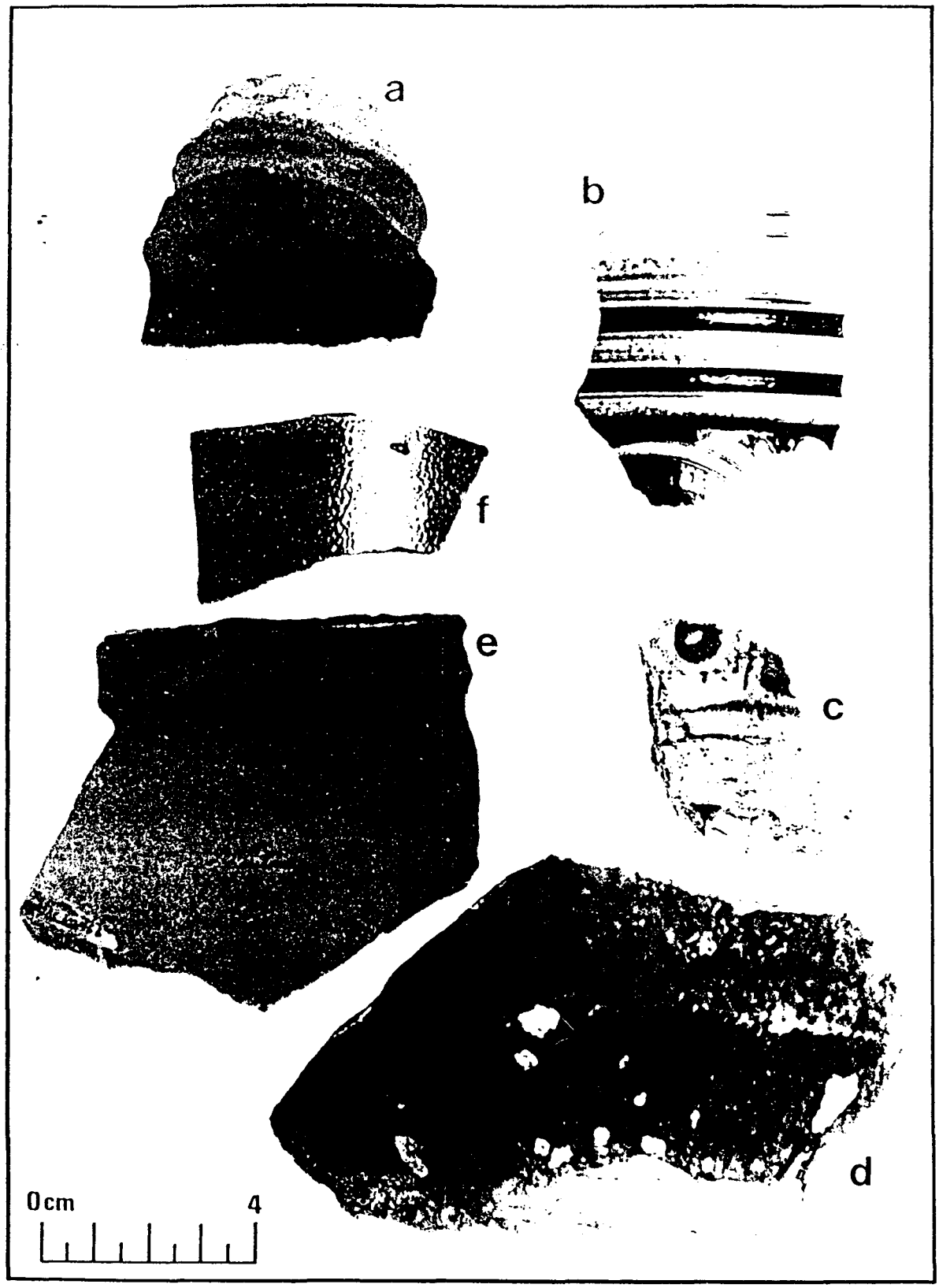

Plate 6: Clay pipe fragments

a, b, d, f and g. English pipe fragments 1680-1710
c. English pipe fragment 1730-1790
e. English pipe fragment 1690-1750
h. English pipe fragment 1700-1750

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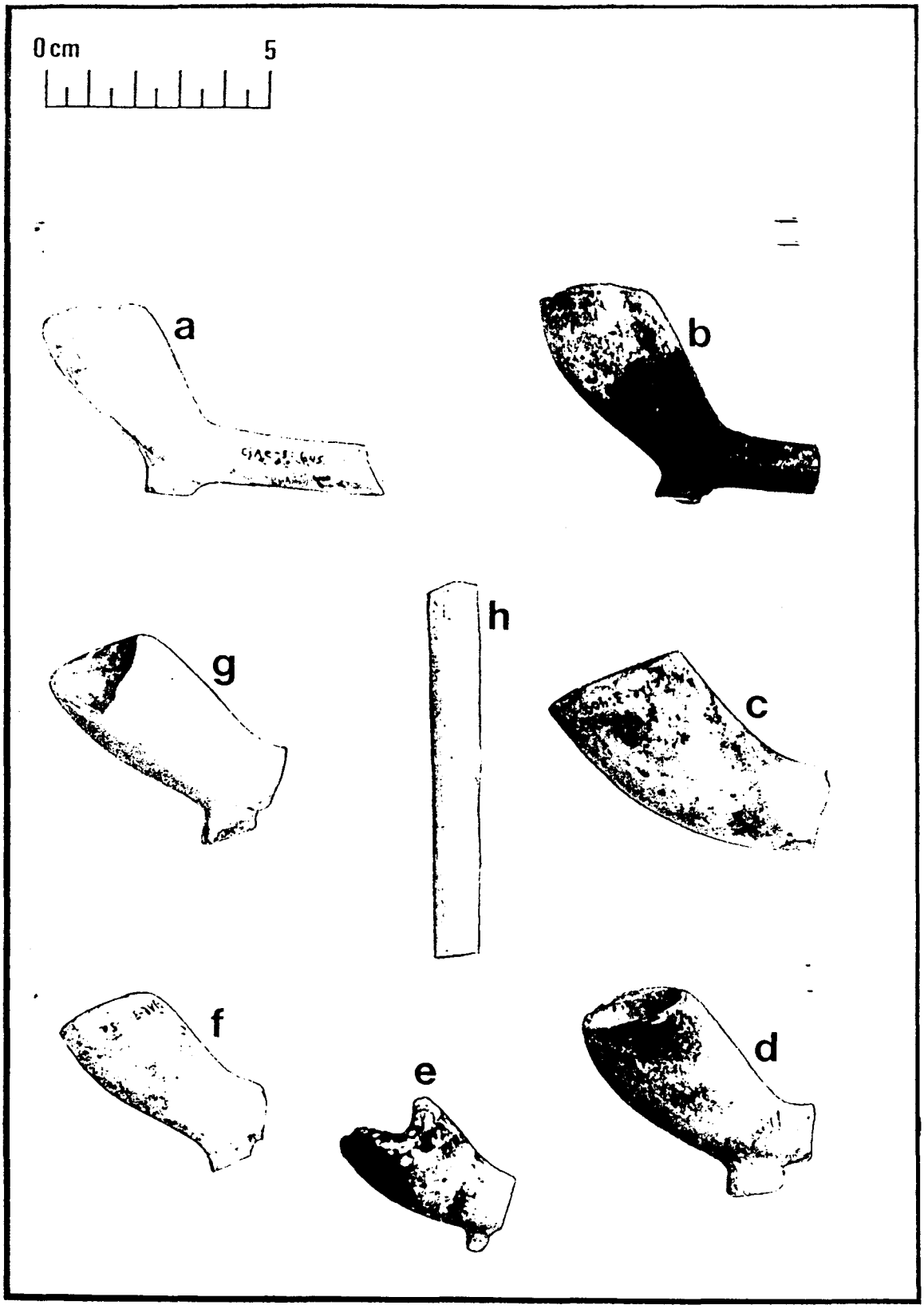

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Plate 7: Other artifacts

a. glass rim fragment (circa 1700)
b. inscribed bottle seal (circa 1700)
c. convex brass button with wire loop (pre-1780)
d. bone button
e. bottle neck and rim fragment (circa 1700)

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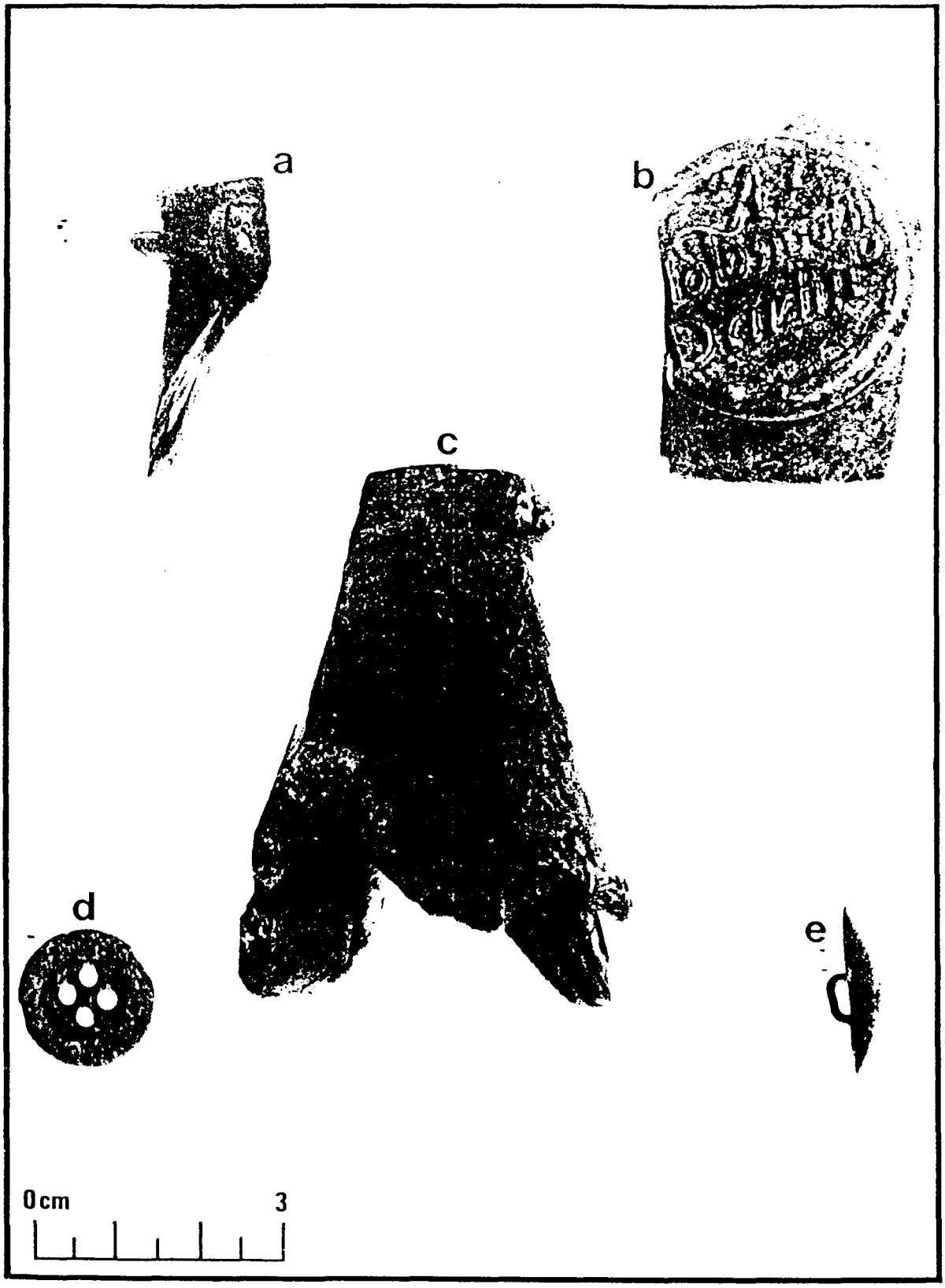

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Plate 8: Military artifacts

a, b and c. English gun flints
d. French gun flint
e, f and g. lead musket balls
h and i. brass friction tubes
j. brass musket band
k. Royal Artillery button

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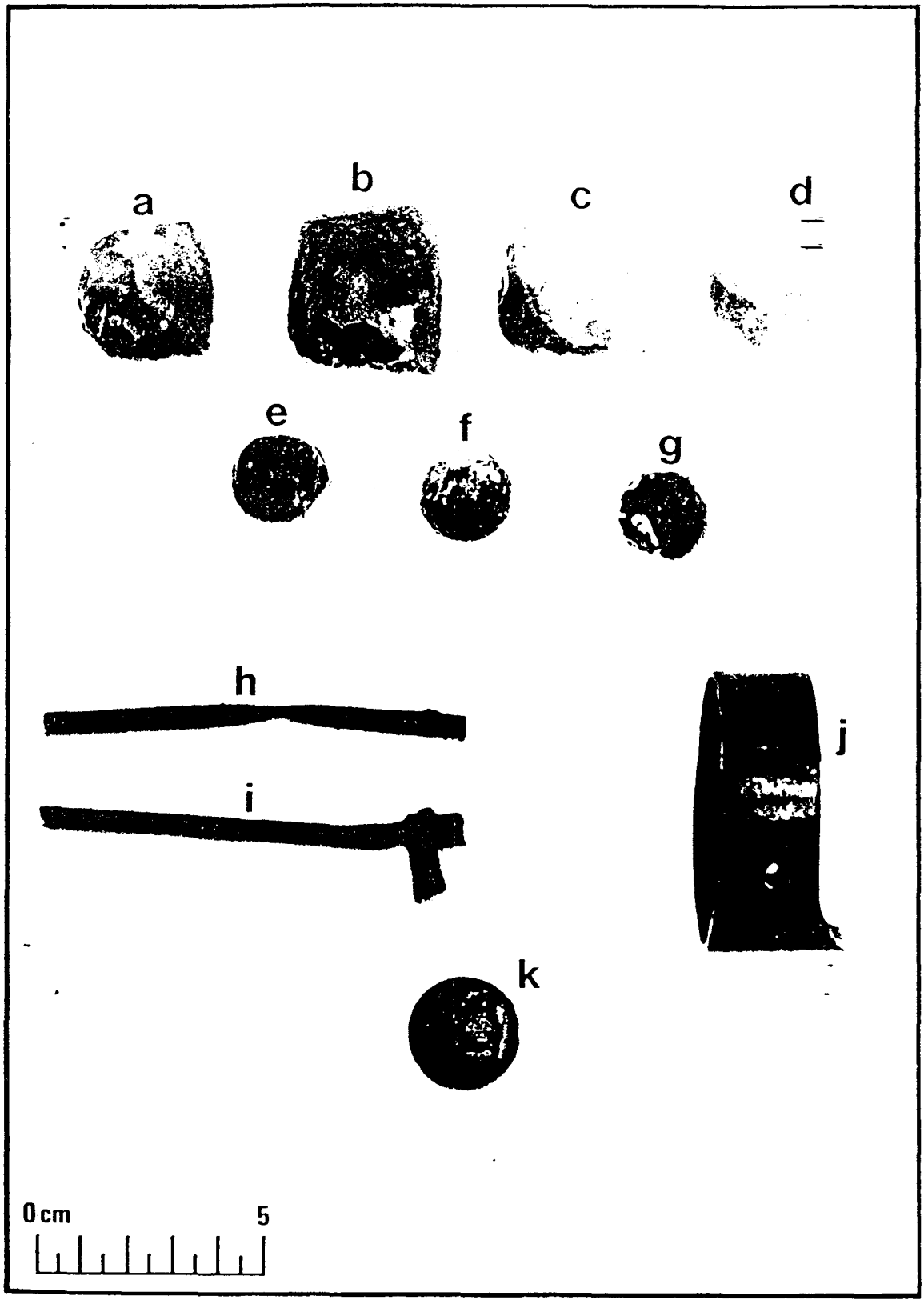

Plate 9: Iron artifacts

a. ax
b. boat hook
c. wrought iron nail
d. 'rose head' nail

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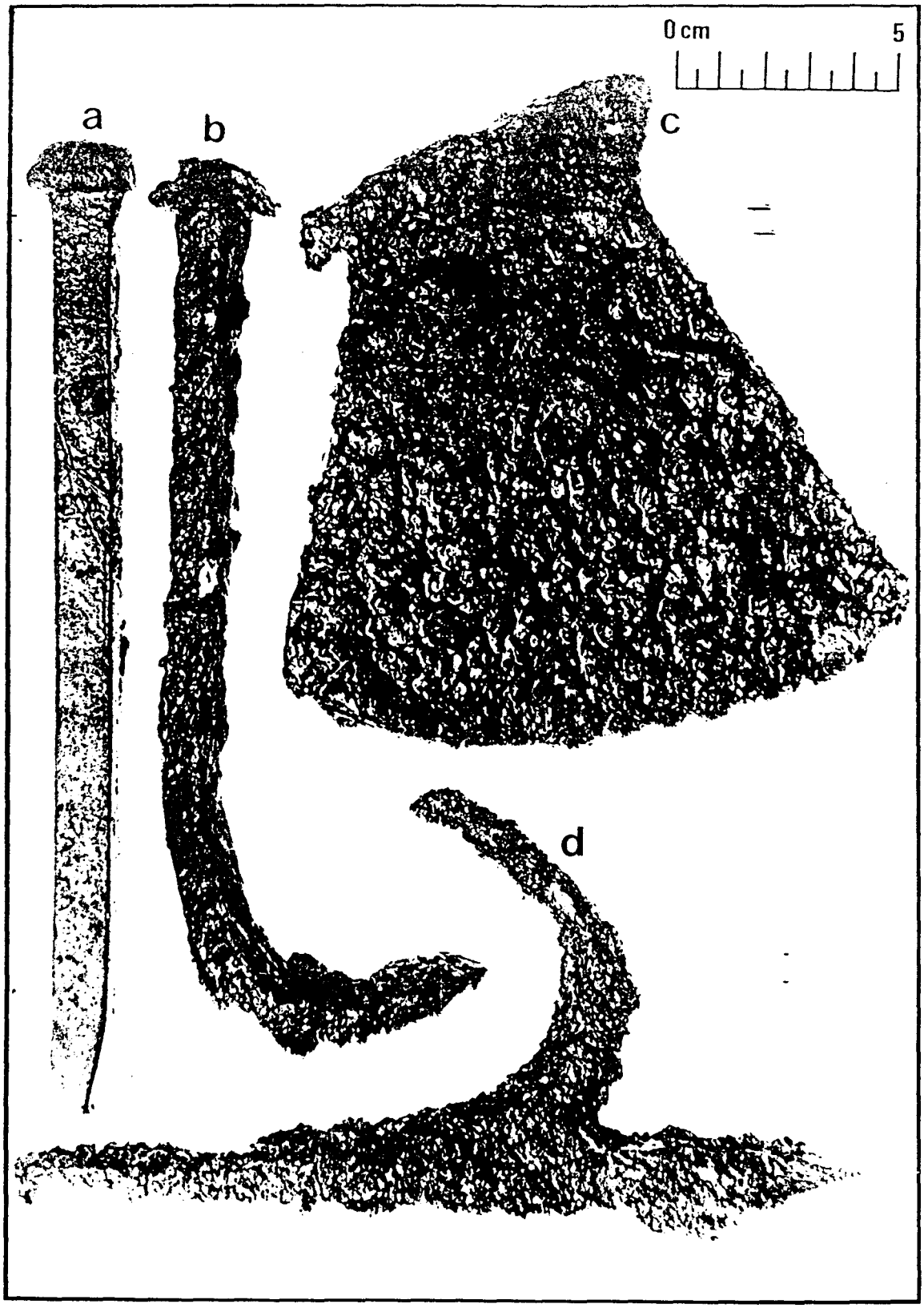

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Appendix 1: Excavation techniques

The main objectives of excavation were:

1. to systematically sample the project area
2. to define dimensions of historically significant areas both horizontally and vertically.
3. to determine the functional and temporal nature of these areas.

A judgemental sampling program was designed using 2 m x 2 m units. Stratigraphy, artifacts and features identified temporal and functional processes.

A 2 m x 2 m grid was established using a boundary marker set in the rock near the study area. From datum, a north-south line was set off and east-west lines were run at 12 m south, 18 m south, and 22 m south (Figure 4). The S22 line continued over Anchor Point hill into the Innis garden where a second grid was laid out. Each 2 m x 2 m square was identified by its southwest corner stake.

The time allocated for excavation (800 - man hours) allowed 256 square metres (64 units of 2 m x 2 m) to be excavated. The Amateur Archaeology Society of Newfoundland and Labrador and other volunteers contributed 118 man hours of labour.

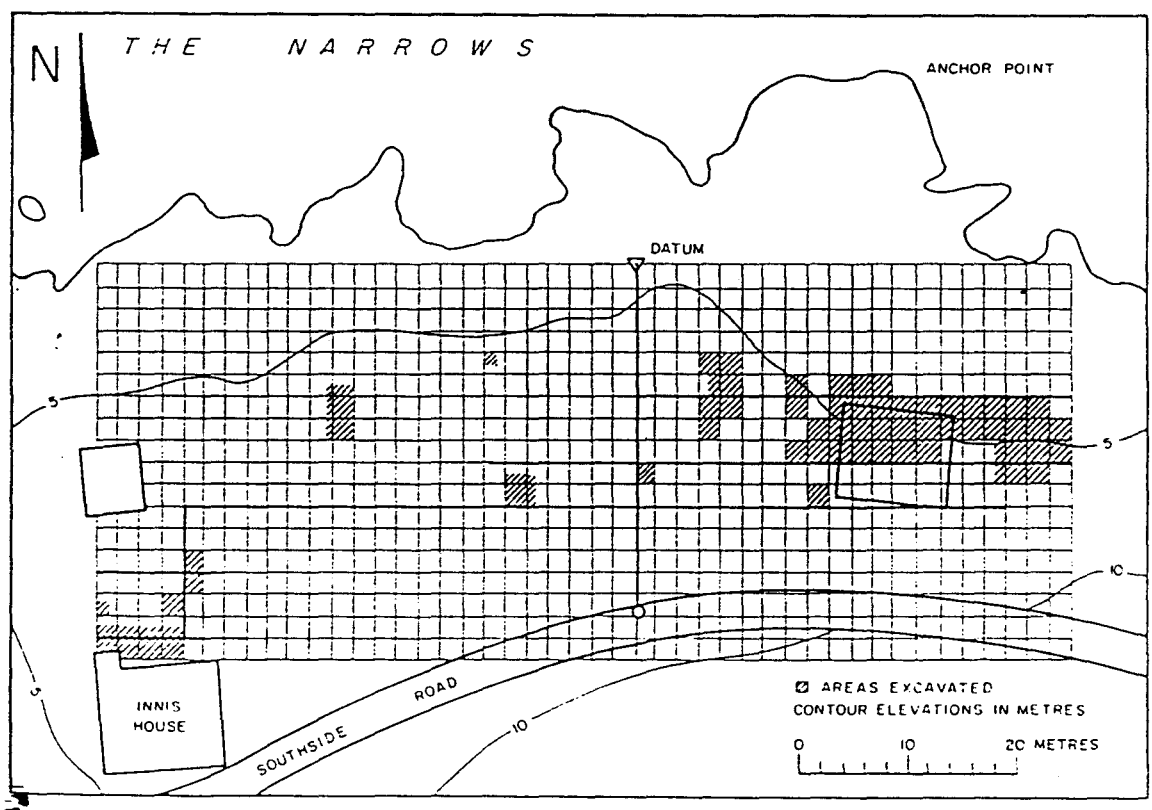

Figure 4: Excavated areas

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The summit of Anchor Point hill, including the Innis garden, was given priority, based on informant and consultative information indicating it would be more likely a location for fortifications than the lower cove. Preliminary testing, during the overview assessment, had not produced any evidence of pre-19th century occupation and this was confirmed by results of excavation throughout the summit and eastern slope areas.

The stratigraphy of the hill summit, first identified during the historic resources overview assessment, consists of a sod layer (averaging 8 cm) overlying a stratum of dark silt (from 2 cm to 24 cm). Beneath the sod and silt levels is a hardpacked substratum of sterile red clay and gravel followed by bedrock. The sod and silt levels, when not totally sterile, produced a mixture of 19th and 20th century material.

A plateau bounded at the north by a mortared wall of mixed rough and cut stone (running east-west between two bedrock outcrops) extends south for 18 m from the wall's north face, to the point where the gravel road bed rises. It contained a World War II cement foundation, once part of a winching system for a submarine net, and a more recent house foundation. Tests in this area revealed differences in both stratigraphy and artifacts from the Anchor Point hill summit.

Beneath a thick sod level is a stratum of dark silt varying between 30 cm and 70 cm. It is underlain by a layer of loose rubble consisting of rough and cut stone, some with mortar affixed. Artifacts, including musket balls, British gun flints, and a brass button bearing the crest of the British artillery, suggest 18th century British military occupation. Others, like recent wire nails and cut nails, suggest disturbance.

Profile 7 shows stratigraphy west of Feature 2. Excavation to a layer of flat stones overlaid by mortar (2.09 m from remaining top of Feature 2) passed through a thin layer of humus; a layer of disturbed silt and stones which does not seem to result from downslope erosion; a thick, loose soil and ash layer; a thin layer ash and mortar; another of silt and ash; and, finally, stones largely devoid of soil matrix.

The three layers containing ash suggest successive phases of construction and destruction. The lowest layer of stones may be the result of intentional filling or destruction. The presence of slag nodules and burnt pipe fragments in situ is indicative of intense burning.

Profile 8 shows a cross section of collapsed wall. The overlying disturbed silt is slope washed from higher elevations, possibly from road construction.

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Generally, once the sod was removed, shovels and picks were used to remove the overburden which, in certain areas, was sifted through 1/4 inch mesh. Each unit was taken down 10 cm at a time with a watch maintained for changes in stratigraphy or for the emergence of features. At the first indication of either shovels were abandoned and the excavation continued using trowels. Normally each unit would be taken down to the sterile, red substratum, but, in certain cases, such as when a unit came down on a wall or other feature, the feature was exposed and mapped.

Anchor Point hill, between the Innis garden and the field, was used as a dump for rubble, fill, road excavation material, snow removed from city streets, and a host of other non-organic construction waste (asphalt and concrete). Mechanized earth removal equipment, a John Deere 310, 4-wheel-drive, rubber-tire backhoe and a John Deere 544E, front end loader, was used to remove it.

Excavated material was stored on top of the hill where test pits, dug during the overview assessment, proved sterile. The bedrock outcrops throughout the area were also used to store the removed material.

A test trench 5 m x 2 m (S16W26 to S14W26), dug into the fill at the north edge of the hill, yielded asphalt and road gravel to three meters. No further effort was made to remove this fill as no historic resources were evident. (Why would you expect to find historic resources in this fill?)

The backhoe removed sod from a 24 m x 12 m section of the battery field; several large boulders from the northeast corner of the structure; major portions of the concrete foundation wall built atop the eastern end of the battery field; sod from a test unit on the eastern slope of Anchor Point hill; and from two large test units in the Innis garden. Why did you use a backhoe to remove sod - was this really necessary - esp. in Innis garden?)

The field supervisor directly oversaw these operations and made decisions as to depth and extent. During removal of the eastern slope fill, digging was continued to the undisturbed occupation level, about the same level as the battery field. Consequent testing in the area from which the fill was removed showed this level to be a thin layer of black silt lying over a hard, packed, red gravel, substrate which was undisturbed. Anything else?

who was field supervisor

Sod removal (Plate 10) was effected under close supervision. Stripped areas were checked immediately and the bottom of the sods were checked for artifacts. Some areas near the western wall end were not stripped so as not to endanger suspected structures. The backhoe operator was skilled and able to remove only sod, leaving the underlying black silt and loam undisturbed.

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In the Innis garden, after sod removal, the backhoe was used to dig to the hard, red, gravel substrate but attempts to break through this were unsuccessful; as well, bedrock was encountered in these test areas.

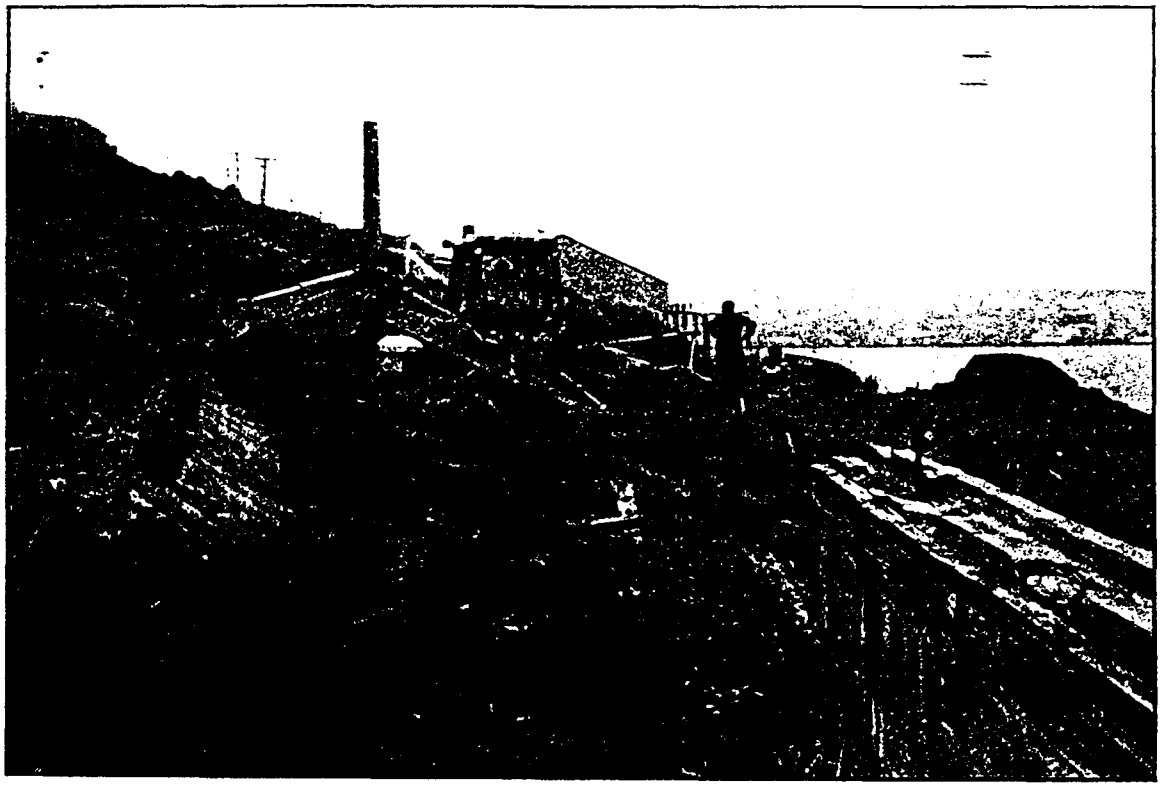

Plate 10: Backhoe sod removal

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Appendix 2: Chronology

03 - 05 October 1988
Field personnel - supervisor
Supervision of mechanized removal of recent fill east of Anchor Point Hill.

06 - 07 October 1988
Field personnel - supervisor, surveyor
Established a 2 m x 2 m grid over the study area. Administrative planning and site preparation.

11 October 1988
Field personnel - supervisor, 1 crew, 1 volunteer

Removed rotten wood and modern rubbish from battery field and Innis garden to facilitate excavation.

12 October 1988
Field personnel - supervisor, 2 crew

Prepared tools and site equipment (screens, wheelbarrows etc). Preliminary digging at western and eastern ends of the visible foundation wall to determine the exact length of the wall and the presence or absence of side walls.

Square S20E16 was dug to determine stratigraphy of the battery field. The unit consisted mostly of dark silt containing a mixture of 19th and 20th century artifacts. The southwest corner of the unit is 24 cm to bedrock, which slopes down to the northeast corner and is overlain there by rubble which starts at the 62 cm depth.

13 October 1988
Field personnel - supervisor, 3 crew

Finished S20E16 and moved into S14E16. Just below the sod, large stones, many of them cut, were found in a dark silt matrix containing 19th and 20th century artifacts. Moved into S14E18 where the sod at the base of the concrete foundation wall was removed. The concrete foundation rested directly on the rubble fill. Sod and silt levels produced recent material, although two 18th century ceramic sherds were found.

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14 October 1988
Field personnel - supervisor, 3 crew

Located the outer northeast corner of main wall at S14E38 and began to excavate S16E36 in an effort to fix the inner corner. Continued to follow the western end of the main wall towards the bedrock outcrop at S08E06 and S08E08 seeking the northwest corner of the main wall. Overburden was removed from S16E18 to reveal more rubble. A gap in the main wall was found at S12E18 and work continued in this area to determine if this represented a feature or a destroyed section.

17 October 1988
Field personnel - supervisor, 7 crew, mapper

Work continued at the northeast corner. The western end of the main wall was located at S08E06 and found to be built up against the bedrock outcrop. Work began at S12E06 to determine if there was a western side wall. Work continued between S14E18 and S14E28 in an effort to differentiate the wall still standing from the rubble fill or tumbled wall lying atop it.

18 October 1988
Field personnel - supervisor, 8 crew, mapper, 1 volunteer

Rubble was photographed and removed at the northeast corner, and the south face of the main wall was uncovered. A portion of the eastern wall (Feature 5) was located and uncovered. Two large stone features, mortared into the wall, at S14E20 (Feature 2) and S14E26 (Feature 3), were tentatively identified as walls separating gunports. The search for the west end moved into S14E06 as S12E06 revealed some mortar and rubble but no intact western wall.

19 October 1988
Field personnel - supervisor, 8 crew, mapper, 1 volunteer

East end excavation continued along the east wall and along an interior wall (S14E36 and S14E38). Late 17th and early 18th century ceramics were recovered from an undisturbed zone. A section of the south face of the main wall was located east of Feature 2 and a second section was found east of Feature 3.

S30W42, in the Innis garden, was dug to bedrock. Averaging 12 cm deep (7 cm of sod and 5 cm of topsoil), wire nails, glass and moulded plastics were recovered. A 1 m x 1 m test unit, in the southwest corner of S28W50, yielded cut and wrought nails and early 20th century ceramics. Both test units indicated recent utilization.

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20 October 1988
Field personnel - supervisor, 9 crew, mapper, 2 volunteers

A backhoe was used to remove the concrete foundation wall; several large stones from the east end excavation; sod from the battery field area (between the S12 and S22 lines, as far west as the E10 line); sod from a 2 m x 3 m area on the east facing slope of Anchor Point Hill (S22W09 to S22W12); sod and topsoil from a 2 m x 8 m area (S33W48 to S33W40); and, a 2 m x 6 m area (S26W38 to S32W33). The last two areas are in the Innis garden.

Sod and topsoil on east facing slope of the hill was removed to reveal a hard-packed, undisturbed, gravel substrate atop bedrock.

In the Innis garden the topsoil averaged 12 cm in depth. S33W48, a recent vegetable garden, formed of imported (or made) soil, had an average topsoil depth of 25 cm. Screened topsoil from these areas yielded recent artifacts (mostly nails) including window glass, plastics and metal.

Excavations along the north face of the wall continued.

21 October 1988
Field personnel - supervisor, 7 crew, mapper, 1 volunteer

The northeast (inside) corner was excavated to 54 cm below the top of the remaining wall. An undisturbed layer of mortar, charcoal and silt, designated as level 2, was found. Bedrock encroaches to the east wall about 1.2 m from the inside corner indicating the area may have been floored over. Charcoal deposits found here may be burnt flooring or gun platforms.

Excavations continued to define Features 2 and 3 and continued along the north face of the wall. S14E06 and S14E06 were completed but the west wall was not found. Both units produced rubble and mortar with a mixture of 18th to 20th century artifacts without stratigraphic context. Moved to S10E14 and S12E14 to determine the nature of a gap in the wall there.

22 October 1988
Field personnel - supervisor, 8 crew, mapper, 3 volunteers

A 2 m wide transect along the S16 line (between E14 and E30) was started to determing the depth of the rubble and to locate possible interior features. Beneath a thick deposit of silt (averaging 40 cm) containing a mixture of 18th to 20th

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century material, rubble was found. One rubble section (between S16E23 and S16E25) was dug to a depth of 1 m. Cut stones and mortar, with associated 18th century artifacts, were found.

24 October 1988
Field personnel - supervisor, 7 crew, mapper, 3 cataloguers

A fourth north-south wall (Feature 4) was found 4.87 m west of the northeast corner of the main wall. Of undetermined length, due to a recent concrete block built atop it, the wall is 91 cm wide where it joins the main wall.

Excavation continued at the west side of Feature 2 to determine floor level. The area to the west of Feature 2 is composed entirely of stone rubble of various sizes throughout. Artifacts recovered were exclusively of 18th century origin.

Excavation at S16E18, S16E16 and S16E14 continued to a depth of 80 cm. Large rubble stones, some with mortar, underlie the dark silt found throughout the area. Numerous 18th century artifacts were found in this section.

Soil removed from test areas in the Innis garden was screened.

Artifact cleaning, cataloguing, and, preliminary conservation began.

25 October 1988
Field personnel - supervisor, 8 crew, mapper, 2 cataloguers, 1 volunteer, conservator

A 3 cm lens of charcoal, rich in early 18th century cultural material, was excavated in the northeast corner (S16E32 to S16E36). A third level, a 10 cm mortar layer, yielded similar cultural material, although in reduced quantity.

Excavation along the east-west trench at S16, between E14 and E20 continued. Huge boulders and cut stones hampered efforts to determine features or floor levels. West of Feature 2, a mortar and stone floor was found some 2.04 m below the top of the feature.

Soil screening in the Innis garden continued. A 4 cm to 8 cm sod layer overlies a dark silt layer 10 cm to 20 cm in depth. Under this, hard, packed, undisturbed, red clay and gravel was found. The sod and silt layers contained a mixture of 19th and 20th century material.

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26 October 1988
Field personnel - supervisor, 7 crew, mapper, 2 cataloguers, conservator

At S10E08 a fifth north-south wall (Feature 1) was found. Excavation continued in an effort to determine if this is the west wall of the main structure.

Excavation continued in the northeast corner and along the north face of the main wall.

Test squares were dug at S18E00 and S08W12. In S18E00 recent gravel fill overlay sterile, red subsoil. In S08W12 a 10 cm sterile, dark silt overlay bedrock.

27 October 1988
Field personnel - supervisor, 7 crew, mapper, 3 cataloguers, conservator

Excavations inside and outside the northeast corner, along the north face and at S10E08 continued. At the interior northwest corner a rubble layer of stone and mortar was encountered at 94 cm below the top of the remaining wall. A 5 cm wide ledge is built into the top of this corner.

28 October 1988
Field personnel - supervisor, 7 crew, mapper, 3 cataloguers, conservator

General excavation and cleanup continued along the north face of the main wall and inside the northeast corner where a portion of blasted bedrock once facilitated drainage into a 20 cm by 14 cm drain (Plate 11) built into the rubble fill. The drain is 2.65 m west of the interior northeast corner.

Excavations continued along the westernmost wall at S10E08 and into S12E08 to determine southern wall extension. At a level of 50 cm below the wall top, on the exterior, rubble stones, some with mortar, were encountered.

Excavations along the north face of the main wall continued.

29 October 1988
Field personnel - supervisor, 7 crew, mapper, volunteers, 2 cataloguers, 15 volunteers, conservator

Completed excavations along the wall and around features. The east corner was excavated to the bottom (1.5 m below top of wall) outside the wall. A layer of mortar and stone, possibly a construction deposit, was found. Ceramic fragments and a broken cannonball were found at this level.

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Plate 11: Chamber 4 drain (lower left)

Excavations continued at S6E8 and S12E8. The inside corner of a wall was found but the outside was tumbled or eroded before filled over. South of this area and west of it two areas of bedrock were drilled and blasted to accommodate a corner stone which is no longer present. The interior corner was excavated to a depth of 55 cm below the existing wall where a mortared stone floor (or subfloor) was found.

Volunteers concentrated their efforts on the western end of the east-west trench between S16E14 and S16E18. The trench was dug to an average depth of 1.2 m and yielded early 18th century material throughout a matrix of small to large stones, some of which are cut and set. The rubble is most likely destruction of structures once built on the site and an undisturbed level may still exist below it.

31 October 1988
Field personnel - supervisor, 2 crew, mapper, 2 cataloguers, 1 volunteer, conservator

Final work cleaning features for photography.

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Appendix 3: Conservation

Conservation of artifacts initially took place on site in a field laboratory. Six artifact types were excavated each requiring different conservation methods.

Recovered ceramics are very stable. After washing in fresh water using a natural bristle brush, and drying, artifacts were catalogued, wrapped in microfoam for protection, and, stored in plastic containers. Four artifacts were reconstructed using a PVA emulsion glue, chosen for its reversibility properties.

Glass sherds, particularly thick, green bottle sherds, exhibited devitrification (a leaching of potassium, calcium and lead oxide fluxes from the silica matrix identified by iridescence and surface flaking) and required treatment. These were kept wet until subjected to chemical drying using ethanol and acetone. Consolidation was effected by using a 2.5% arcyloid B72 and a 10% arcyloid B72 in acetone solutions. The lower concentration was applied first and, in very fragile pieces, the stronger solution was used. Once treated, these glass artifacts must be stored in an environment of less than 40% relative humidity. Stable glass artifacts were treated and stored in the same manner as ceramic artifacts.

Pipe stem and bowl fragments, after a wash in fresh water and air drying were catalogued and stored as above.

Bone fragments exhibited good preservation and after cleaning in fresh water were consolidated using a 24-hour treatment of Rhoplex AC-33.

Leather and textiles were unfolded and cleaned in the field, supported in coroplast and microfoam and sprayed with a solution of 25% isopropanol in water, wrapped in plastic and refrigerated to prevent mould growth. Further conservation will include mechanical and chemical cleaning and impregnation with polyethylglycol and freeze drying, such methods to be determined by the individual artifact needs.

Metal artifacts were kept wet and will remain in water until treatment is complete. Artifacts of copper and iron are stored in distilled water; lead in fresh water. Separate tanks for each type of metal were maintained in the field. Artifacts were stored under wet towels during cataloguing.

Iron artifacts were in generally poor condition with heavy corrosion layers. X-rays of objects were made to better determine object shape. Each object was wrapped separately in gauze and stored in polypropylene mesh in distilled water. Iron will be stored in a 2% solution of sodium hydroxide to remove chloride ions and aid in the removal of concretions. Chloride ion concentrations will be monitored monthly using a Orion Research solid state chloride electrode; an Orion Research double-junction

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reference electrode; and, a Fisher Accument (model 114) pH meter. Once chloride ion concentrations are sufficiently reduced artifacts will go into a 5% ethylenediamine solution to remove all chloride ions and convert iron hydroxides into iron oxides. De-watering in acetone and treatment with a 2.5% tannic acid solution will complete the two year conservation process.

Copper artifacts will be de-watered in ethanol for 24 hours and mechanically cleaned to remove copper chloride carbonate and oxide corrosion. Artifacts will be stored in a 3% solution of Benzotriazole and ethanol under vacuum to prevent further copper ion corrosion. A final 3% solution of B72 in acetone will be applied to protect against dust and moisture.

Lead carbonate corrosion is not damaging when in a stable environment, but, the presence of organics in the corrosion layer can damage. Artifacts were cleaned by soaking in diethylene-triamine pentacetic acid (DTPA) heated to 55-60 Centigrade. Further cleaning will occur using electrolysis to convert the lead carbonate corrosion to lead liberating carbon dioxide. Artifacts will then be de-watered in acetone and coated with microcrystalline wax.

All artifacts will be deposited at the Historic Resources Division, Department of Culture, Recreation and Youth, in a conserved condition.

Appendix 4: Cataloguing

Artifact cataloguing was performed on the standard Archaeological Artifact Record Sheet - Newfoundland and Labrador, provided by the Historic Resources Division, Department of Culture, Recreation and Youth.

Each artifact, or group, was given an object name, Borden number and sequential catalogue number. Other, more specific information concerning nature, size, and, condition was included, along with site name, excavator, collection method, principal investigator, cultural affiliation, date collected, and, type of material. The 3,501 individual pieces were catalogued on 878 record sheets.

After initial cleaning various cataloguing techniques were used, depending on the type of artifact.

Iron articles were removed from fresh water, measured and traced on the record sheets. Objects were checked for mineralization using a magnet. Once the information was recorded objects were wrapped and tied in gauze, bagged in polypropylene mesh, marked with permanent labels showing the Borden number (EjAe-3) and the sequential record sheet number, and, stored in

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distilled water. About 5% of the recovered nails were catalogued and then discarded as the conserved sample is adequately large. Some larger items (cannonballs) were stored, unwrapped, in distilled water.

Other metals (lead, copper and brass) were returned to freshwater storage after cataloguing.

Bone and dry artifacts were cleaned and catalogued. Objects recorded on each sheet are labelled and stored in plastic containers. Objects catalogued separately were measured. Objects too large for plastic containers were wrapped and tied in microfoam, stored in plastic bags and labelled.

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Appendix 5: Artifact index

ANCHOR POINT-1
(CjAe-3)
ARTIFACT LISTS

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Bone	s14e22		1	014
Bone	s12e30	bone handle	1	030
Bone	s12e30	cut bone (#30)	1	031
Bone	s14e28	bird bone	1	037
Bone	s16e18	cut bone	2	056
Bone	s14e34	rib bone	1	063
Bone	s14e30	shaped, holes	3	070
Bone	s30w42	cut	1	093
Bone	s14e36	bird bone	2	114
Bone	s14e30	cut	3	117
Bone	s14e26	bird bones	9	125
Bone	s12e32	bone button	1	138
Bone	s14e30	mixed unknown	6	141
Bone	s16e26	bone, tooth	2	143
Bone	s14e32	mixed	7	161
Bone	s16e36	cut	1	170
Bone	s16e36	frags	2	205
Bone	s16e34	frags	6	216
Bone	s14e36	tooth	1	284
Bone	s16e32	unknown	3	288
Bone	s16e14	tooth	1	294
Bone	s34w42	tooth	1	295
Bone	s14e34	vertebra	1	318
Bone	s16e36	cut, polished	1	376
Bone	s34w44	pig tooth	1	411
Bone	s14e30		1	423
Bone	s34w42	cut	1	437
Bone	s14e26	teeth	2	446
Bone	s14e26	tooth	1	450
Bone	s16e14		1	468
Bone	s16e32	mixed	12	505
Bone	s14e32	cut bone	1	507
Bone	s14e34	cut	5	514
Bone	s16e34	tooth	3	516
Bone	s12e30	vertebra	1	525
Bone	s12e24	cut	1	527
Bone	s16e34		4	534
Bone	s16e32		1	537
Bone	s16e34	cut	1	539
Bone	s16e18	mixed	5	560
Bone	s12e36		2	604
Bone	s14e34		4	607
Bone	s14e34	cut	1	626
Bone	s12e32	button	1	646
Bone	s12e08	tooth	1	688

Bone	s14e38	cut	2	723
Bone	s16e34	cut	2	732
Bone	s12e32	tooth	1	736
Bone	s10e08	frag	6	783
Bone	s14e28	cut	11	784
Bone	s16e16	tooth	1	792
Bone	s16e14	tooth	1	794
Bone	s16e14		5	798
Bone	s12e32	cut	2	829
Bone	s16e18	frags	21	852
Bone	s16e36	fish bone	21	854
Bone	s16e36	mammal frags	23	855
Bone	s16e36	mammal and bird	26	856
Bone	s16e36	mammal	3	857
Bone	s12e08	mixed	4	858
Bone	s14e18	mixed	4	859
Bone	s10e18		1	860
Bone	s16e34	mixed	24	861
Bone	s16e34	mixed	3	862
Bone	s16e34	mixed	75	863
Bone	s16e34	mixed	25	865
Bone	s16e34	mixed	5	871

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Brass	s12e24	friction tube	1	388
Brass	s12e34	friction tube	1	445
Brass	s12e30	musket band	1	581
Brass		button	1	587
Brass	s16e26	unknown	1	594
Brass	s12e34	button	1	674
Brass	s28w50	unknown	1	706
Brass		button	1	830
Brass		button	1	831
Brass	s12e34	friction tube	1	833
Brass	s10e22	friction tube	1	835

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Copper	s18e34	Copper tube?	1	041
Copper	s10e14	unknown	1	218
Copper	s14e18	unknown	2	219
Copper	s10e22	coin	1	220
Copper	s18e36	button	1	221
Copper	s16e36	unknown	1	222
Copper	s12e32	sheet metal fra	8	224
Copper	s14e34	unknown	1	240
Copper	s14e20	coin	1	260
Copper	s14e20	spoon	1	261
Copper	s16e18	1760's coin ?	1	473
Copper	s16e16	unknown	1	477
Copper	s16e34	pipe	1	584

Copper	s16e26	nail	1	596
Copper	s14e20	unknown	1	667
Copper	s34w48	nail	2	668
Copper	s12e08	unknown	2	832
Copper		unknown	1	834

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Earthenware	s18e34	crse,noglaze	8	006
Earthenware	s18e34	crse, glazed	4	010
Earthenware	s10e14	crse, glazed	1	011
Earthenware	s16e22	crse, noglaze	3	015
Earthenware	s18e36	crse, glazed	3	016
Earthenware	s10e14	glazed, mixed	9	017
Earthenware	s16e22	crse, glazed	4	019
Earthenware	s18e36	crse, glazed	2	022
Earthenware	s16e14	crse, glazed	8	024
Earthenware	s12e24	glazed	1	026
Earthenware	s12e24	crse, devon	3	027
Earthenware	s18e36	crse, devon	1	028
Earthenware	s16e18	crse, noglaze	5	029
Earthenware	s18e36	crse, noglaze	10	035
Earthenware	s16e36	glazed	3	042
Earthenware	s18e34	crse, devon	5	043
Earthenware	s12e24	crse, noglaze	3	044
Earthenware	s18e34	devon, glazed	3	045
Earthenware	s12e22	crse, glazed	2	048
Earthenware	s16e36	crse, black gla	1	049
Earthenware	s12e36	crse, devon	1	053
Earthenware	s14e20	crse, devon	9	058
Earthenware	s18e34	crse, glazed	1	059
Earthenware		crse, glazed	1	060
Earthenware	s14e34	crse, glazed	1	065
Earthenware		crse, noglaze	2	066
Earthenware	s14e18	glazed, devon	13	071
Earthenware	s10e20	crse, glazed	1	073
Earthenware	s12e22	crse, glazed	1	080
Earthenware	s12e26	crse, devon	18	084
Earthenware	s10e20	crse, devon	26	086
Earthenware	s16e26	crse, devon	13	088
Earthenware	s14e30	refined	6	090
Earthenware	s14e30	mixed crse	4	091
Earthenware	s12e32	refined	1	092
Earthenware	s14e26	refined, glazed	1	097
Earthenware	s14e24	mixed	9	099
Earthenware	s16e34	crse, glazed	2	101
Earthenware	s14e36	crse, glazed	1	109
Earthenware	s12e30	crse, mixed	4	110
Earthenware	s16e34	crse, noglaze	1	111
Earthenware		crse, mixed	2	113
Earthenware	s18e36	crse, mixed	2	116
Earthenware	s12e32	glazed	1	118
Earthenware	s18e32	glazed, devon	5	119

Earthenware	s16e36	crse, glazed	4	124
Earthenware	s16e26	glazed, devon	29	126
Earthenware	s14e28	crse, glazed	1	130
Earthenware	s14e36	crse, glazed	2	131
Earthenware	s16e26	crse, mixed	15	134
Earthenware	s34w46	crse, glazed	1	140
Earthenware	s34w46	refined, glazed	7	142
Earthenware	s10e14	crse, glazed	2	151
Earthenware	s10e14	crse, glazed	1	153
Earthenware	s10e14	glazed	2	155
Earthenware	s14e18	glazed	2	157
Earthenware	s14e32	glazed, devon	5	159
Earthenware	s16e34	crse, glazed	2	163
Earthenware	s18e34	crse, noglaze	1	166
Earthenware	s18e34	crse, glazed	5	168
Earthenware	s12e14	glazed, devon	6	173
Earthenware	s18e36	crse, glazed	1	174
Earthenware		crse, glazed	1	177
Earthenware		glazed, devon	1	178
Earthenware		crse, glazed	2	180
Earthenware	s14e18	crse, noglaze	1	181
Earthenware	s14e18	crse, glazed	2	183
Earthenware	s14e18	crse, glazed	1	185
Earthenware	s16e34	crse, devon	11	197
Earthenware		refined, glazed	5	203
Earthenware	s16e32	glazed, devon	2	206
Earthenware	s14e26	glazed, devon	1	208
Earthenware	s18e34	crse, glazed	1	210
Earthenware	s16e34	crse, glazed	6	217
Earthenware	s16e18	crse, mixed, gl	14	246
Earthenware	s16e18	crse, glazed	4	251
Earthenware	s12e08	crse, mixed	2	270
Earthenware	s14e34	mixed	4	271
Earthenware	s18e32	crse, glazed	9	273
Earthenware	s14e16	crse, glazed	3	277
Earthenware	s12e08	mixed, glazed	2	280
Earthenware		crse, glazed	6	292
Earthenware	s12e08	crse, mixed	17	296
Earthenware	s16e36	crse, glazed	2	297
Earthenware		refined, glazed	8	298
Earthenware	s16e32	crse, mixed	5	300
Earthenware	s14e32	crse, glazed	2	302
Earthenware	s14e32	refined	1	304
Earthenware	s14e32	crse, glazed	2	305
Earthenware	s10e22	mixed, glazed	2	309
Earthenware	s14e22	crse, glazed	3	311
Earthenware	s14e22	crse, glazed	1	312
Earthenware	s14e20	crse, glazed	1	316
Earthenware	s14e06	devon, glazed	2	323
Earthenware	s14e16	refined,	27	326
Earthenware	s12e06	crse, glazed	3	330
Earthenware	s12e14	crse, glazed	6	336
Earthenware	s12e20	mixed	3	338
Earthenware	s12e18	crse, glazed	3	341

Earthenware	s16e18	crse	2	342
Earthenware	s34w48	refined,	4	345
Earthenware	s14e34	crse, glazed	8	347
Earthenware	s12e22	crse, noglaze	3	352
Earthenware	s12e14	crse, glazed	1	356
Earthenware	s16e36	crse, glazed	1	358
Earthenware	s12e14	crse, glazed	1	360
Earthenware	s14e34	crse, glazed	1	363
Earthenware	s10e14	crse, glazed	1	364
Earthenware	s16e20	crse, glazed	1	367
Earthenware	s16e36	refined	1	368
Earthenware	s14e34	crse, glazed	2	370
Earthenware	s14e36	refined	11	371
Earthenware	s14e36	crse, glazed	1	372
Earthenware	s14e34	crse, noglaze	1	373
Earthenware	s14e24	refined mixed	4	377
Earthenware	s16e16	crse, glazed	1	381
Earthenware	s16e16		3	382
Earthenware	s16e16	complete rim	5	383
Earthenware	s16e16	crse, lead glaz	2	384
Earthenware	s16e16	crse, mixed	4	385
Earthenware	s16e16	crse, noglaze	2	386
Earthenware	s16e16	crse, glazed	2	387
Earthenware	s16e14	crse, salt glaz	4	390
Earthenware	s16e14	crse, lead glaz	1	391
Earthenware	s16e14	refined	1	392
Earthenware	s16e14	crse, noglaze	2	393
Earthenware	s12e32	refined	1	395
Earthenware	s16e14	crse, glazed	1	397
Earthenware	s14e18	crse, glazed	2	402
Earthenware	s14e18	crse, noglaze	9	403
Earthenware	s14e30	crse, noglaze	5	408
Earthenware	s16e26	crse, glazed	2	409
Earthenware	s14e18	crse, noglaze	10	416
Earthenware	s14e18	crse, glazed	8	417
Earthenware	s14e18	crse, mixed	6	418
Earthenware	s14e16	crse, glazed	1	419
Earthenware	s14e30	refined	2	422
Earthenware	s16e16	crse, noglaze	1	428
Earthenware	s12e32	refined	4	429
Earthenware	s12e32	refined	1	430
Earthenware	s12e32	crse, glazed	7	431
Earthenware	s12e32	refined	1	433
Earthenware	s14e18	crse, glazed	1	436
Earthenware	s34w42	crse, glazed	1	438
Earthenware	s10e08	refined	3	441
Earthenware		crse, glazed	1	442
Earthenware	s10e08	crse, glazed	5	444
Earthenware	s14e26	crse, noglaze	2	449
Earthenware	s14e36	crse, noglaze	1	457
Earthenware	s16e16	crse, glazed	1	459
Earthenware	s16e16	refined, glaze	1	460
Earthenware	s12e32	crse, glazed	3	461
Earthenware	s10e08	refined, glazed	1	466

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Earthenware	s10e08	crse, mixed	11	467
Earthenware	s12e22	crse, mixed	4	470
Earthenware	s12e22	refined	1	471
Earthenware	s12e06	refined, glazed	5	497
Earthenware	s12e30		1	502
Earthenware	s16e38	crse, glazed	1	506
Earthenware	s16e38	glazed	1	509
Earthenware	s16e34	glazed	1	513
Earthenware	s16e34	glazed	6	517
Earthenware	s12e30	crse, glazed	3	523
Earthenware	s12e24	glazed	3	529
Earthenware	s16e34	glazed	5	533
Earthenware	s16e32	mixed	5	536
Earthenware	s16e34	crse, glazed	2	540
Earthenware	s14e20	devon	2	542
Earthenware	s14e20	crse, glazed	4	543
Earthenware	s16e16	unknown	1	548
Earthenware	s12e08	glazed	2	550
Earthenware	s12e08	crse, glazed	1	551
Earthenware	s12e08	refined	1	553
Earthenware	s16e32	glazed	4	556
Earthenware	s10e08	glazed	3	558
Earthenware	s12e08	devon, mixed	3	561
Earthenware	s12e06	refined, glazed	10	601
Earthenware	s16e16	devon, glazed	2	610
Earthenware	s12e06	mixed	4	615
Earthenware	crse glazed		1	621
Earthenware	s14e34	mixed	6	627
Earthenware	s16e16	mixed	5	629
Earthenware	s18e34	glazed	1	648
Earthenware	s16e26	crse, noglaze	1	649
Earthenware	s18e36	glazed, delft	1	650
Earthenware	s10e06	crse, glazed	4	681
Earthenware	s10e06	refined, glazed	1	684
Earthenware	s18e36	crse, glazed	1	687
Earthenware	s16e34	glazed	5	690
Earthenware	s14e32	mixed	4	691
Earthenware	s12e32	mixed	4	693
Earthenware	s14e34	mixed	7	696
Earthenware	s14e32	mixed	3	698
Earthenware	s10e06	mixed	21	699
Earthenware	s16e34	glazed	1	721
Earthenware	s14e38	glazed	1	725
Earthenware	s16e34	mixed	12	728
Earthenware		mixed, glazed	4	735
Earthenware	s14e16	crse, glazed	1	737
Earthenware	s12e14	crse, glazed	2	741
Earthenware	s12e14	crse, glazed	4	742
Earthenware	s12e14	crse, glazed	3	743
Earthenware	s14e20	crse, noglaze	12	746
Earthenware	s12e18	refined, glazed	1	747
Earthenware	s12e14	crse, noglaze	6	749
Earthenware	s14e20	crse, glazed	6	750
Earthenware	s16e26	crse, glazed	3	751

Earthenware	s14e34	crse, noglaze	1	756
Earthenware	s16e34	crse, glazed	2	757
Earthenware	s16e34	crse, mixed	3	759
Earthenware	s12e18	crse, noglaze	5	761
Earthenware	s12e18	crse, glazed	2	762
Earthenware	s12e18	crse, glazed	1	763
Earthenware	s12e26	refined	1	764
Earthenware	s12e26	crse, glazed	2	765
Earthenware	s12e18	crse, glazed	7	766
Earthenware	s14e06	crse, noglaze	3	767
Earthenware		crse, mixed	14	769
Earthenware	s34w42	mixed, stonewar	17	770
Earthenware		refined	1	771
Earthenware	s12e24	crse, mixed	5	774
Earthenware	s12e20	crse, mixed	11	775
Earthenware	s10e08	glazed	5	780
Earthenware	s12e08	mixed, glazed	7	781
Earthenware		glazed, mixed	24	782
Earthenware	s16e26	crse, noglaze	1	785
Earthenware	s18e36	refined	1	787
Earthenware	s18e36	crse, glazed	12	790
Earthenware	s16e16	glazed	1	801
Earthenware	s16e16	mixed	9	803
Earthenware	s16e14	mixed	9	804
Earthenware	s12e20	crse, mixed,	6	806
Earthenware	s16e38	crse, glazed	1	807
Earthenware	s14e32	crse, glazed	1	808
Earthenware	s14e18	mixed	5	810
Earthenware	s28w50	mixed, glazed	3	816
Earthenware	s16e20	mixed, glazed	2	818
Earthenware	s14e20	crse, glazed	8	820
Earthenware	s10e08	mixed, glazed	3	822
Earthenware	s20e16	refined	2	824
Earthenware	s20e16	glazed	1	825
Earthenware	s08e08	mixed, glazed	9	828
Earthenware	s12e08	glazed	1	849
Earthenware	s12e14	mixed	14	864
Earthenware	s16e34	mixed	6	868
Earthenware	s16e18	mixed	15	873
Earthenware	glazed, rim		18	878

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Glass	s12e22	black bottle	1	046
Glass	s14e22	black bottle	1	047
Glass	s16e22	drk grn bottle	1	050
Glass	s18e36	clear, medicine	3	051
Glass	s16e34	bead, round	1	054
Glass	s16e18	green bottle	1	055
Glass	s16e34	blown, green	1	057
Glass	s18e36	bottle stopper	1	061
Glass	s10e14	bottle frags	3	067
Glass	s10e20	drk grn bottle	2	075

Glass	s16e26	dark green	2	076
Glass	s16e26	round bead	1	083
Glass	s14e30	drk grn bottle	4	087
Glass		bottle frag	1	102
Glass	s18e36	medicine bottle	4	123
Glass	s34w46	blown, grn,bttl	4	135
Glass	s16e26	drk grn bottle	1	139
Glass	s10e14	drk grn bottle	2	152
Glass	s10e14	drk grn bottle	2	154
Glass	s14e32	drk grn bottle	1	160
Glass	s16e36	drk grn	1	172
Glass	s16e38	lgt blue, bottl	1	176
Glass	s14e18	drk grn bottle	3	184
Glass	s16e34	drk grn bottle	3	194
Glass	s14e06	drk grn bottle	1	196
Glass	s34w42	drk grn bottle	3	202
Glass	s16e34	drk grn bottle	1	215
Glass	s14e36	mixed	2	245
Glass	s16e16	drk grn	1	247
Glass	s16e14	drk grn	2	249
Glass	s34w44	drk grn	1	250
Glass	s14e34	mixed	2	269
Glass	s12e20		1	275
Glass	s13e32	drk grn	1	278
Glass	s16e14	mixed	14	283
Glass	s14e16	complete bottle	1	293
Glass	s14e06	blue bead	1	301
Glass	s16e36	mixed bottle	5	313
Glass	s14e20	drk blue bottle	3	317
Glass	s14e20	blown, lgt grn	1	319
Glass	s14e06	mixed	2	322
Glass		mixed bottle	9	327
Glass	s12e06	mixed	15	329
Glass	s12e14	mixed bottle	5	340
Glass	s16e34	blown, drk grn	1	355
Glass	s34w48	drk grn	1	357
Glass	s14e20	blown	1	374
Glass	s16e36	frag	1	375
Glass	s12e32	lgt green bottl	2	394
Glass	s14e34	medicine	2	396
Glass	s12e18	mixed bottle	2	401
Glass	s12e32		2	406
Glass	s12e32	mixed bottle	7	407
Glass	s14e18	drk grn	2	415
Glass	s16e18	blown, drk grn	1	421
Glass	s14e30	drk grn bottle	1	424
Glass	s16e16	lgt grn bottle	2	426
Glass	s16e16	drk grn bottle	4	427
Glass	s10e08	blue bottle	1	440
Glass	s10e08	drk grn bottle	1	451
Glass	s14e32	drk grn bottle	1	463
Glass	s10e08	drk grn bottle	1	464
Glass	s12e32	lgt grn bottle	3	474
Glass	s12e32	drk grn bottle	3	475

Glass	s12e32	stopper, trans	2	476
Glass	s16e38	drk grn bottle	2	510
Glass	s12e32	unknown	4	521
Glass	s16e38	drk grn bottle	1	526
Glass	s12e24	drk grn bottle	1	530
Glass	s16e34	drk grn bottle	1	531
Glass	s12e08	bottle Glass	2	549
Glass	s12e06	cup frag	1	600
Glass	s16e24	clear	1	609
Glass		drk grn bottle	1	611
Glass	s12e06	drk grn bottle	2	617
Glass	s12e34	grn bottle	1	618
Glass	s14e18	drk grn bottle	1	624
Glass	s14e34	drk grn bottle	5	625
Glass	s16e16	bottle frag	1	631
Glass	s18e36	drk grn bottle	1	686
Glass	s16e20	drk grn bottle	3	694
Glass	s14e34	mixed	2	697
Glass	s14e38	yellow dish	1	726
Glass	s16e34	mixed	2	730
Glass	s12e14	green bottle	1	745
Glass	s34w42	mixed	3	773
Glass		clear	3	789
Glass	s16e14	mixed	8	797
Glass	s16e16	drk grn bottle	4	799
Glass	s16e16	mixed	2	800
Glass	s14e20	mixed	3	812
Glass	s16e20	drk grn bottle	1	819
Glass	s28w50	mixed	5	826
Glass	s12e20	drk grn bottle	4	837
Glass		drk grn bottle	1	838
Glass	s16e36		3	839
Glass	s16e18	drk grn bottle	1	841
Glass	s12e14	drk grn bottle	1	842
Glass	s16e34	green	2	843
Glass	s12e20	green	1	844
Glass	s10e08	green	1	845
Glass	s08e08	green	5	846
Glass	s12e08	mixed	12	847
Glass	s12e08	lgt grn, mixed	5	848
Glass	s16e18	drk grn bottle	1	851
Glass	s16e38	bottle seal	1	853
Glass	s16e18	mixed	4	874
Glass	s16e18	blown	1	875
Glass	s14e18	mixed	4	876

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Gun flint	s18e36	used	1	062
Gun flint	s14e18	used	1	079
Gun flint	s14e18	mixed used	2	103
Gun flint	s18e36	used	1	107
Gun flint	s16e26	used	1	128

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Gun flint	s16e38	used	1	175
Gun flint	s16e34	used	1	200
Gun flint	s10e14	used	1	209
Gun flint	s14e20	used	1	314
Gun flint	s12e14	used	1	369
Gun flint	s12e08	used	1	562
Gun flint	s16e16	used	1	795
Gun flint	s16e34	burned	1	870

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Iron	s12e34	nail	1	121
Iron	s12e14	key	1	144
Iron	s16e36	nail	1	145
Iron	s14e28	nail	1	146
Iron	s14e26	nail	1	147
Iron		nail	1	148
Iron	s14e26	hinge	1	149
Iron	s14e26	nail	1	186
Iron	s15e34	nail	2	187
Iron	s16e34	nail	2	188
Iron	s16e18	nail	6	189
Iron	s10e20	nail	4	190
Iron	s12e20	circular, holed	1	191
Iron	s14e34	nail	4	192
Iron	s16e34	nail, wrought	1	233
Iron	s16e36	nail, cut	1	234
Iron	s12e20	nail, cut	1	235
Iron	s12e14	unknown	2	236
Iron	s14e18	nail	3	237
Iron	s12e06	lamp part	1	238
Iron	s14e34	nail, unknown	2	239
Iron	s14e18	wrought and cut	2	254
Iron	s16e34	nail, unknown	2	255
Iron	s14e18	nail, wrought	1	256
Iron	s14e16	nail, cut, wrou	3	257
Iron	s12e06	nail	7	258
Iron	s12e06	nails	6	259
Iron	s14e20	nail	5	263
Iron	s14e20	nail	5	264
Iron	s10e14	nail	3	265
Iron	s12e20	unknown	1	266
Iron	s14e16	cauldron frag	1	267
Iron	s14e06	nail	6	333
Iron		cannonball	1	434
Iron	s16e16	nail	2	478
Iron	s12e14	nail	2	479
Iron	s12e14	nail	3	480
Iron	s14e22	nail	4	481
Iron	s14e22	nail	3	482
Iron	s12e14	nail	4	483
Iron	s12e14	nail	3	484
Iron	s12e14	nail	3	485

Iron	s16e26	nail	3	486
Iron	s12e24	nail	3	487
Iron		nail	3	488
Iron	s16e36	nail and other	5	489
Iron	s14e20	unknown	3	490
Iron	s34w42	nail	1	491
Iron	s14e28	nail	4	492
Iron	s14e28	nail and other	3	493
Iron	s14e36	nail	1	495
Iron	s16e34	nail	1	518
Iron	s14e18	nail	2	519
Iron	s12e22	nail	2	564
Iron	s10e14	nail	1	565
Iron	s18e36	buttons	3	566
Iron	s16e36	nail and other	2	567
Iron	s18e36	unknown	1	568
Iron	s14e34	nail	1	569
Iron	s12e14	nail	4	570
Iron	s12e14	nail	4	571
Iron	s12e14	nail	5	572
Iron	s12e14	nail	5	574
Iron	s12e06	nail	3	575
Iron	s12e06	horseshoe, nail	3	576
Iron	s34w40	nail	3	577
Iron	s12e06	nail and other	6	578
Iron	s12e06	hinge	1	579
Iron	s12e22	nail	2	580
Iron	s10e14	nail	4	582
Iron	s18e34	nail	1	583
Iron	s16e14	nail and other	4	585
Iron	s16e16	nail	3	586
Iron	s16e24	nail	3	588
Iron	s10e14	nail	3	589
Iron	s14e32	nail and other	4	590
Iron	s12e24	nail	2	591
Iron	s16e26	nail	5	592
Iron	s16e26	nail	4	593
Iron	s16e26	nail and other	4	595
Iron	s12e22	nail	1	597
Iron	s16e26	nail	1	633
Iron	s16e16	nail	1	634
Iron	s12e24	nail and other	2	635
Iron	s16e34	nail	2	636
Iron	s16e34	unknown	8	637
Iron	s12e34	unknown	2	638
Iron		nail	1	639
Iron	s16e32	nail and other	4	641
Iron	s16e14	nail	2	642
Iron	s16e34	unknown	2	643
Iron	s16e34	nail	4	644
Iron	s16e34	nail	1	651
Iron	s16e36	nail	1	652
Iron	s16e32	nail	2	653
Iron	s16e36	nail	2	654

Iron	s14e30	nail	4	655
Iron	s12e18	nail and other	3	656
Iron	s14e30	nail	3	658
Iron	s14e18	nail	1	659
Iron	s10e18	nail	1	660
Iron	s08e08	nail and other	2	661
Iron	s16e38	unknown	2	662
Iron	s12e18	nail	2	663
Iron	s16e20	cannonball	1	664
Iron	s14w28	nail	1	665
Iron	s34w48	nail	1	669
Iron	s34w42	nail	4	670
Iron	s34w46	nail	5	671
Iron	s12e24	rod	1	672
Iron	s12e32	nail and other	2	673
Iron	s16e18	nail	3	675
Iron	s16e18	nail	1	676
Iron	s34w44	nail	5	677
Iron	s16e36	nail	1	678
Iron	s16e38	unknown	1	700
Iron	s12e18	nail	3	701
Iron	s16e22	nail	5	702
Iron	s14e22	nail	4	703
Iron	s14e22	nail and other	2	704
Iron	s28w50	nail	4	705
Iron	s28w50	nail	5	707
Iron	s12e08	nail and other	3	709
Iron	s12e32	hinge	1	711
Iron	s12e32	nail and other	3	712
Iron	s10e08	nail and other	5	713
Iron	s10e08	nail and other	3	714
Iron	s10e08	nail	5	715
Iron	s14e20	strap	1	716
Iron	s14e38	cannonball	1	717
Iron	s18e36	knife	1	718
Iron		unknown	1	719
Iron		ax	1	738
Iron	s10e08	bucket	1	739

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Lead	s14e32	unknown	1	225
Lead	s14e18	shot	1	226
Lead	s18e36	shot	1	227
Lead	s18e34	shot	1	228
Lead	s14e18	thin sheet	1	229
Lead	s16e34	unknown	1	230
Lead	s18e36	unknown	1	231
Lead	s14e6	unknown	1	232
Lead	s12e06	unknown	2	241
Lead	s14e20	unknown	1	262
Lead	s14e28	unknown	1	494
Lead	s12e06	unknown	1	573

Lead	s16e32	lead shot	1	640
Lead	s14e30	unknown	1	657
Lead	s14e22	lead shot	1	679
Lead	s14e20	shot	2	708
Lead	s16e14	lead shot	1	793
Lead	s16e34	lead shot	1	836

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Pipe	s12e30	stem frag	4	001
Pipe	s14e28	stem frag	1	002
Pipe	s18e36	stem frag	8	003
Pipe		stem frag	3	004
Pipe	s18e34	stem frag	13	005
Pipe	s10e14	stem frag	1	007
Pipe	s14e24	stem frag	2	008
Pipe	s12e22	stem frag	4	009
Pipe	s14e22	stem frag	13	012
Pipe	s10e14	stem and bowl f	10	013
Pipe	s12e28	stem and bowl f	4	021
Pipe	s12e24	stem frag	5	025
Pipe	s16e18	stem and bowl f	5	032
Pipe	s16e22	stem frag	18	034
Pipe	s14e20	stem and bowl f	7	036
Pipe	s18e36	stem frag	8	038
Pipe		stem and bowl f	23	039
Pipe	s16e36	bowl frag	1	040
Pipe	s18e32	stem frag	1	052
Pipe	s16e26	stem and bowl f	2	068
Pipe	s14e18	stem frag	2	069
Pipe	s12e22	stem frag	3	072
Pipe	s14e30	stem frag	7	074
Pipe	s10e20	stem and bowl f	22	077
Pipe	s16e26	stem frag	1	082
Pipe	s16e26	stem and bowl f	32	085
Pipe	s16e26	stem and bowl f	32	089
Pipe	s16e32	stem frag	3	094
Pipe	s18e34	stem and bowl f	11	096
Pipe	s18e32	stem frag	1	100
Pipe	s14e36	stem frag	5	104
Pipe	s14e26	stem frag	8	105
Pipe	s12e20	stem frag	5	106
Pipe	s18e36	stem frag	3	108
Pipe	s14e28	stem and bowl f	18	127
Pipe	s14e30	stem frag	1	129
Pipe	s16e26	stem frag	9	132
Pipe	s34w46	stem and bowl f	7	136
Pipe	s10e14	stem frag	5	150
Pipe	s14e18	stem frag	11	156
Pipe	s14e32	stem frag	8	158
Pipe	s16e34	stem frag	2	162
Pipe	s18e34	stem and bowl f	4	164
Pipe	s18e36	stem frag	1	165

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Pipe	s12e32	stem frag	1	692
Pipe	s14e34	bowl frag	1	695
Pipe	s16e34	stem frag	2	720
Pipe	s14e38	stem frag	2	724
Pipe	s14e34	bowl frag	1	727
Pipe	s16e34	stem frag	7	729
Pipe	s12e32	stem and bowl f	10	733
Pipe	s14e20	stem and bowl f	26	740
Pipe	s12e14	stem and bowl f	19	744
Pipe	s14e36	stem and bowl f	8	752
Pipe	s16e34	stem and bowl f	7	753
Pipe	s16e26	stem frag	3	754
Pipe	s16e34	stem frag	4	758
Pipe	s14e06	stem and bowl f	2	760
Pipe	s16e26	stem and bowl f	8	768
Pipe	s12e24	stem frag	5	772
Pipe	s12e20	stem and bowl f	15	776
Pipe	s10e08	stem frag	1	777
Pipe	s12e08	stem frag	2	778
Pipe		stem and bowl f	12	779
Pipe		stem frag	1	786
Pipe	s18e36	stem and bowl f	8	788
Pipe	s16e16	stem and bowl f	14	791
Pipe	s16e14	stem and bowl f	10	796
Pipe	s12e20	stem frag	3	805
Pipe	s12e36	stem and bowl f	4	809
Pipe	s14e20	stem and bowl f	13	813
Pipe	s08e08	stem and bowl f	11	814
Pipe	s12e08	stem and bowl f	18	815
Pipe	s16e20	stem frag	3	817
Pipe	s10e08	stem frag	1	821
Pipe	s20e16	stem frag	1	823
Pipe	s16e34	stem and bowl f	36	866
Pipe	s16e14	stem and bowl f	38	867
Pipe	s16e34	stem and bowl f	20	872

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
Stoneware	s18e36	glazed	4	018
Stoneware	s18e36	glazed	2	020
Stoneware	s16e22	glazed	1	023
Stoneware	s14e24	glazed	4	033
Stoneware	s14e34	glazed	1	064
Stoneware	s16e26	glazed	1	078
Stoneware	s16e26	glazed	1	081
Stoneware	s14e30	westerwald	1	098
Stoneware	s16e34	glazed	1	112
Stoneware	s12e30	glazed	3	115
Stoneware	s14e30	mixed	6	120
Stoneware	s14e30	glazed	1	122
Stoneware	s14e30	glazed	1	133
Stoneware	s34w46	glazed	1	137
Stoneware	s16e34	base frags	2	198

Stoneware	s16e32	glazed	2	207
Stoneware	s14e20	glazed	2	321
Stoneware	s14e06	glazed	4	325
Stoneware	s12e14	glazed, marked	1	359
Stoneware	s10e18	salt glaze	1	379
Stoneware	s16e16	rim sherds	2	380
Stoneware		westerwald	1	399
Stoneware	s12e32	lead glazed	1	404
Stoneware	s14e16	glazed	1	420
Stoneware	s16e16	westerwald	1	458
Stoneware	s12e32	westerwald	1	462
Stoneware	s12e06	glazed	3	496
Stoneware	s12e30	salt glaze	1	501
Stoneware	s16e38	westerwald	1	508
Stoneware	s16e38	glazed	1	511
Stoneware	s12e30	glazed	2	524
Stoneware	s14e20	glazed, mixed	1	544
Stoneware	s16e16	westerwald	1	546
Stoneware	s14e18	westerwald	1	563
Stoneware	s12e06	glazed	2	598
Stoneware	s12e06	glazed	2	599
Stoneware	s16e18	glazed	6	613
Stoneware	s12e06	glazed	1	616
Stoneware	s12e34	glazed	1	619
Stoneware	s14e18	glazed	1	623
Stoneware	s16e16	glazed	1	632
Stoneware	s10e06	glazed	1	682
Stoneware	s10e06	westerwald	1	683
Stoneware	s12e36	westerwald	1	689
Stoneware	s14e38	glazed	3	722
Stoneware	s12e32	glazed	1	734
Stoneware	s12e14	glazed	1	748
Stoneware	s14e34	glazed	1	755
Stoneware	s16e16	westerwald	1	802
Stoneware	s14e18	glazed	1	811
Stoneware	s08e08	glazed	2	827

TYPE OF ARTIFACT	SQUARE FOUND	REMARKS	## OF	SHEET NO.
unknown	s14e30	copper (?) item	1	095
silver		1929 NFLD coin	1	223
clay	s12e32	alley	1	242
clay	s14e32	round unknown	1	244
plastic	s14e30	button	1	289
wood	s16e14	unknown	1	299
ceramic	s14e32	mixed glazed	2	307
ceramic		mixed	3	328
wood		button	1	389
clay	s10e14	red brick	1	425
fossil		fossil	1	448
textile	s12e22	unknown	2	472
chert	s12e34	chert flake	1	503
clay	s16e38	alley	1	512

shell	s16e34	shell frag	1	515
clay	s12e30	alley	1	520
stone	s12e14	slate	1	545
metal	s12e32	music box	1	710
wood	s16e34	unknown	2	731
shell	s16e36		3	840
clay	s18e00	alley	1	850
shell	s16e34		3	869
stone	s12e14	slate pencil	1	877

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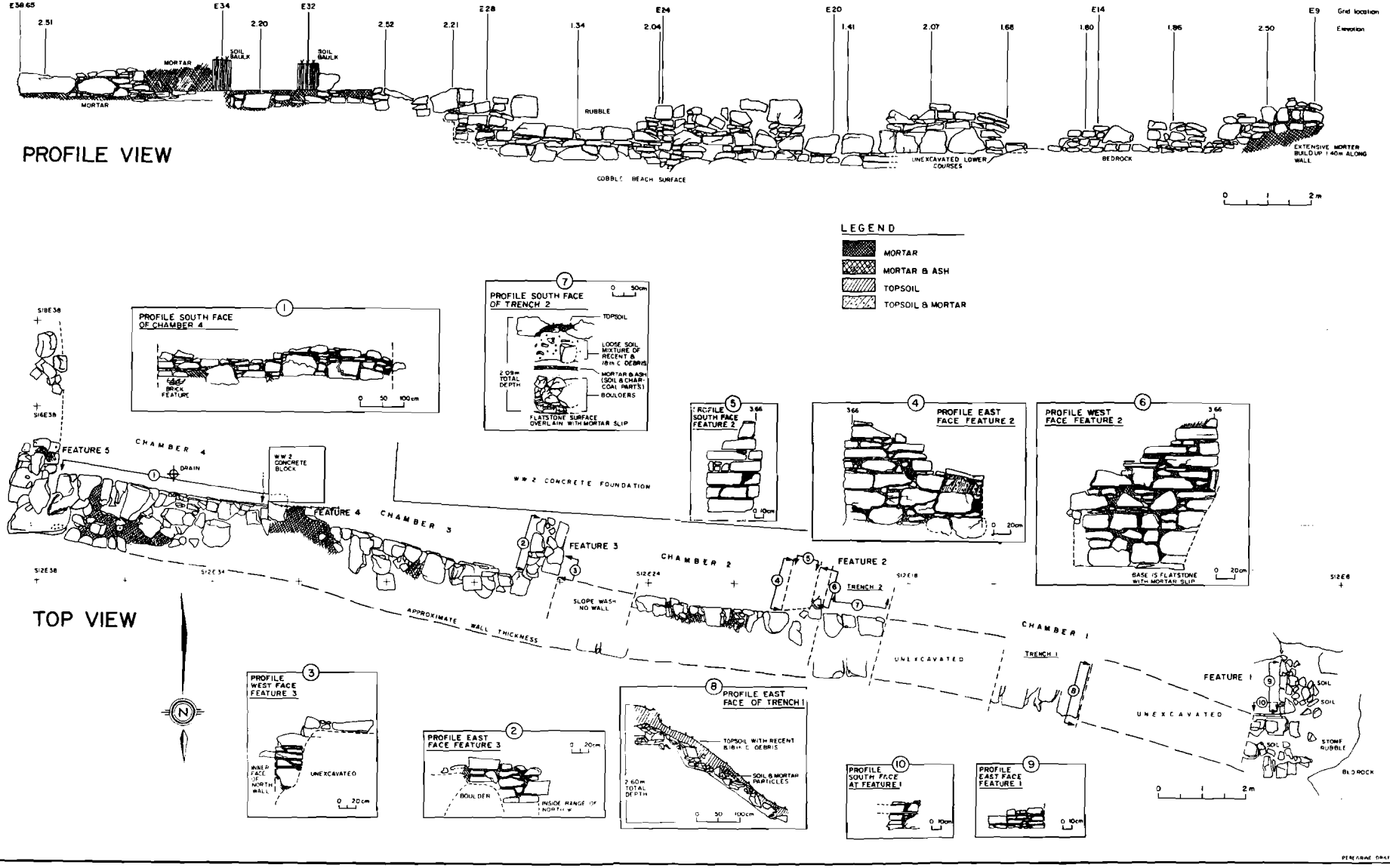
ANCHOR POINT - I (CjAe-3): WALL VIEWS



REPORT

HISTORIC RESOURCES OVERVIEW ASSESSMENT
CAPE RAY MINERAL EXPLORATION AREA

submitted to

DOLPHIN EXPLORATIONS LTD.
120 Adelaide Street West, Suite 1900
Toronto, Ontario
M5H 1T1

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787
St. John's, Newfoundland
A1B 4G3

August 1988

EXECUTIVE SUMMARY

An archaeological survey of a proposed access road route, including a 5 km re-route and quarry sites, to a mineral exploration area, from Highway 470 was conducted. Consultations with residents established local usage patterns along Isle aux Morts River.

Survey areas appear low in prehistoric and historic resource potential and no additional work is recommended. Procedures for the accidental discovery of sites are included in the client's environmental protection plan.

INTRODUCTION

An historic resources overview assessment of a proposed access road (Figure 1) to the Cape Ray mineral exploration area was undertaken for Dolphin Explorations Limited of Toronto. The work was conducted by Gerald Penney, a professional archaeologist with extensive knowledge of the prehistory of southwestern Newfoundland, under a terms of reference (Appendix 1) supplied in May 1988.

The work was performed under Archaeological Research Permit 1988-Ø6 on 21 and 22 May 1988 (except the re-route which was performed Ø4 June 1988) and encompasses all the work required under the terms of reference.

PROPOSED DEVELOPMENT PROJECT

Construction of about 2Økm of "Class D" access road from Highway 47Ø to the Cape Ray exploration Site, located east of the Isle aux Morts River about 26km northeast of Port aux Basques is necessary to further mineral exploration activities on the Cape Ray Exploration Site. The present means of access is by the existing ATV trail or by helicopter. Helicopter movements are weather dependant and the existing ATV trail is extremely rough and difficult to traverse.

The proposed road will increase the efficiency and reduce the cost of the transportation of work crews, diamond drills, trenching and underground exploration equipment, regular food and supply shipments, and shipments of rock samples. In addition, the proposed access road will provide a quick and reliable evacuation route in the case of a medical emergency.

The proposed "Class D" access road could be upgraded in the future to serve any mining development which may take place. The right-of-way could also potentially accomodate a power transmission line if mine development was to go ahead.

OBJECTIVE

The object of the work was to determine the impact, if any, on historic resources from access road construction (including a re-routing and quarry sites).

STUDY AREA

Newfoundland's southwest coast is best described as exposed and elevated. Suitable settlement areas are at a premium. Forest lands are confined to the bottoms of the fjord-like bays, with Bay d'Espoir having the only suitable area allowing farming. The European population, which remains

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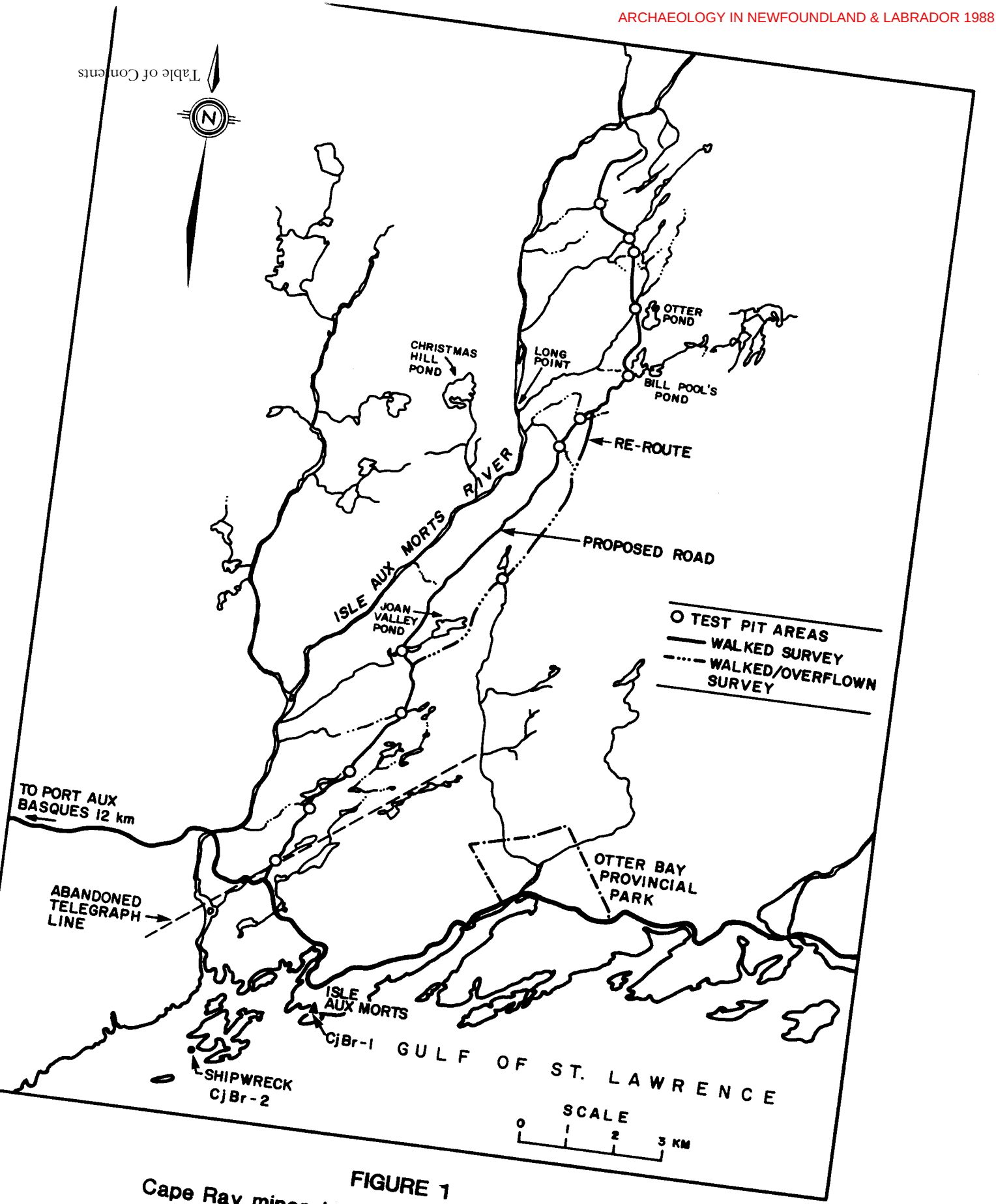

FIGURE 1
Cape Ray mineral exploration area access road.

low, has survived on the marine resources. The absence of migratory harp seals, an important resource in the lifeways of prehistoric hunters and gatherers elsewhere on the island, may have been partially responsible for a low prehistoric population.

The land surface is typically rock outcrop with numerous small ponds and a thin organic soil covering. Vegetation is sparse except in the sheltered areas such as Isle aux Morts. The 25 km road crosses 12 water courses as it follows a well-developed all terrain vehicle trail from Isle Aux Morts into the headwaters of the Isle aux Morts River system.

Large southwest coast rivers, such as Isle aux Morts River, served as routes into the interior for winter settlement and hunting by Palaeo-Eskimo (2500 B.P.-1000 B.P.) and Recent Indian (2000 B.P. to contact) people. Abundant salmon and winter caribou resources were an important part of the area's prehistoric and historic subsistence pattern.

A Palaeo-Eskimo site (CjBr-1), located at Isle aux Morts, is one of a number (Carnigan 1979; Linnamae 1975; Penney 1985) of Palaeo-Eskimo sites on the island's southwest coast, including ones at Burgeo (CjBj-3,4,5,6 and 8), Grand Bruit (CkBn-1), and Cape Ray (CdBt-1).

Coastal islands near Isle aux Morts are the site of many shipwrecks and an unidentified 17th century wreck is a Provincial Historic Site. In 1981 an astrolabe was found by amateur divers (Smith 1984) at the Isle aux Morts Wreck Site (CjBr-2).

METHODOLOGY

A review of literature and documents at the Historic Resources Division was carried out prior to field investigations. Air photos of the river system were studied at the Howley Building.

Information concerning 19th and 20th century activities along Isle aux Morts River was sought from local residents. Questions concerning Micmac or Beothuk use of the river were asked. Details were sought as to reports of prehistoric sites or artifacts from the area.

The survey of the road right-of-way and quarry areas were conducted to standards set out in the Historic Resources Overview Assessment Guidelines (1982).

Test pits (30 cm x 30cm) were dug in areas where the route crossed larger streams or approached river banks. The ground cover is very thin and most test pits (average 15 cm

in depth) were dug by removing peat from the gravel and rock substrate.

The sampling design was based on choosing areas which appeared as likely camping spots, one or two pits being dug in each area. Given the nature of the elevated and rugged terrain, test pit areas near stream crossings were chosen as they were suspected of having the highest potential. All twenty-eight test pits dug were sterile.

The roadway was walked with special attention paid to areas where it crosses Isle aux Morts River tributaries and where it approaches the river itself. At quarry areas the ground survey was conducted with attention to possible hunting camp suitability or portage trail possibilities. The re-route (Figure 1) was overflown by helicopter and walked from north to south.

DATA AND INTERPRETATION

Informant and documentary data

No references to prehistoric sites along the road corridor are recorded at the Historic Resources Division, Government of Newfoundland and Labrador. Prehistoric site CjBr-1, within the community of Isle aux Morts, is not near the intended road or the existing trail.

Informants identified trails and routes used to access the interior as well as providing local names (Figure 1) for brooks and areas not identified on available topographic maps.

Field data

The route crosses a sub-Arctic tundra region (Plate 1) and shares most of its ecological features. Bogs (wetlands), shrubs, lichens and heathers, ponds and rock outcrops are its dominant features. Such an area was probably marginal to prehistoric peoples except as travel routes.

A stone pier pole foundation near Highway 470 (Plate 2), once part of the New York, Newfoundland and London Telegraph Company line across the southwest coast, is not in danger of disturbance by road construction. The mid-19th century telegraph line was used to convey commercial and public communications to New York. Ships bound for American ports would drop canisters with manifests and other documents at Cape Race. The information would arrive in New York four to five days before the ship. The line operated and expanded until the 1940's.

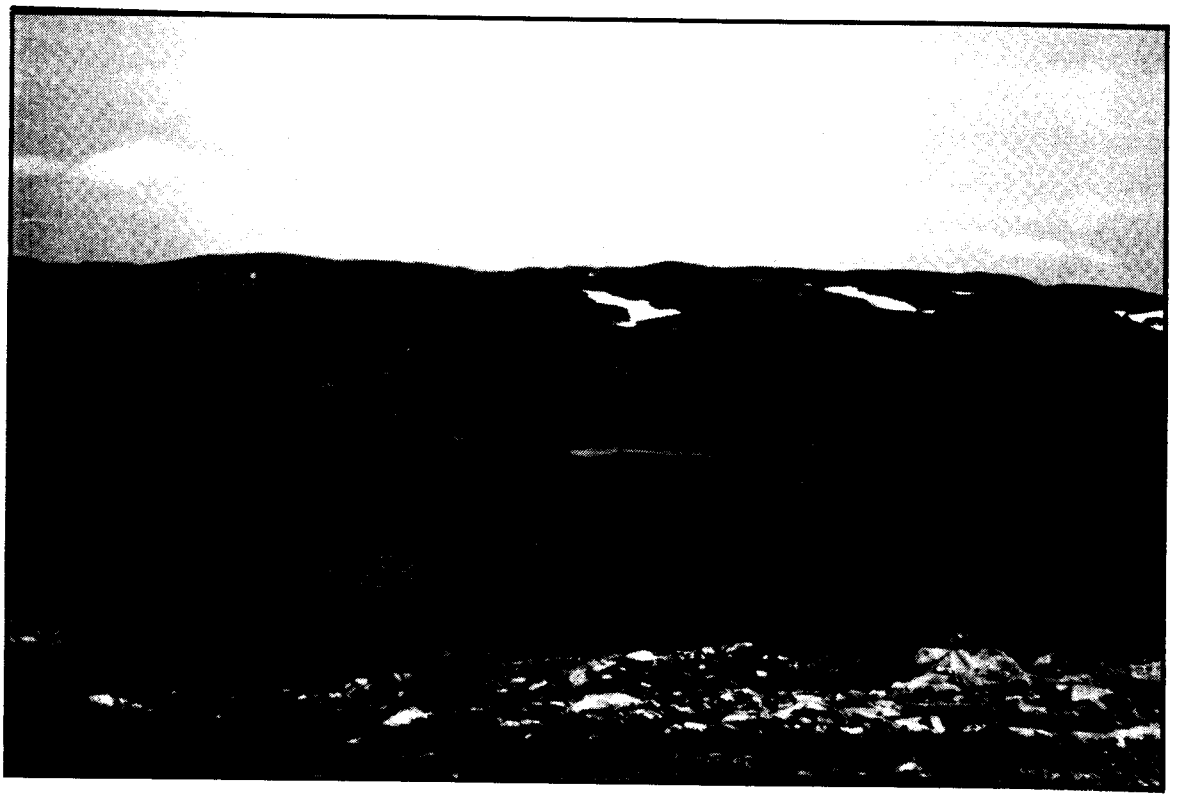

Plate 1: Typical barrens - trail across picture background

Plate 2: Telegraph pole foundation near Highway 470

No areas of interest requiring further ground testing or surveying were observed along the road route or at the quarry sites and the results of the survey confirm local interview information that little use has been made of the area.

EVALUATION AND DISCUSSION

Except for the 8km re-route the access road is in situ, established by a decade of use by J-5's, nodwells, skidders and other mechanized transport. Before this the Isle aux Morts River system was used to access the interior and its resources, including those of the river itself. The proposed access road route follows highland barrens and hill ridges not suitable as living sites for historic or prehistoric people.

RECOMMENDATION

Exploration area development which could impact the banks of the Isle aux Morts River should be the subject of further assessment.

LIST OF ISLE AUX MORTS INFORMANTS

Russell Strickland
Caroline Colemen
Donna Marie Lawrence
Francis Barnes
Willoughby Harvey
Hubert Anderson
Saul Billard
Allen Hatcher
David Hann
Kevin Skinner
Winston Lawrence
Francis Lawrence
Earl Billard
Garnet Wells
Rodney Arnold - Dolphin Exploration
Gary Noel - Port aux Basques

REFERENCES

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1979 Unpublished field notes. Copy on file, Newfoundland Museum, St. John's.

Linnamae, Urve
1975 The Dorset Culture. Technical Papers of the Newfoundland Museum, Vol. 1. St. John's.

Gerald Penney
1986 Historic Resources Overview Assessment of the Burgeo Road to Hope Brook Mine Transmission Line. Prepared for Newfoundland and Labrador Hydro. Copy on file, Newfoundland Museum, St. John's.

1985 A Prehistory of the Southwest Coast of Newfoundland. Unpublished M.A. thesis, Department of Anthropology. Memorial University of Newfoundland, St. John's.

Smith, Sheli
1984 "The 1983 Isle aux Morts Survey". In, Archaeology in Newfoundland and Labrador 1983. Edited by Jane Sproull Thomson and Callum Thomson. Department of Culture, Recreation and Youth. St. John's.

APPENDIX 1
TERMS OF REFERENCE

The Proponent is prepared to conduct an Historic Resources Overview Assessment following the guidelines prepared by the Historic Resources Division of the Department of Culture, Recreation, and Youth. The objective of this study is to identify and assess any historic and prehistoric resources which may be adversely affected by the project and to recommend any necessary mitigative measures. This study will be completed before the initiation of project construction.

The study would consist of four main components:

1. a documentary search consisting of a review of existing literature and other relevant data sources;
2. consultation with individuals and organizations knowledgeable about the historic resources within the study corridor;
3. a preliminary field reconnaissance consisting of a foot survey of the surveyed centre line of the right-of-way where necessary; and
4. an overview report which would follow the general format suggested by the Historic Resources Division.

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REPORT

DRAFT ONLY

HISTORIC RESOURCES OVERVIEW ASSESSMENT
CAPE BONAVISTA EXPERIMENTAL GROUND WAVE RADAR ANTENNA FIELD

submitted to

NORDCO LTD.
P.O. Box 8833
St. John's, Newfoundland
A1B 3T2

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787
St. John's, Newfoundland
A1B 4G3

June 1988

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EXECUTIVE SUMMARY

An archaeological survey of a proposed ground wave radar antenna field and associated facilities at Cape Bonavista was conducted. Consultations with Bonavista residents and a literature search established local usage of the area.

Survey areas appear low in prehistoric and historic resource potential and no additional work is recommended. Procedures for the accidental discovery of sites are included in the client's environmental protection plan.

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INTRODUCTION

An historic resources overview assessment of the proposed ground wave radar antenna field and associated facilities at Cape Bonavista was conducted 29 May and 30 May 1988.

PROJECT DESCRIPTION

Two rows of 12 antenna towers each will be established near the cliff edge on the east side of the Cape Bonavista headland near existing Ministry of Transport buildings. A 800m long access road will connect the site to an existing gravel roadway leading to Ladder Cove. A one kilometer long underground cable will be run across an easement to a LORAN A building north of the site; as well, a building about 20m x 10m will be built on the site (Figure 1).

METHODOLOGY

The objective of the study is to evaluate the known historic resources of the area and relate them to the proposed antenna site.

A review of literature and documents at the Newfoundland Museum was carried out prior to field investigations but no references to historic resource sites or native use of Cape Bonavista are recorded.

Information concerning 19th and 20th century activities at the Cape was sought of Bonavista residents including members of the Bonavista Historical Society and Bonavista Museum (Appendix 1).

A systematic test pitting program tested for prehistoric or historic sites not known from the literature or resulting from local consultations. The ground survey and test pitting of the development area was conducted to standards set out in the Historic Resources Overview Assessment Guidelines (1982).

DATA AND INTERPRETATION

Historical Data

Settled in the 16th century Bonavista was the most northerly of English settlements in Newfoundland until the early 18th century. It was the eastern boundary of the "French shore" and remained English throughout the century of the French - English wars, from 1696 to 1796. Bonavista has depended entirely on inshore fishing activities for most of its history.

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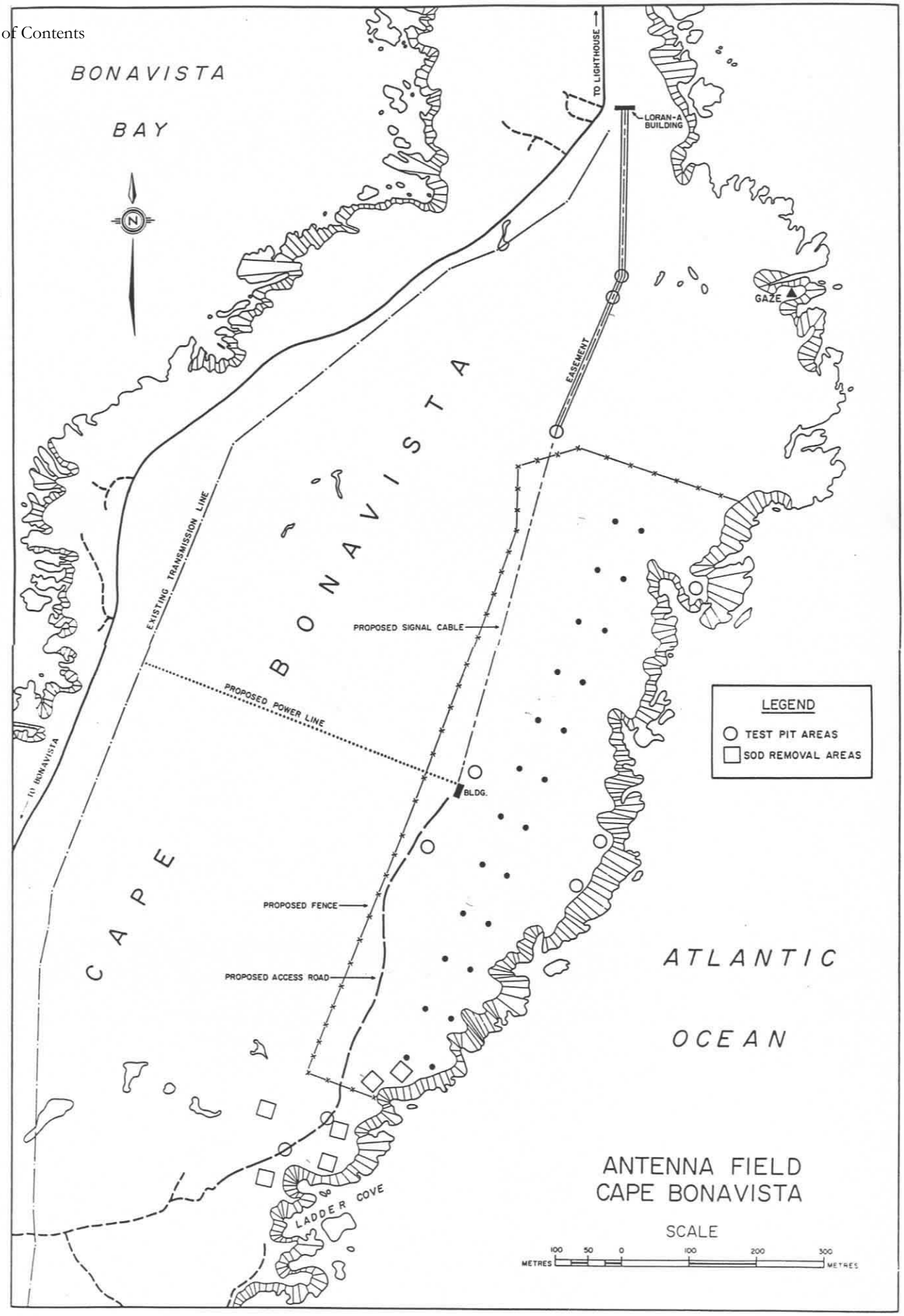

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Head (1976:174) recounts that in 1729 about 200 people wintered at Bonavista that being about half of the winter residents throughout Bonavista Bay.

Cape Bonavista, reputed as Cabot's landfall in 1497, was well known to early marine explorers and it boasts Newfoundland's oldest lighthouse (1843), now a Provincial Historic Site. The headland is accessed over a small isthmus between Red Cove and Ladder Cove (Plate 1).

Plate 1: View south to Bonavista at the isthmus

Green Island (Plate 2) was fortified by English settlers during French raids from Fort Placentia and in 1705 George Skiffington, an American Quaker, negotiated a ransom from the Green Island stronghold which saved Bonavista from total destruction (Fardy 1987:81).

Archaeological data

A coastal survey (Penney 1978) of the North shore of Trinity Bay betweeen Sunnyside and Cape Bonavista found evidence of Palaeo-Eskimo occupation at Bull Arm near Sunnyside. This site was excavated (Robbins 1986) and produced evidence of extensive Palaeo-Eskimo and Recent Indian occupation. No other prehistoric sites are known between this area and Cape Bonavista in Trinity Bay.

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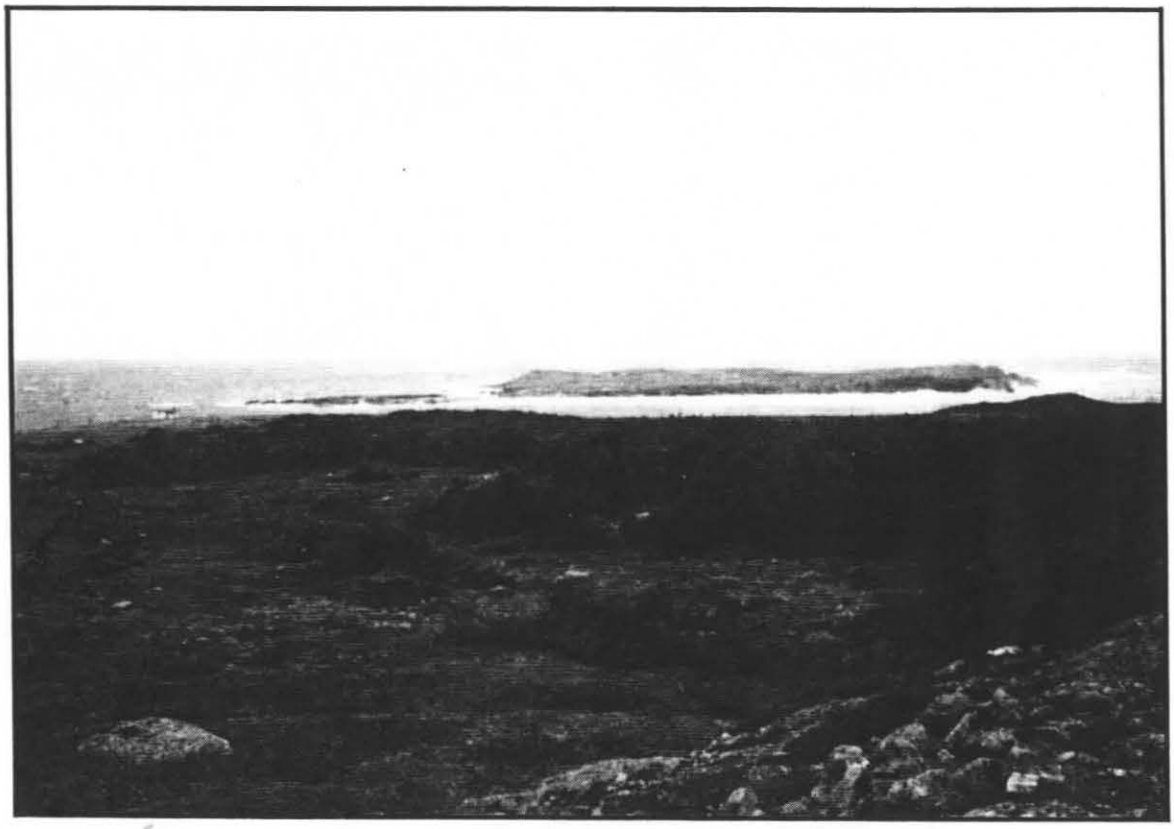

Plate 2: Green Island

Paul Carignan's 1970's research established that the runs between offshore islands in Bonavista Bay were heavily used during prehistoric times although no reference to the elevated Cape Bonavista is made. Cape Freels, located on a low sandy beach northwest across the bay, has many associated prehistoric and historic sites. The bottom of Bonavista Bay contains numerous sites of Maritime Archaic, Palaeo-Eskimo and Recent Indian origin as well as Beothuk and Micmac sites. Of special note is the Beaches site in Bloody Reach near Burnside. A site at Birchy Cove, 12 km from Bonavista, although much eroded may have been a Beothuk site.

Field data

Test pits dug in the access road, antenna field, easement areas and along the cliff edge (Figure 1) were sterile. The study area was well-used as a summer fishing area by Bonavista residents interested in getting closer to the resource. Fish flakes built on the headland are favored for good drying due to its windy aspect. A gaze (Plate 3) is a sentinel post for birders, fishermen and tourists. Rock wall gardens (Plate 4), paths and roads are evident. At sod removal areas some iron, ceramic, refuse bone and clay pipe fragments, all of this century, were surface observed (Figure 1).

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Plate 3: The `Gaze' looks east

Plate 4: Rock walls near antenna site

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1986 Stock Cove, Trinity Bay: the Dorset Eskimo occupation of Newfoundland from a southeastern perspective. Unpublished M.A. thesis. Department of Anthropology, Memorial University of Newfoundland. St. John's.

APPENDIX 1
LIST OF INTERVIEWED BONAVISTA RESIDENTS

Gordon Bradley
Reginald Carpenter
Marguerite Linthorne
Lloyd Tremblett
Ronald Fisher
Fred Phillips
Sandra Carpenter
Terry Durdle
Joe Durdle

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REPORT

HISTORIC RESOURCES OVERVIEW ASSESSMENT OF THE PROPOSED CHANGE ISLANDS - FOGO ISLAND PROVINCIAL ELECTRIC GRID INTERCONNECTION

submitted to

NEWFOUNDLAND AND LABRADOR HYDRO
St. John's, Newfoundland
A1A 2X8

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787, St. John's
Newfoundland
A1B 4G3

JULY 1988

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EXECUTIVE SUMMARY

A helicopter overflight, ground surveys and informant interviews did not identify any historic resources within the right-of-way of a proposed transmission line from First Pond to Little Farewell Point, then underwater to Change and Fogo Islands in Notre Dame Bay. Distribution line rights-of-way across Fogo Island and Change Islands were also surveyed. Four substation sites were test pitted and ground surveyed.

A prehistoric Indian site (DjAo-1), of unknown extent, is located just south of the right-of-way at South End, Change Island. While the site is outside the right-of-way it is proximal (within 250 m) and a contingency plan should be established to prevent machinery from crossing South Head outside a designated access.

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DESCRIPTION OF PROJECT

Newfoundland and Labrador Hydro (Hydro) has been authorized to connect Change Islands and Fogo Island to the Provincial electric grid. An interconnection will displace diesel plants which currently supply electricity to these island communities.

The project involves the construction of a substation near First Pond; a transmission line paralleling Highway 113 to a substation near Farewell; and, laying a submarine cable from Farewell to Change Island (Figure 1). The transmission line will continue from South End to Dog Head (across Change Island), from where it will go underwater to Fogo Island. Distribution lines will cross Fogo Island and Change Island where new substations will be built (Figure 2).

An Historic Resources Overview Assessment was undertaken for Hydro following a Terms of Reference supplied 15 May 1987 (Appendix 1).

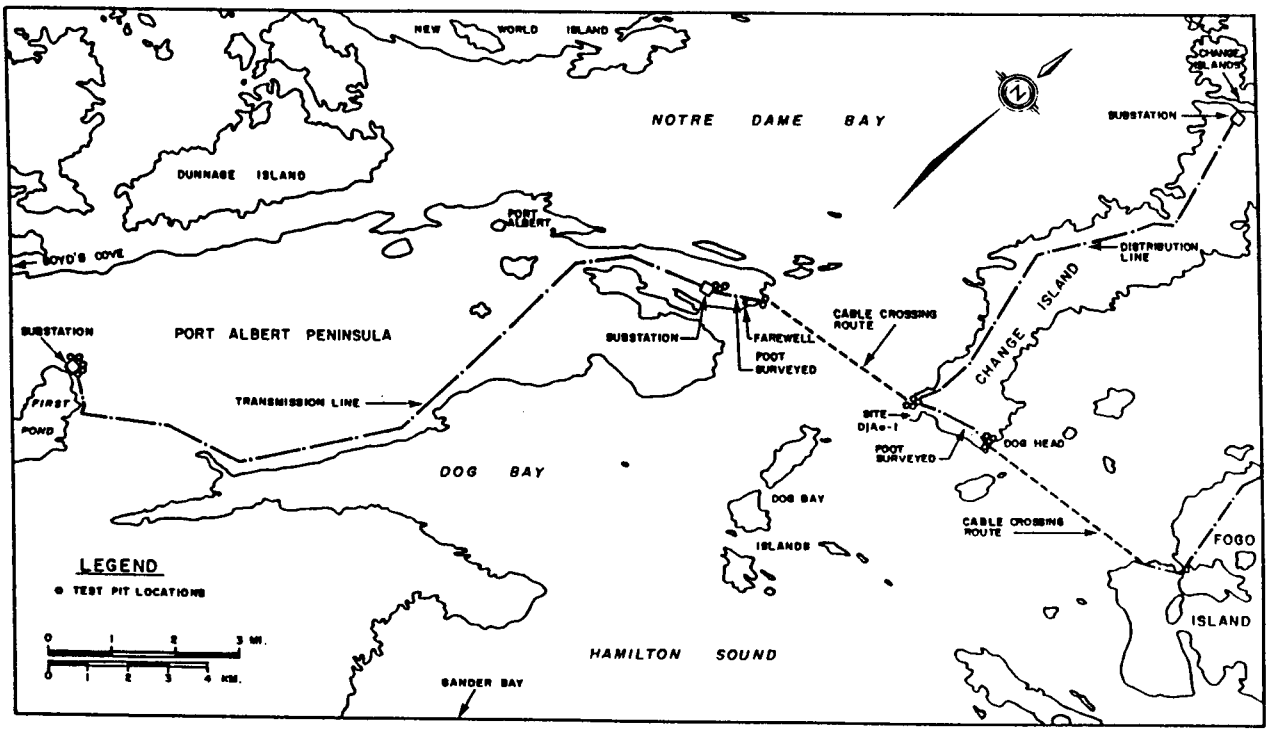

FIGURE 1

Fogo - Change Islands interconnection.

STUDY AREA

Newfoundland's northeast coast was heavily occupied during most of the prehistoric period. Maritime Archaic, Palaeo-Eskimo, Recent Indian, Beothuk and Micmac sites abound in eastern Notre Dame Bay and Bonavista Bay.

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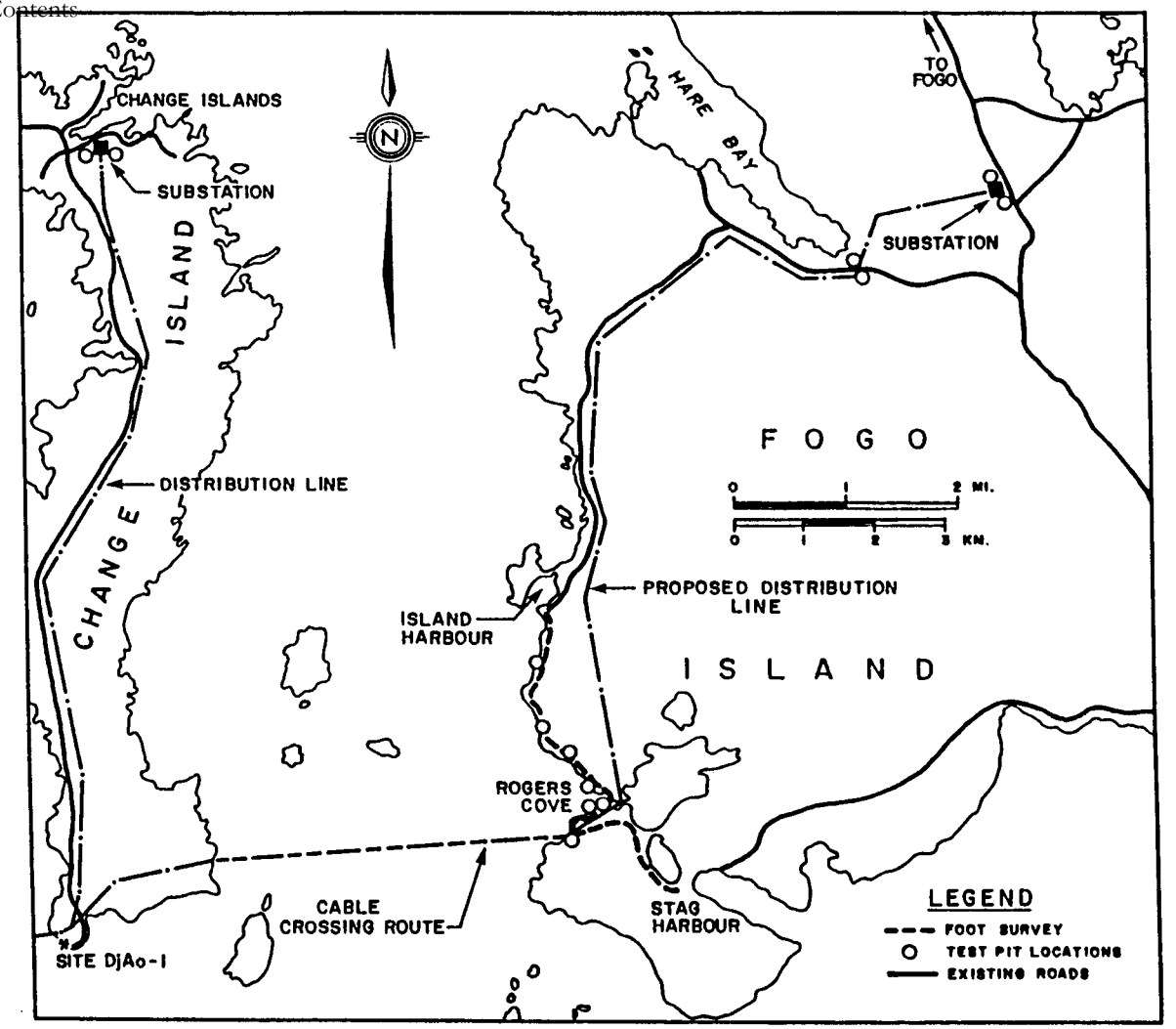

FIGURE 2

Change Island – Fogo Island survey areas.

Beothuk, centered on the Exploits River during the historic period, left many sites throughout Notre Dame Bay. A preliminary survey (Thomson 1981) of Fogo and Change Islands, as part of the Newfoundland Museum's Beothuk Project, failed to locate any historic resources, however. Excavations by Pastore (1982;1986) at a large Beothuk site (DiAp-3) at Boyd's Cove, have established it as the most significant Beothuk archaeology find during the last decade.

METHODOLOGY

The objective of the survey was to assess the historic resources of the area and relate them to the development and associated construction activities and to archaeologically survey the line routes and substation sites.

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Historic Resources Division documents were researched concerning known archaeology in or near the study area. Informant interviews took place at Port Albert, Change Islands and Island Harbour on Fogo Island. Field surveys were conducted under Archaeological Research Permits 1987-28 and 1988-02.

The transmission line route, including the marine cable landing areas (Plates 1 and 2), was overflown by helicopter at low level and at low speed (75 m / 100 km).

Foot surveys were conducted along the cut center line from the Farewell substation to Little Farewell Point, the Change Island corridor from South End to Dog Head, and the shoreline between Island Harbour and Rogers Cove on Fogo Island.

Five test pits were examined at the First Pond substation site; two at the Farewell substation site; four at Little Farewell Point; 10 at South End; three at the Change Islands substation site; four at Dog Head; three at Rogers Cove, and, three at the Fogo substation site.

Artifacts recovered at DjAo-1 are catalogued and conserved according to standards outlined in Appendix I: Terms and Conditions of Permits Concerning Conservation Procedures and are deposited at the Newfoundland Museum.

DATA AND ANALYSIS

Historical data - Mainland area

Jeffrey and Steele, based in Poole, England, and operating in Trinity, Newfoundland, had a permanent crew in Gander Bay in 1775. The crew supplemented their salmon fishery income as furriers which brought them into contact with the Beothuk. John Slade Jr. of Exploits Island had a salmon processing operation in Dog Bay during the latter part of the 18th century.

Even earlier, George Skeffington, a Quaker resident of Bonavista, had a salmon operation in Gander Bay. He joined competitor, Samuel Shambler, and established a salmon fishery on the Gander River. Indians protested their fishery by stealing and "three of Skeffington's men were killed by them in 1724" (Head 1976:75-76).

Change Islands

Change Islands, although part of the French shore, was not favored by them for fishing stations. English prosecution of the Labrador summer fishery brought sparse settlement; by 1845, 316 residents included 96 fishermen (Smallwood 1981:399).

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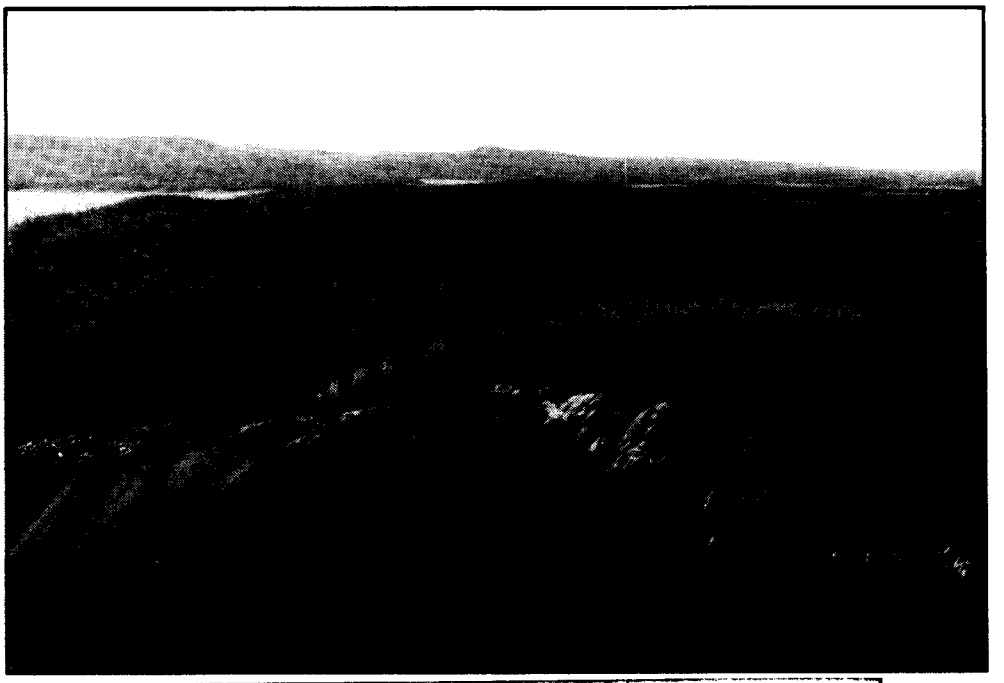

Little Farewell Point - submarine cable departure point for Change Islands.

South End, Change Islands - submarine cable arrival point.

PLATE 1

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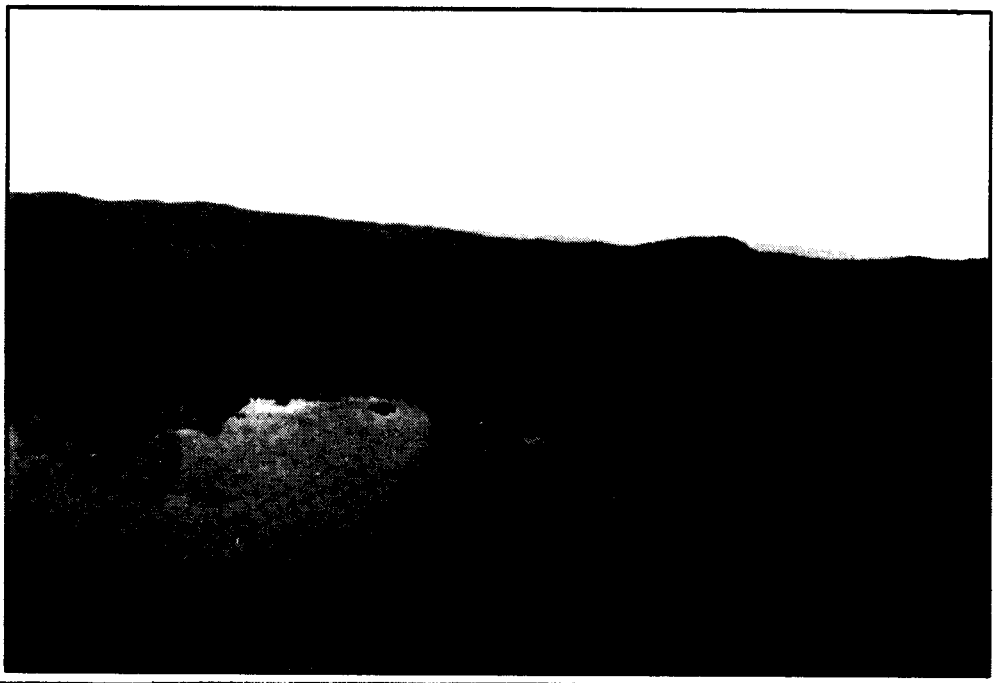
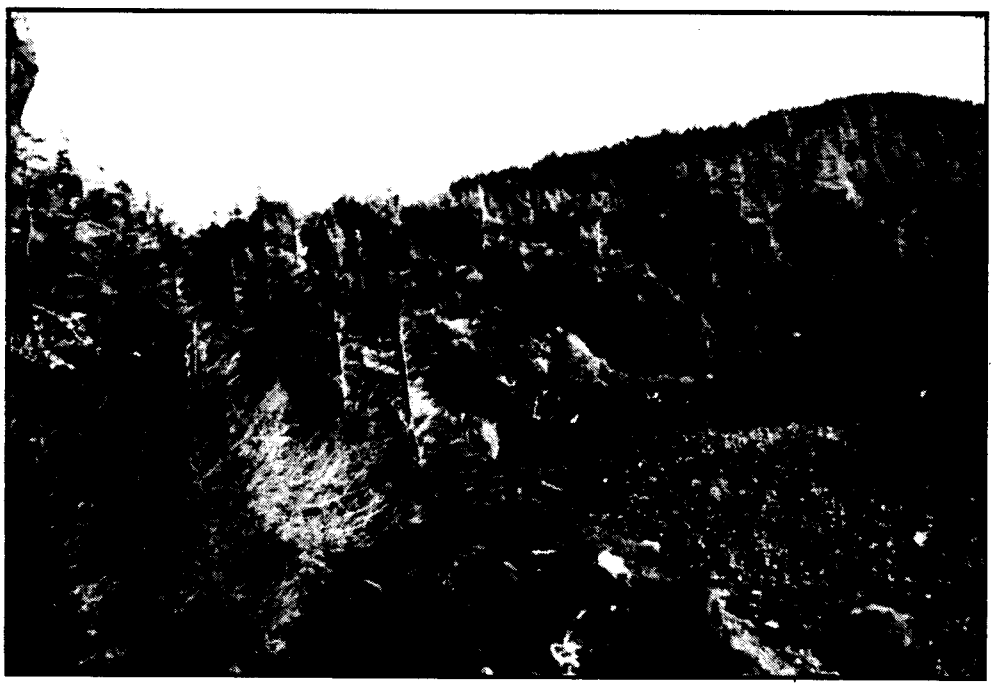


Dog Head, Change Islands - submarine cable departure point for Fogo Island.



Roger's Cove, Fogo Island - submarine cable arrival point.

PLATE 2

The great sealing enterprises of the mid-19th century brought about further population growth which has been sustained through the northern inshore cod fishery (Ibid:399).

South End was inhabited by the Elliott family, who maintained the South End lighthouse from 1906 until about 1960.

Fogo

Fogo Island's good northern harbours made it a southern station of the French shore fishery on this coast. A sparse population (300 in 1732) increased after 1760 when British merchants established there; by 1857 the population topped 2,400 having doubled since 1836 (Smallwood 1981:239). Sealing and cod fishing have been the mainstays of the local economy.

Smallwood reports Beothuk presence at Fogo Harbour (Ibid:237) and local legend supports such claims. Fogo Island is barren and inhospitable with the exception of the southwest portion and the 1981 Beothuk Project efforts on Fogo Island failed to locate any evidence of aboriginal occupations.

Informant data

Two informant interviews concerning the Farewell Head area were conducted at Port Albert. The Boyd's Cove site (DiAp-3) is known by both informants but no prehistoric sites were known at Farewell Head. One informant suggested an Indian burying ground was located at the North Head of Little Beaver Cove (now Port Albert). He suggested that Indian Garden Island, further north, would be a likely site as well. These areas are well outside the study area.

Nine interviews were conducted on Change Islands. Here again, the Beothuk theme was as prevalent as it was at Port Albert. Two areas on South Island, Indian Lookout near the center and Red Rock Cove on the west side, are reputed to be sites of Indian use. A footprint in the stone at Red Rock Cove is reported and stories of Beothuk - European interaction are common among all informants.

Nine informants on Fogo Island were not able to identify any historic resource sites on Fogo Island. The south headland of Rogers Cove where the submarine cable comes ashore on Fogo Island and the west coast of the island to Island Cove appear suitable for prehistoric occupation but there was no local knowledge of sites. In Fogo Harbour, Wigwam Point associates with Indian occupation but no artifacts are reported; the point is now obscured by fishing premises and wharfs.

Tales of Beothuk activity, well known throughout the entire area, are so entrenched in local oral history that considerable effort would be needed to document and analyze these themes.

Field data - Mainland areas

The proposed substation site at First Pond was previously used as a gravel pit. The substation site at Farewell Point is wooded and appears unattractive as a campsite. Test pits failed to recover any evidence of previous occupation; surface features are not evident.

Little Farewell Point (Cable Cove), where the proposed submarine power cable will leave the mainland, was the landing for a telephone cable which ran between Fogo, Change Islands and Farewell before Confederation. In a Cable Cove potato garden, owned by Herbert Elliott of Port Albert, pole cribbings still exist above ground.

Change Islands

No historic sites exist near the cable landing area, however, 250 m south of the center line (Plate 3) chert flakes were found in an outcropping on the western edge of South End Head. Eight flakes of rhyolite material and four of green chert indicate the prehistoric presence of Recent Indian people, most probably Beothuk. The outcrop is well mixed with European material. Generally the area has been disturbed, primarily by the construction and operation of a 19th century lighthouse, itself destroyed.

The site is ideal for prehistoric occupation as it faces south and gives ready access to other islands in the area. Seals, sea birds and fish abound in Hamilton Sound. The headland rises above a boggy area which contains a small pond and is drained to a small cove east of the headland. Elevated about 5 m a.s.l. the site is surrounded by cobble beaches and, in its natural state, would be backed by tree growth. Low artifact density indicates it may have been a temporary site.

Four test pits and a survey of the shoreline at Dog Head found no evidence of previous occupation.

The distribution line to the substation on Change Island follows the road from South End and crosses alternatively boggy or rocky areas unsuitable for occupation. The substation site (Plate 3) is boggy and unsuitably located for native occupation.

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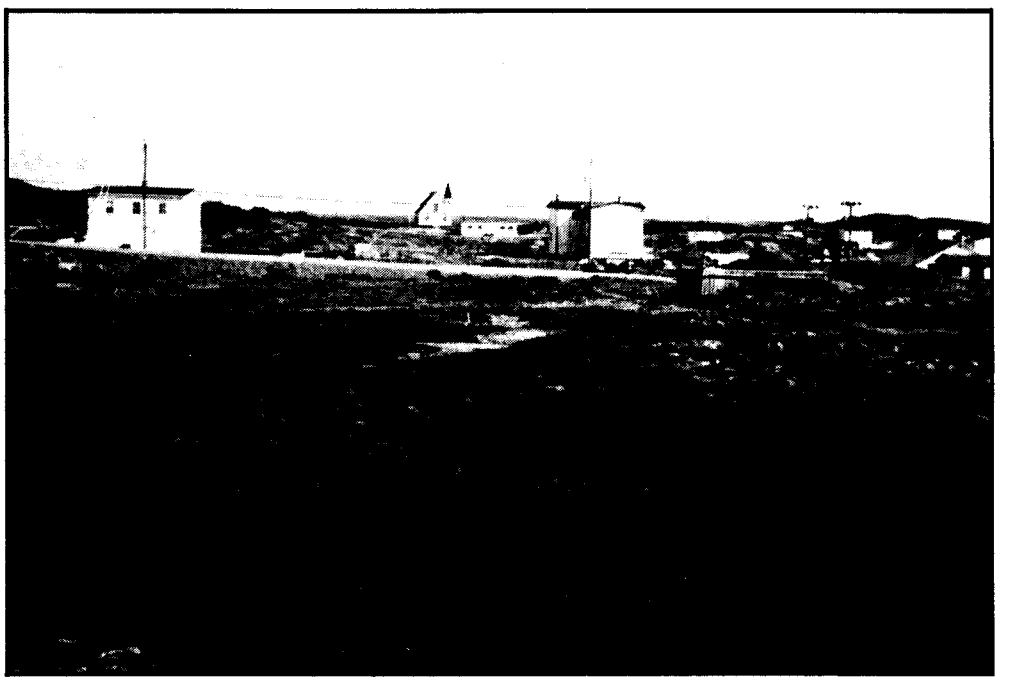
South End Light – site on beach to left of light.



Change Island substation site.

PLATE 3.

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Fogo Island

The west coast of Fogo Island (Plate 4) has several likely coves and beaches suitable for occupation but nothing was found during a foot survey of the area from Island Harbour to Rogers Cove (Plate 4). The latter, the original cable landing area, shows signs of European settlement but is now abandoned. The new cable landing area, on the south headland of Rogers Cove, was surveyed but no prehistoric resources were found. The landing area is boggy to salt water and entirely unsuitable for occupation.

The distribution line on Fogo crosses rough boggy terrain well back from the seashore and the substation site (Plate 4) is also boggy. These areas are also unsuited to aboriginal occupation.

SUMMARY

No impact on historic resources is predicted to occur as a result of construction of substations, transmission and distribution lines.

Construction activity accessing the cable landing site from the provincial road running from South End to the community of Change Islands will not impact the South End site unless construction activity takes place outside the right-of-way.

LIST OF INFORMANTS

Change Islands

Beluah Oakes
Tom and Marjorie Moore
Clarence Hoffe
Pearl Kearley
Gordon Walsh
Ross Powell
Julie Snow
Kevin Ledrew

Island Cove

Margaret McKinnon
Patricia Squires
Maureen Lynch
John Butt
Leo Lynch

Hydro construction inspectors

Harold Monks
Gerald Galway

Fogo

Susan Nippard
Gary Cole

Port Albert

Bill Elliott
Judy Elliott

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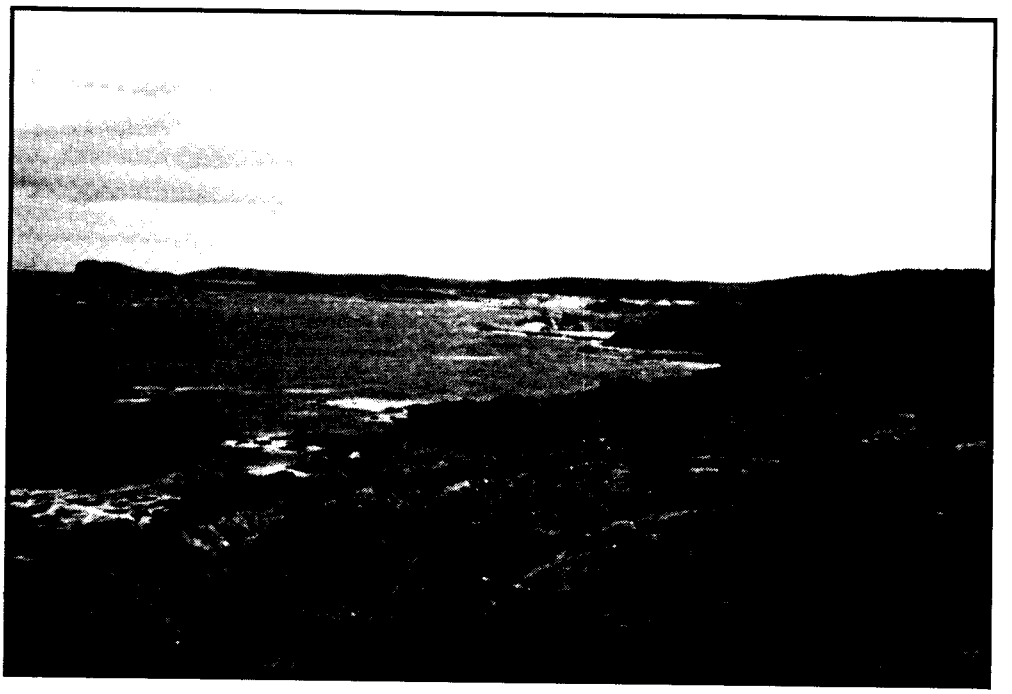
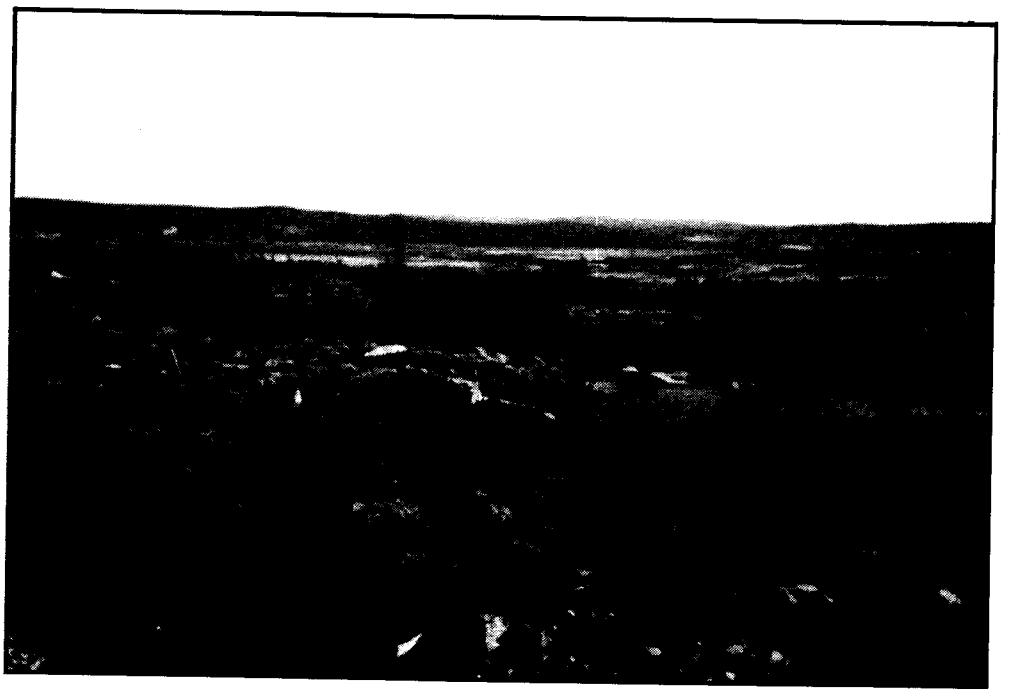


West coast Fogo Island – looking towards Island Harbour.



Fogo Island substation site.

PLATE 4.

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REPORT

HISTORIC RESOURCES OVERVIEW ASSESSMENT
PARADISE RIVER HYDRO DEVELOPMENT

submitted to

NEWFOUNDLAND AND LABRADOR HYDRO LTD.
St. John's, Newfoundland
A1A 2X8

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787
St. John's, Newfoundland
A1B 4G3

July 1988

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EXECUTIVE SUMMARY

Archaeological surveys were conducted along the access road to the development site, construction areas and river banks to be flooded. A helicopter overflight was undertaken of the distribution line route from the powerhouse to the substation near the Burin Peninsula Highway.

Consultations with residents of Monsktown established that local usage of Paradise River, and the waters which flow into it, was casual inasmuch as the survey areas were sometimes used as trails to get further inland and for limited saw log cutting.

Survey areas appear low in prehistoric and historic resource potential and no additional work is recommended. Procedures for the accidental discovery of sites are included in the client's environmental protection plan (Hydro 1987).

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INTRODUCTION

The historic resources overview assessment for the Paradise River hydro development is in three phases which correspond to Hydro's development activities.

The work, a continuation of a preliminary review (Penney 1985) for Newfoundland Light & Power Co. Limited, was conducted in May 1987 (Phase I); July 1987 (Phase II) and April 1988 (Phase III). Interim reports were provided to Hydro in July and October of 1987.

The study followed a terms of reference (appended) supplied by Hydro's Environmental Services Department and this report encompasses all required work.

PROJECT DESCRIPTION

A 41.7 m high dam in the gorge below the Paradise River falls will create a 58 ha lake in the river valley extending upstream about 5 km. A 3.5 km road from the Monsktown Road to the river mouth (powerhouse site) and to the dam will access the project area.

A 25 kv distribution line which will carry electricity to an existing substation on the Burin Peninsula highway and a 14.4 kv distribution line to Monkstown, previously assessed (Penney 1987), complete the project (Figure 1).

METHODOLOGY

A review of literature and documents at the Newfoundland Museum was carried out prior to field investigations but no references to sites or native use of the upper Paradise Sound area were located. Air photos of the river system were studied.

Information concerning 19th and 20th century activities on Paradise River was sought of Monkstown residents (Appendix 1). Questions concerning Micmac or Beothuk use of the river were asked. Knowledge of prehistoric sites or artifacts, topographic details and a local toponomy of the various tributaries of Paradise River were the focus of consultations.

The ground survey and test pitting of the road right-of-way and the riverbank flood area were conducted to standards set out in the Historic Resources Overview Assessment Guidelines (1982).

A helicopter overflight of the proposed 25 kv distribution line was made at low height and low speed (75 m/100 km/hr).

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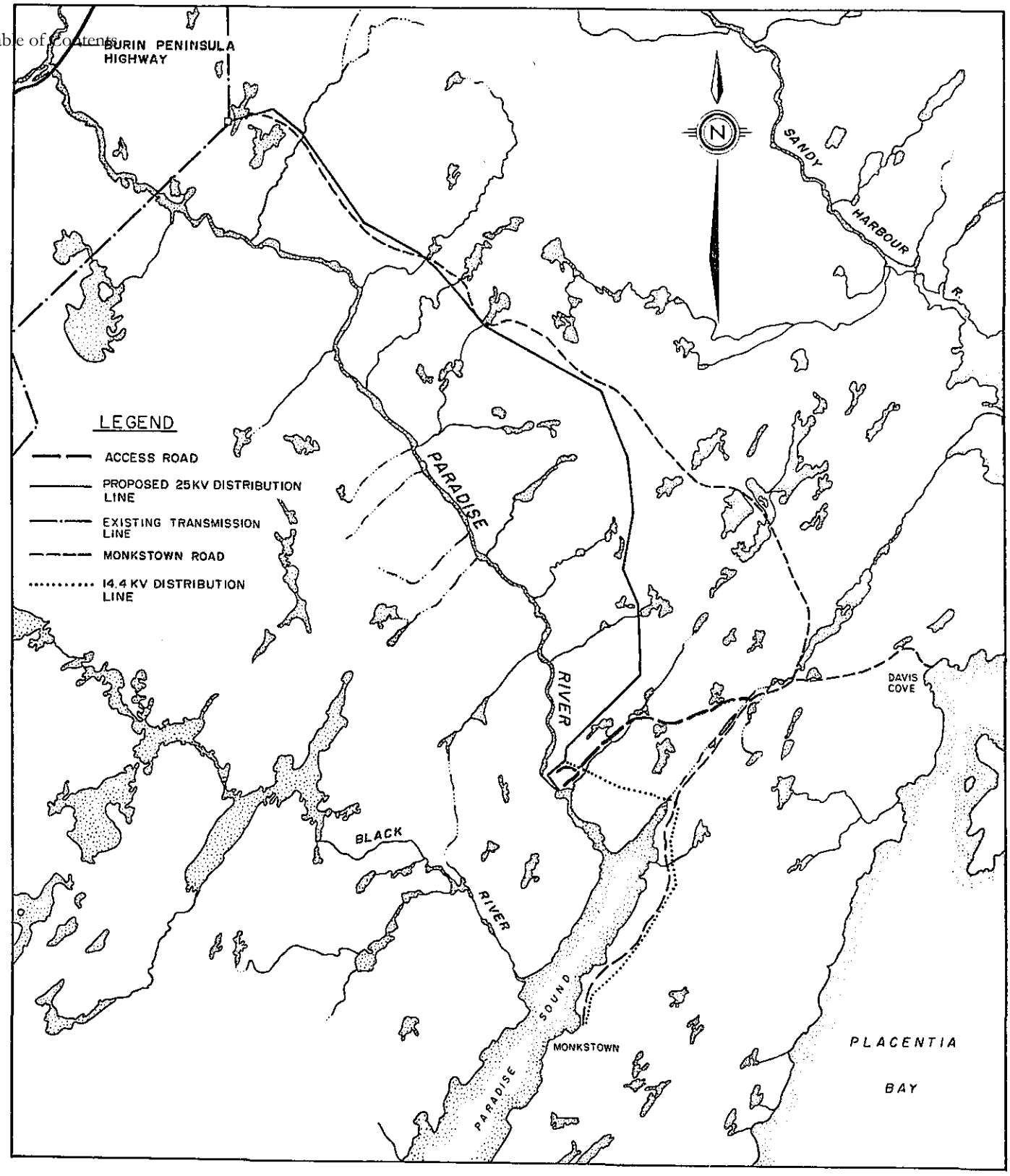

PARADISE RIVER HYDRO DEVELOPMENT AREA

SCALE

0 1 2 3 MILES

0 1 2 3 KILOMETRES

FIGURE 1

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Time was spent with Hydro's on-site environmental monitor, Mr. David Vokey, and project engineer, Mr. Ronald Power, discussing the project area, historic resources and archaeology.

River banks to be flooded were ground surveyed from the falls to Indian Tent Brook on the west bank and in the area between Eastern Ten Mile Feeder and Pardy's Gulch Brook on the east bank. Likely camping areas, at the mouth of the small brooks, were checked for signs of occupation.

DATA AND INTERPRETATION

Ten archaeological sites have been recorded in the northern half of Placentia Bay, seven on the Merasheen Island and Long Island group, three on the mainland in the Come by Chance area (Figure 2). Another site of undetermined cultural affiliation (Penney 1984) at Cow Head in Mortier Bay has been recorded.

Two Beothuk burials containing artifacts, beads, feathers, bone pendants and sewn birch bark, discovered on Hangman's Island and Tilt Island during the 19th century, were recorded by Howley (1915:293).

Cormack (1823) and oral history acknowledge Micmac presence at Piper's Hole River, northwest of Paradise River, during the early 19th century.

Basques were the first Europeans in Placentia Bay during the 16th century. The French, until their 1713 ouster by the Treaty of Utrecht, were centered at Fort Placentia and were first to settle the inner bay. Rogers (1911:87) claims small settlements near Paradise Sound and adjoining islands were the first French sub-settlements.

British settlement of the area after Queen Anne's War was slow. Head (1976:57, 156) suggests a few hundred fishermen in the 1720s "increased between 1000 and 2000 by the 1770s, and by that date 900 persons remained over the winter." During the 19th century Placentia Bay population increased significantly. Between 1836 and 1857 it increased from 1787 to 3505, a 96% increase. Highly productive herring and lobster fisheries, coupled with whale hunting, created a further 72% increase between 1857 and 1911.

In Paradise Sound (the name became Monkstown in 1902) four people are recorded in 1857, two thought to be William and Catherine Monk from Flat Island (Port Elizabeth). Other early settlers were Barrett's from Woody Island and Pardy's from Burnt Island (Port Ann). Settlement in Paradise Sound resulted from population saturation on the offshore islands, a more diversified fishing economy and the growth of sawmilling and boat construction.

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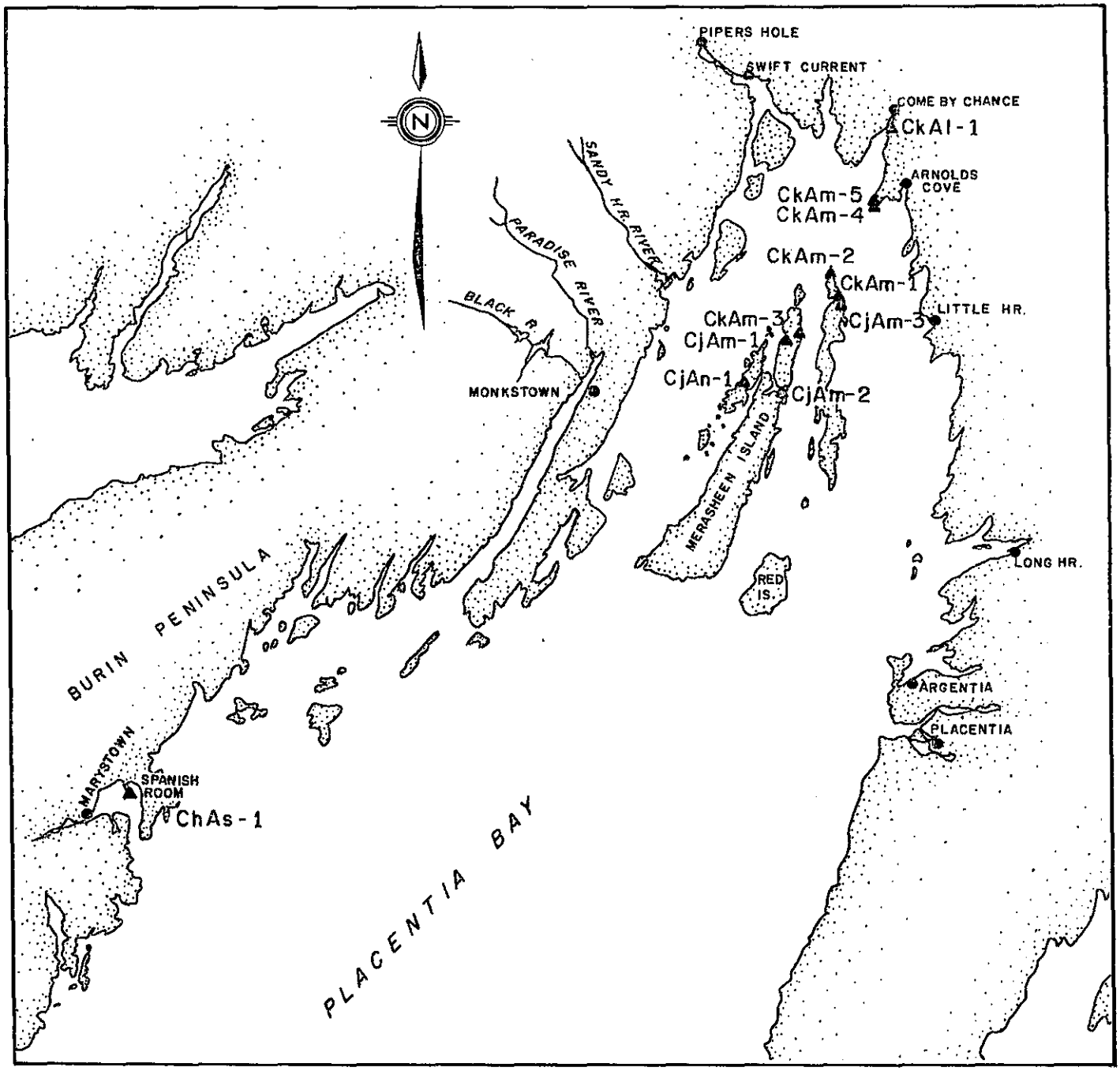

PLACENTIA BAY ARCHAEOLOGICAL SITES

KILOMETRES
0 5 10 15 20 25

FIGURE 2

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The forests of the Paradise River and Black River valleys were an important resource on the Burin Peninsula. James and William Monk established a sawmill in Paradise Sound in 1869 and Charles Joyce, of Burin, established a mill on Paradise River in 1902. Other sawmills were set up in the bay and Brown (1985:145) records three at Monkstown in 1911 and five more, at other communities in 1921.

A 1923 colonial government sponsored pitprop cutting operation created a minor boom in Placentia Bay. Monkstown's population of 20 families grew to 50 or more by 1925.

Monkstown residents trapped for fur on the Paradise River and Black River; Ronald Hefferan of Monkstown still maintains trap lines in the area.

Informants identified trails and routes used to access the interior as well as providing local names (Figure 3) for brooks and areas not identified on available topographic maps.

Phase I results

The 3.5 km access road (Figure 4) passes through four distinct areas: the intersection with the Monkstown road; the southern shorelines of ponds 1 and 2; a gully between ponds 3 and 4; and, the area between the proposed bridge crossing on the access road and the mouth of Outside Feeder. These, plus the branch road to the dam site, the campsite and the tunnel access site, make seven roadway areas where test pitting was focussed.

The access road intersection area is generally boggy and wet. The first 200 m of the road follows an existing skidoo trail across hard ground with thin soil and exposed rock. Eight test locations investigated in this area were sterile.

The shorelines of ponds 1 and 2 on the access road are steep. Cuttings in the woods near the small brook flowing between the ponds indicate use, probably by trappers cutting beaver trap sticks. Six test pit areas investigated in this section were sterile.

Between Ponds 2 and 3 the terrain is rugged and the hills are steep. The road between Ponds 3 and 4 follows established trails used by Monkstown residents to access the interior. Three test pit areas were sterile.

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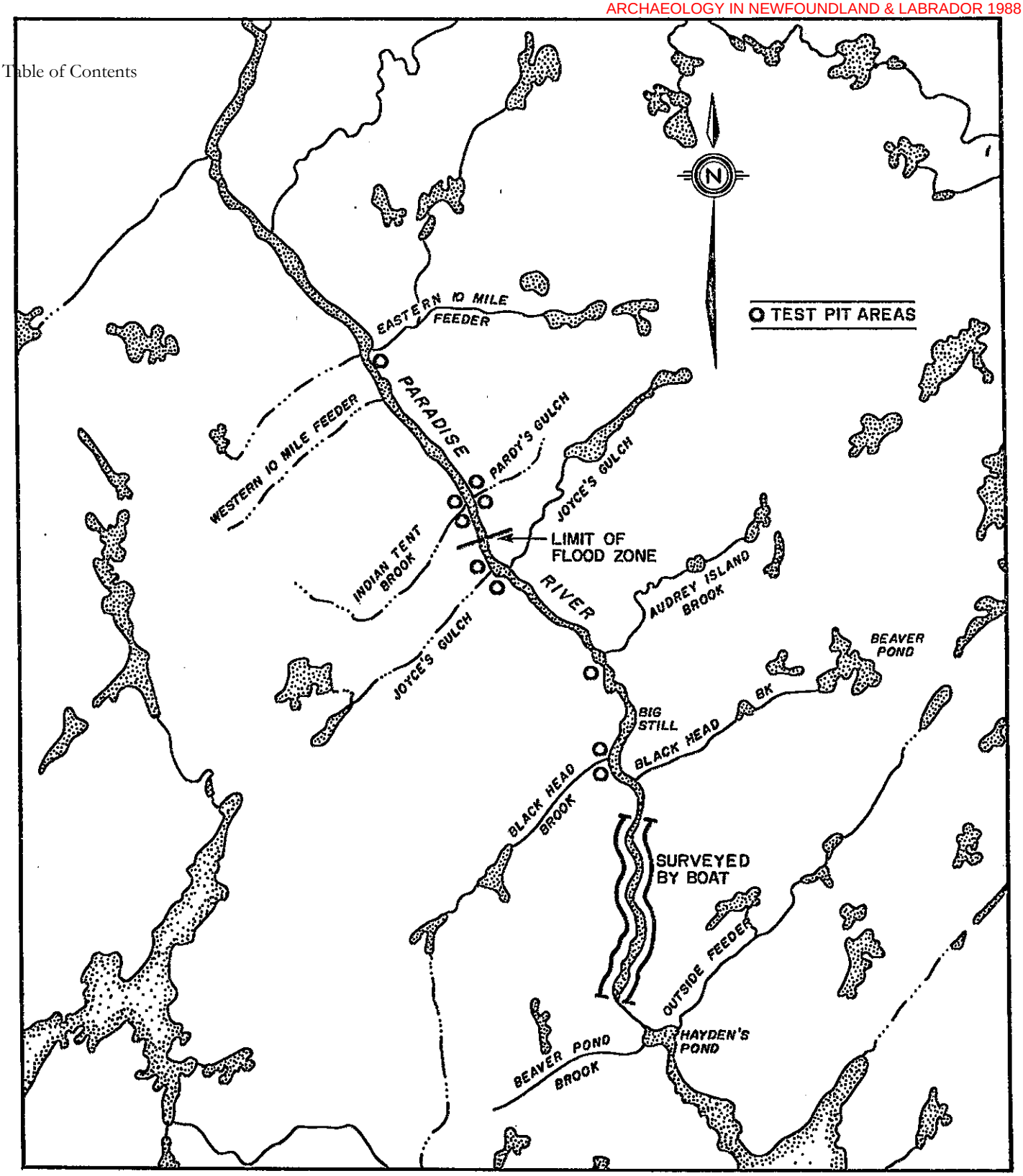
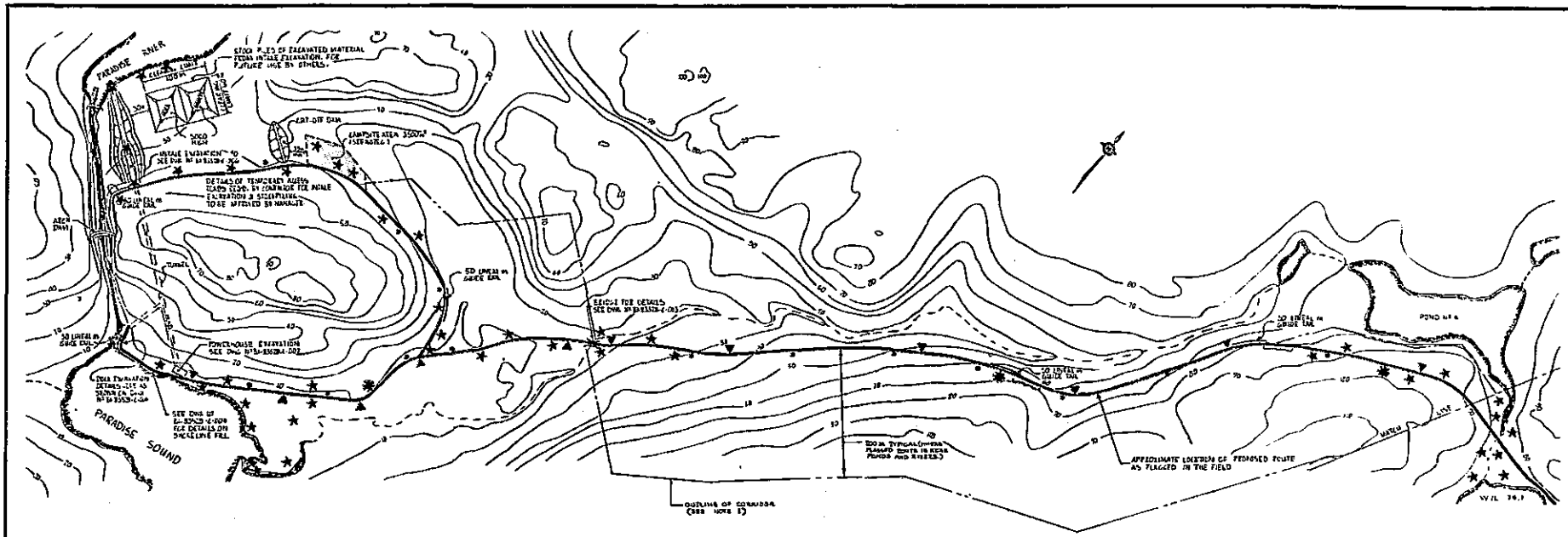


PARADISE RIVER TEST AREAS

FIGURE 3



LEGEND

- Stream crossing (2 culverts) 2 req'd
- Stream crossing (3 culverts) 1 req'd
- Intermediate drainage control culvert
- Bridge crossing
- Road turnout
- Borrow locations applied for by owner
- 50m guide rail
- Rock excavation req'd to satisfy environmental requirements
- Test pit locations

NOTES

1. A 200m wide corridor is available along the route shown in which the road must be constructed.
2. A 6m wide buffer in which trees cannot be cut is required along the shore of freshwater bodies along the route.

SCALE
0 50 100 150 200 metres

PARADISE RIVER HYDRO DEVELOPMENT

FIGURE 4

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The section along Outside Feeder from the bridge crossing to the powerhouse appeared to have the greatest potential for historic resources ~~sites~~. The only brook crossing on the access road is over Outside Feeder Brook, the mouth of which is called Hayden's Yard. The vegetation along this brook is dense alders. Monkstown residents recall that this valley may have contained one or more winterhouses, dating from the 1920's. The small forests throughout the area show continued cutting. The powerhouse site, surveyed twice in 1987, locally called "The Pond", showed no evidence of use. The water in this area, which is subject to tidal influence, is generally brackish. Ten test pit areas were sterile.

The eastern shoreline of Paradise River, above the falls, is formed by a small bank on which it is possible to camp. An approved channel to the powerhouse tunnel is to be excavated through this area. The top of the bank, about 6 m back from the river shore, is a game trail. Behind the bank the ground becomes wet and boggy for about 200 m to the base of a hill. Seven test pit locations were sterile.

The location for the construction campsite is a naturally level area of hard packed sand covered with turf bog. About 5000 square meters of the area was checked; six test pit locations were sterile.

The branch road to the dam site follows a well established path used by people and animals to get around the falls. This branch road is about 1 km long with the intersection at the base of a hill about 1 km from the powerhouse site. Seven test pit locations along this road were sterile.

Phase II Results

A helicopter survey of the 25 kv distribution line from the powerhouse at Paradise River to an existing substation near the intersection of the Burin Peninsula Highway and Monkstown access road was made.

The upland areas from Paradise River powerhouse to the sub-station near the Burin Peninsula Highway is tundra-like with bogs (wetlands), shrubs, lichens and heathers, ponds and rock outcrops. Such an area would have been marginal to prehistoric peoples except as travel routes.

No areas of interest requiring further ground testing or surveying were observed along the distribution line corridor and the results of the survey confirm local interview information that little use has been made of the area.

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Phase III

Both banks of the Paradise River above the falls are steep and extremely rugged. Heavily tree covered, the valley has large rock outcroppings requiring climbing to advance upstream. Small brooks flow from barrens and bogs atop the river valley but these are tiny (1.5 m wide .25 m deep). At the mouths of these brooks some flat areas exist but generally they are too small and wet for camping (Plate 1).

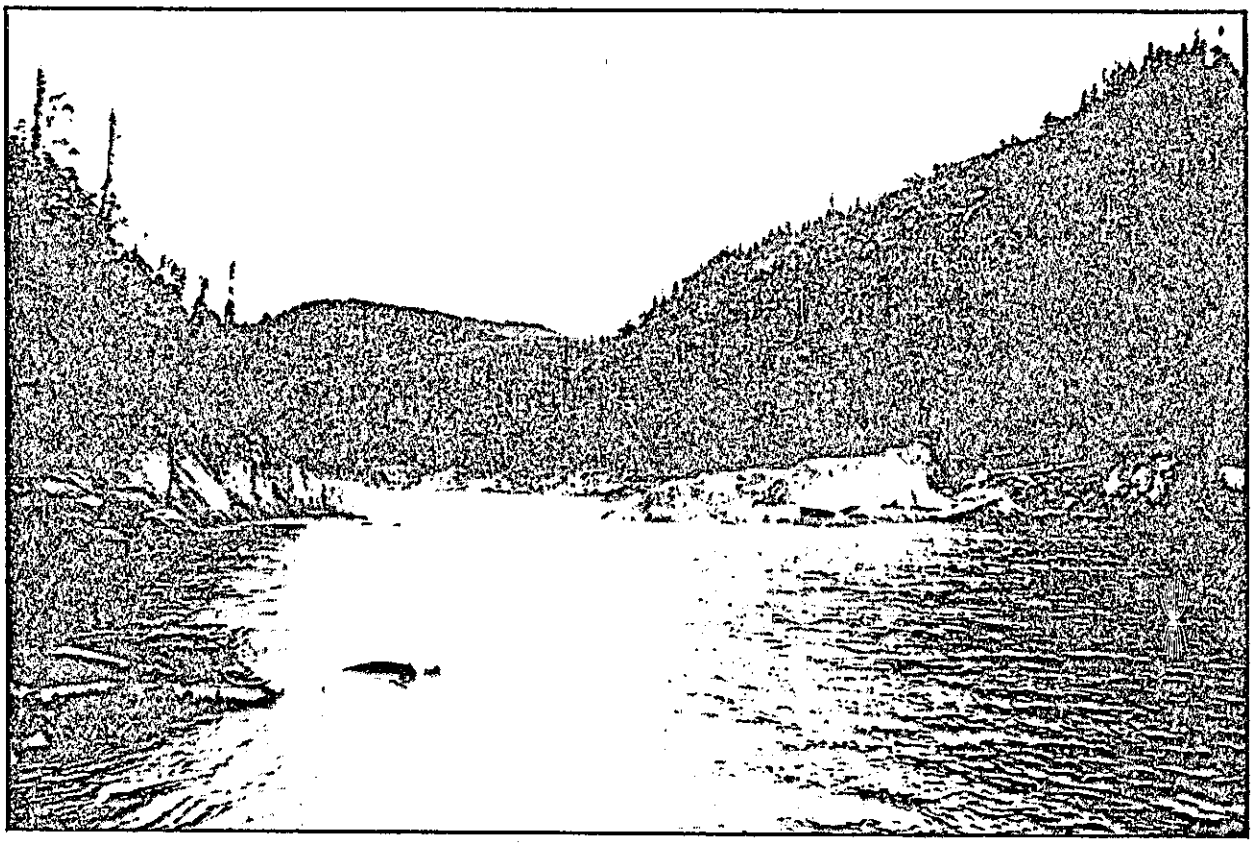

Plate 1: Looking downriver to Pardy's Gulch

Cutovers exist along both sides of the river. Informants say the areas were accessed by horse and sleigh across the barrens and then down the brook gulches. Trees are generally small, although some old stumps indicate large spruce once grew there.

Informants who have logged the area agree the terrain is too rough, and the forest too limited, for any large scale operations. As well the many rapids and obstructions on the river make it difficult to float logs out of the area. Earlier, unmechanized, wood cutting operations concentrated in the valleys between Monkstown and Davis Cove and along the steep shorelines of Paradise Sound.

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The east side of the river, between the main falls and Audrey Island Brook is steeper and rougher than the west side. Between Pardy's Gulch and Audrey Island Brook there are sandy, flat areas but access to them is limited by the terrain. Indian Tent Brook derives its name from a late 19th century "Indian style" European built tilt located in the gulch.

A recently abandoned (post 1960) log tilt exists on a flat area on the lower side of the mouth of Eastern Ten Mile Feeder (Plate 2).

Plate 2: Log tilt at mouth of Eastern Ten Mile Feeder

The flat areas at the mouths of Pardy's Gulch Brook and Joyce's Gulch Brook are large enough for camping but out of the way. Wood cutters seemed to have pitched camps above the river at the top of the cutovers. Some plastic debris and tent bough piles were found above the flood line marks in two recent cutovers. The cutovers, given the height of stumps (about 2.0 m), were all used in winter operations.

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The river does not have salmon or sea trout resources and brook trout populations seem limited to the upper, shallow, reaches of the river. Mammal wildlife appears scarce (some moose and bear signs were observed in the gulches). This lack of animal and fish resources, coupled with general inaccessibility, probably means aboriginal people, as with later European settlers, did not extensively use the river valley. As well, Paradise River does not lead into an exploitable interior, as does Piper's Hole River. Above Western Ten Mile Feeder trees are scarce and the valley gives way to the barren interior of the Burin Peninsula.

DISCUSSION

Survey areas appear low in prehistoric and historic resource potential and no additional work is recommended. Procedures for the accidental discovery of sites are included in the client's environmental protection plan (Hydro 1987).

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1985 The Impact of Modernization on a Traditional Regional System: the case of inner Placentia Bay 1911-1966. Unpublished M.A. thesis, Department of Geography. Memorial University of Newfoundland. St. John's.

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Head, C. Grant
1976 Eighteenth Century Newfoundland. McClelland and Stewart. Toronto.

Howley, James
1911 The Beothucks or Red Indians. Cambridge University Press. London.

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1987 Environmental Protection Plan for the Paradise River Hydroelectric Development. Copy on file, Department of Environment and Lands, Confederation Building. St. John's.

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1911 Newfoundland. Clarendon Press. Oxford.

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APPENDIX 1
LIST OF INTERVIEWED MONKSTOWN RESIDENTS

Brigadier (Ret.) Abraham and Eliza Churchill
Major (Ret.) Enos Darby
George and Rita Piercey
Bill and Beatrice Butler
Ronald and Isabella Hefferan
Mr. and Mrs. George Monk
Vickie Hammond
Bill Barry
Ronald Hefferan, Jr.
Ben Barrett
Albert Hefferan
Maxwell Monk
William Masters
Howard Barrett
Roger Carter

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APPENDIX 2
TERMS OF REFERENCE

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TERMS OF REFERENCE

HISTORIC RESOURCES ASSESSMENT FOR THE PROPOSED PARADISE RIVER HYDROELECTRIC DEVELOPMENT

-- PHASE II --

Newfoundland and Labrador Hydro

Environmental Services Department

June 17, 1987

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OBJECTIVE

The objective of this study is to implement the recommendations for additional historic resources assessment of the proposed Paradise River Hydroelectric Development as recommended in the Paradise River Hydroelectric Development Environmental Preview Report and the previous historic resources assessment entitled Paradise River Hydro Development Historic Resources Overview Assessment. Specifically, the objective is to survey the site of the proposed development to identify and further assess the historic resources which may be adversely affected by the development, and to recommend mitigative measures where appropriate.

STUDY AREA

The study area includes all of that area which will be affected by the Paradise River Development which includes the:

(1) access road;
(2) 25 kV transmission line;
(3) all major civil works; and
(4) flood zone of the reservoir.

The location of these are shown on the drawings which are attached as follows:

(1) B1-83528-C-001 Rev A;
(2) B1-83528-C-002 Rev A; and
(3) S-130-R-06.

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METHODS

The consultant shall conduct the study as per the Historic Resources Overview Assessment Detailed Guidelines (1982) and in consultation with the Historic Resources Division of the Department of Culture, Recreation and Youth.
The study shall consist of:

(1) an effort to further ascertain the oral history of Monkstown and link this to potential and/or actual historic sites in the study area;

(2) a helicopter survey of the transmission line right-of-way; depending on the results of this survey, the consultant shall undertake additional work, using professional judgement as to the need for ground surveys and test pitting in areas of potential historic resources interest;

(3) a ground survey of the access road route, undertaking a set of test pits across the width of the right-of-way, every 100m except on bog or bare rock, for the entire planned access road route, and elsewhere, using professional judgement as necessary;

(4) a ground survey of the areas of proposed activity including the powerhouse, dams, campsite, spoil areas, etc., with test pitting where, using professional judgement, it is necessary to do so; and

(5) a ground survey along the shoreline of the Paradise River which is to be flooded, with concentrated effort at the mouth of its tributaries; test pitting shall be conducted where, using professional judgement, it is necessary to do so.

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OTHER

The consultant shall be responsible for travel arrangements including helicopter.

The work shall be scheduled so that each part of the development is surveyed at the most opportune time from a historic resources perspective and well in advance of the start of construction.

Any material found requiring conservation measures will be conserved by a conservator meeting Historic Resources Division approval, at the Owner's expense; materials will be returned to the Historic Resources Division in a fully-conserved condition.

The contact person for Hydro will be Frank L. Ricketts, (737-1708).

REPORT

The consultant shall prepare a report on this assessment which recommends mitigative measures. The report shall follow the format suggested in the Historic Resources Guidelines.
It may be necessary to file an interim report for certain parts of the work where scheduling necessitates immediate reporting of findings in areas of imminent construction activity.

The location of test pits shall be accurately reported on suitable mapping and all data on test pitting shall be reported in an appropriate manner.

A draft final report shall be submitted within 30 days of the completion of the final field surveys. Following a review period, one final copy will be submitted to Hydro within 30 days of receipt of review comments.

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REPORT

HISTORIC RESOURCES OVERVIEW ASSESSMENT
PROPOSED TCH TO GEORGE'S BROOK BYPASS ROAD

submitted to

DEPARTMENT OF TRANSPORTATION
CONFEDERATION BUILDING
ST. JOHN'S, NEWFOUNDLAND

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787
St. John's, Newfoundland
A1B 4G3

August 1988

88.13

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EXECUTIVE SUMMARY

An archaeological survey of a proposed bypass road route, from the Trans Canada Highway to Highway 230 (the Discovery Trail), was conducted. Consultations with residents established local usage patterns within the study area.

The road route appears low in prehistoric and historic resource potential and no additional work is recommended. Procedures for the accidental discovery of sites are included in the client's contract documents.

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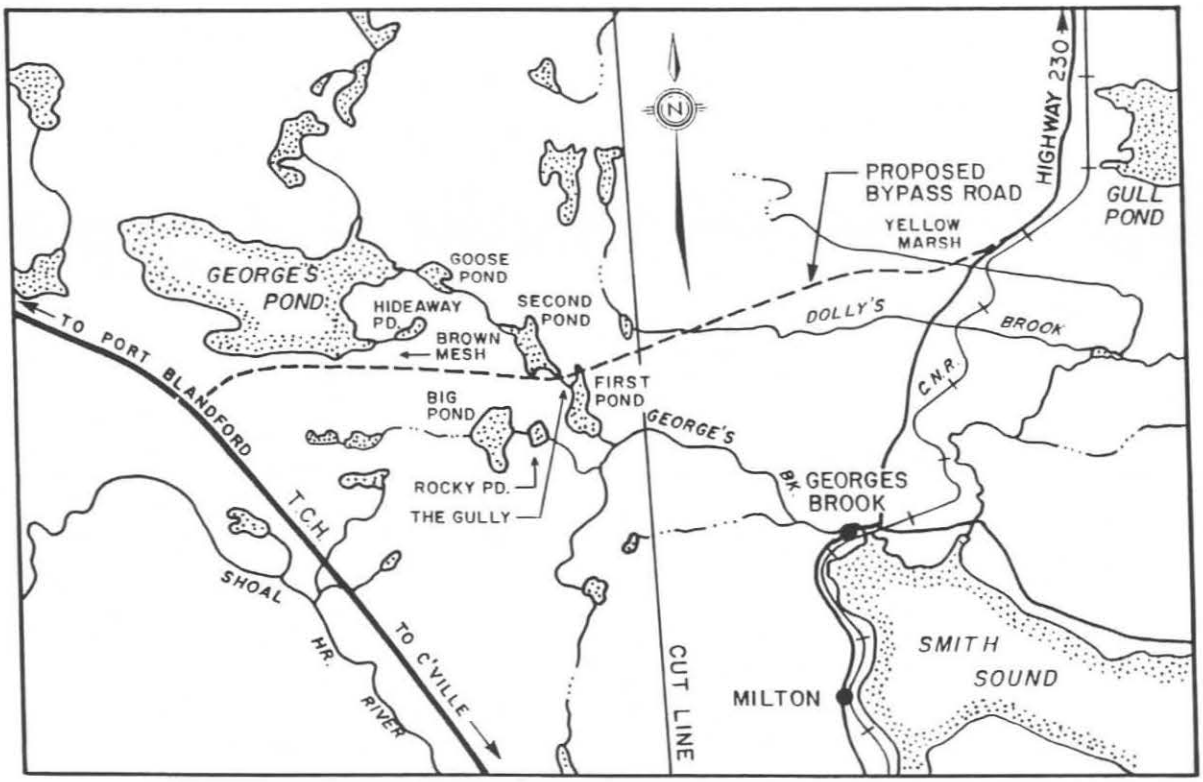
INTRODUCTION

An historic resources overview assessment of a proposed bypass road (Figure 1) from the Trans Canada Highway to Highway 230 near George's Brook, Trinity Bay, was undertaken to determine for the Department of Transportation, Government of Newfoundland and Labrador, the impact, if any, on historic resources from bypass road construction. The work was conducted under Archaeological Research Permit 1988-13 and encompasses all required work.



TCH AND GEORGE'S BROOK BYPASS ROAD

SCALE
0 1 2 3 MILES
0 1 2 3 KILOMETRES

PROJECT DESCRIPTION

The Department of Transportation plans to build a 12km access route connecting the Trans Canada Highway (Route 1) to Highway 230 to the Bonavista Peninsula. The route passes south of George's Pond, crosses George's Brook and several bogs before joining Highway 230 southwest of Gull Pond.

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STUDY AREA

The bypass road closest approach to the seacoast is near the community of George's Brook at the extreme western end of Smith Sound. George's Brook is the largest brook access into the interior north of Shoal Harbour. Residents believe W.E. Cormack, during his 1822 trans-island trek, accessed the interior through George's Brook, suggesting this may have been a well established Micmac route.

A survey (Penney 1978) of the North shore of Trinity Bay found one Maritime Archaic Indian site on the mainland shore of Southwest Arm, some 20 km south of the study area. The extensive use of polished slate for adzes, axes and lances by these people suggests the area may have been used because of the slate deposits in and around Random Island.

A recent survey (Penney 1987) of a proposed access road to the Nut Cove slate quarry did not locate any prehistoric sites.

METHODOLOGY

A review of literature and documents at the Historic Resources Division was carried out prior to field investigations. Air photos of the river system were studied at the Howley Building.

Information concerning 19th and 20th century activities in the George's Brook area was sought from local residents. Questions concerning Micmac or Beothuk use of the area were asked.

The survey of the road right-of-way was conducted to standards set out in the Historic Resources Overview Assessment Guidelines (1982).

The road route was foot surveyed and ten test pits (30cm x 30cm x 45cm) were dug where the route approaches the south shore of George's Pond, at The Gully where the route crosses George's Brook and near Yellow Marsh where the route joins Highway 230.

DATA AND INTERPRETATION

Informant and documentary data

No references to prehistoric sites along the road corridor are recorded at the Historic Resources Division, Government of Newfoundland and Labrador. Informants identified ponds, brooks and other physical features of the study area by providing local names (Figure 1) not identified on available topographic maps.

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George's Brook has served Europeans in Smith Sound and Northwest Arm as access to the interior Southwest River area extending as far inland as the Mount Sylvester region. Even so, Cormack walked inland from Milton through dense forests and his journal describes the ardure of the walk for the first few days before they broke out on the interior barrens south of Thorburn Lake. Cormack (1823:157) also reports a European graveyard at Milton "appropriated to the internment of those who had died while employed in the vicinity."

Cormack (ibid:157) says "in consequence of black birch ...and white pine...having been produced in considerable quantities for shipbuilding, it appears to have been formerly much resorted to and ships have been built there" indicating European use before 1823.

The first year-round settlers at George's Brook came from Hant's Harbour expressly for the area's rich forest resources. The town's name derives from George Pelley, an early settler who occupied the area before 1862 (Smallwood 1981:512).

At the turn of the present century the region's growth as a mining, fishing, shipbuilding and, most importantly, as a railway center, made heavy demands on the wood resources. Woodsmen and foresters from George's Brook continue to thoroughly exploit the region's forests, sometimes in competition with their counterparts from Burgoyne's Cove to the east and Charleston to the north.

Residents assume Indians occupied the mouth of George's Brook and there are reports of artifacts but none were located. Micmac use of Clode Sound and the northwest bottom of Placentia Bay is known and their proximity to the study area suggests possible Micmac presence in Northwest Arm.

Field data

The bypass road route center line was surveyed by Department of Transportation surveyors in the early 1980's. Traces of the cut line are evident in the thicker forest but generally it is overgrown by dense alders and other shrubs. Along the south side of George's Pond the forest is thick and the ground rough. No trails exist but several cutovers indicate a second or third cutting operation has taken place. Two test pits on a rise near the eastern end of the pond were sterile.

Where the road route crosses George's Brook, at The Gully (Plate 1), several intense, mechanized cutting operations have taken place in the past 40 years and the ground is torn up. The survey line is evident here and the water crossing is the site of a woods road crossing as well. Five test pits dug in this area were sterile. A modern sawmill operation here is located on the site of at least one older mill. Abandoned machinery, garbage, slab and sawdust piles are extensive throughout this area.

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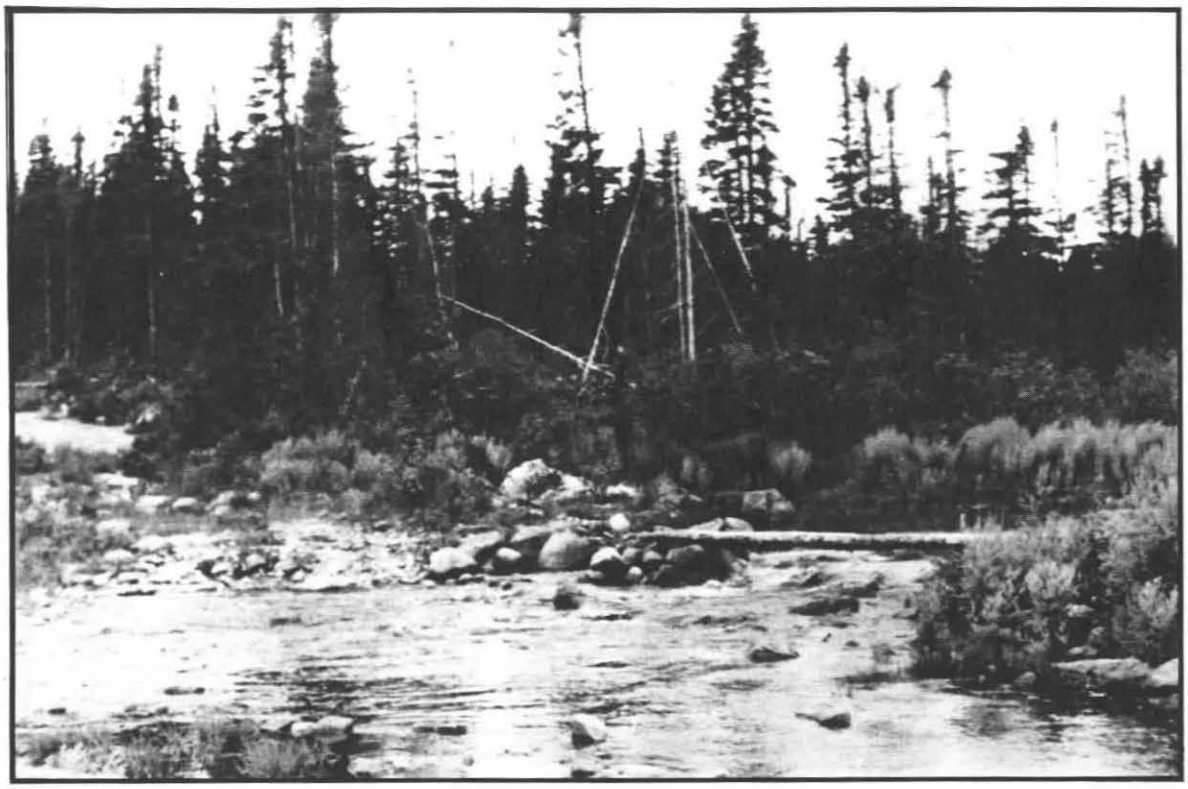

Plate 1: The Gully road crossing area

At Highway 230 the bypass road route is through a stand of larch and over bogs. Yellow Marsh Brook, to the north, is little more than a drain for the marsh itself. Dolly's Brook, which rises west of the Yellow Marsh, is a larger tributary of Ryder's Brook. Its crossing is obscured and has been disturbed. Three test pits at the Dolly Brook crossing were sterile.

No trace of a Reid Lot survey line, which passes through the bypass route near the Dolly's Brook crossing, were found.

CONCLUSION

No areas of interest requiring further ground testing or surveying were observed along the road route and the results of the survey confirm local interview information that extensive use has been made of the area.

LIST OF INFORMANTS

George Butt	Randy Ellis
George Pelley	Dave Dyke
Peter Martin	Malcolm Ellis

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1823 A Narrative of a journey across the island of Newfoundland in 1822. Edinburgh Philosophical Journal, Vol. 10 Pp. 156-162. Edinburgh.

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REPORT

HISTORIC RESOURCES OVERVIEW ASSESSMENT RODDICKTON WOOD CHIP FIRED THERMAL GENERATING PLANT AND TRANSMISSION LINE

submitted to

NEWFOUNDLAND AND LABRADOR HYDRO LTD.
St. John's, Newfoundland
A1A 2X8

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787
St. John's, Newfoundland
A1B 4G3

August 1988

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EXECUTIVE SUMMARY

Archaeological surveys at the site of a proposed wood chip fired thermal generating plant and associated facilities including a water supply pipeline route, substation sites at Main Brook and St. Anthony airport, and along a transmission line route were conducted.

Consultations with Main Brook, Roddickton and St. Anthony residents established local usage of the various inland waters and routes. A helicopter overflight of the transmission line concluded that the Main Brook area has the highest potential for historic resources.

Surveyed areas at Roddickton, Main Brook and at river crossings are considerably disturbed by pulpwood cutting operations over the past 50 years. No historic resources were identified at the proposed facility locations and no additional work is recommended. Procedures for the accidental discovery of sites are included in the client's construction contract documents.

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INTRODUCTION

An historic resources overview assessment of the thermal generating plant development and ancillary facilities was conducted between 05 June and 17 June, 1988. The study was completed under a terms of reference (Appendix 1) supplied by Hydro's Environmental Services Department and under Archaeological Research Permit 88-03. This report encompasses all the work required under the terms of reference.

PROJECT DESCRIPTION

Newfoundland Hydro plans to build a wood chip fired thermal generating plant near Roddickton (Figure 1), on the Great Northern Peninsula. The plant will replace diesel generators currently used in the community.

A small pond near the plant site will supply water to the plant; a road and pipeline will connect the pond to the plant. A 65km transmission line will carry electricity from the plant to a substation site on Highway 430 near the St. Anthony airport. A substation will be built at Main Brook.

METHODOLOGY

A review of Historic Resources Division literature and documents was carried out prior to field investigations. Air photos of the area were studied.

Information concerning 19th and 20th century activities along Salmon River, Southwest River and at Roddickton was sought from local residents. Questions concerning Micmac or Beothuk use of the area and details concerning prehistoric sites or artifacts from the area were asked. Topographic details and a local toponomy of the various tributaries of Salmon River and Southwest River were recorded.

The ground survey and test pitting of construction areas ~~and~~ were conducted to standards set out in the Historic Resources Overview Assessment Guidelines (1982).

A helicopter overflight of the proposed transmission line was made at low height and low speed (75 m/100 km/hr). As well, time was spent with Hydro's construction superintendent, Mr. Frank Carey, discussing project area geography and history.

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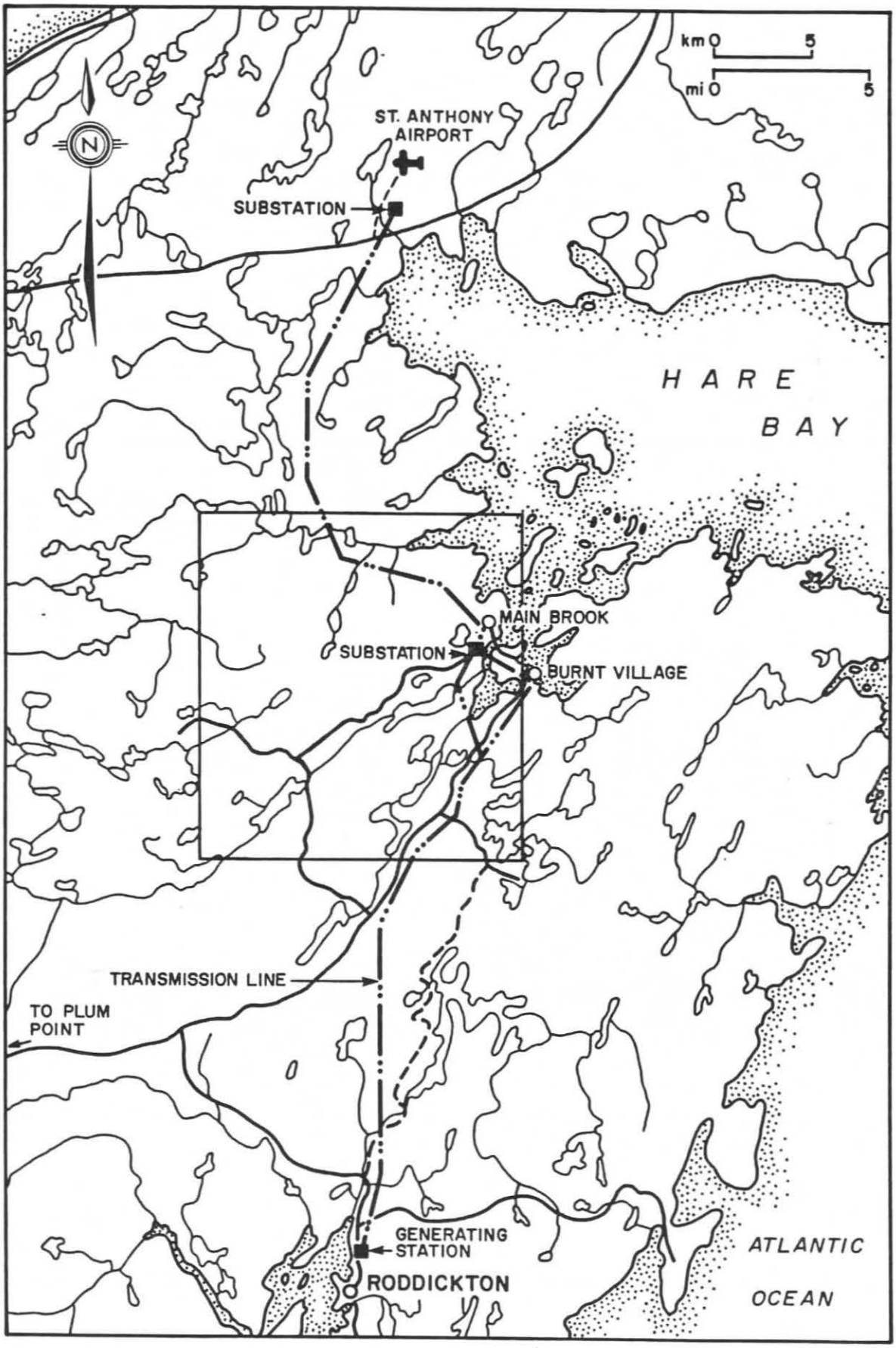

Figure 1: Proposed facilities base map

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DATA AND INTERPRETATION

Informant and documentary data

Informants identified trails and routes used to access the interior as well as providing local names (Figure 2) for brooks and areas not identified on available topographic maps. Salmon River is called locally Main Brook or Main River.

Located in the northeast arm of Canada Bay the Roddickton area was part of the French shore fishery from 1713 until the late 19th century. French use of Canada Bay was seasonal and settlement did not take place until English fishing efforts expanded out of northeastern Newfoundland. The last French fishing station at Canada Harbour operated until about 1876 (Smallwood 1981:324).

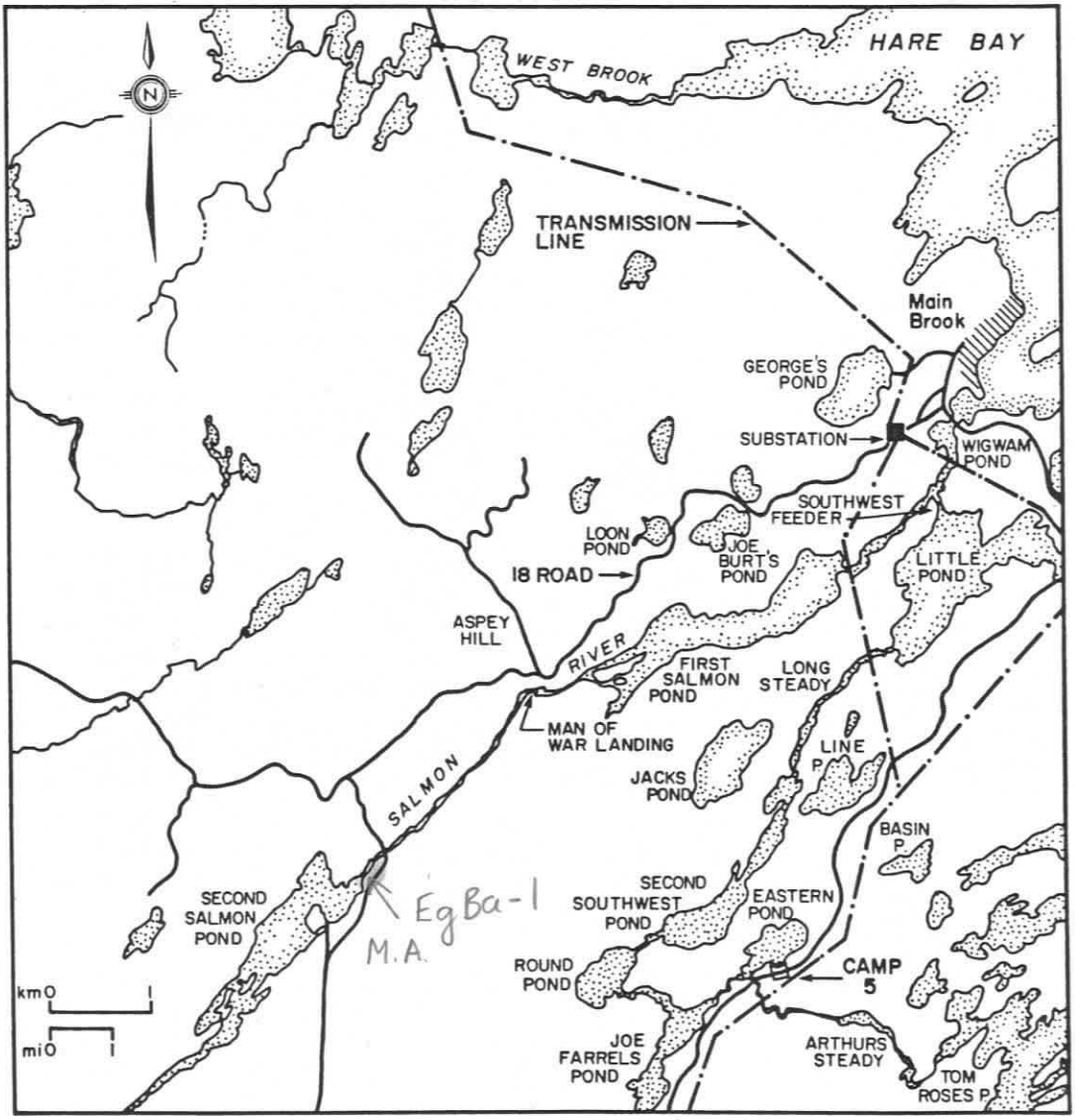

Figure 2: Main Brook area

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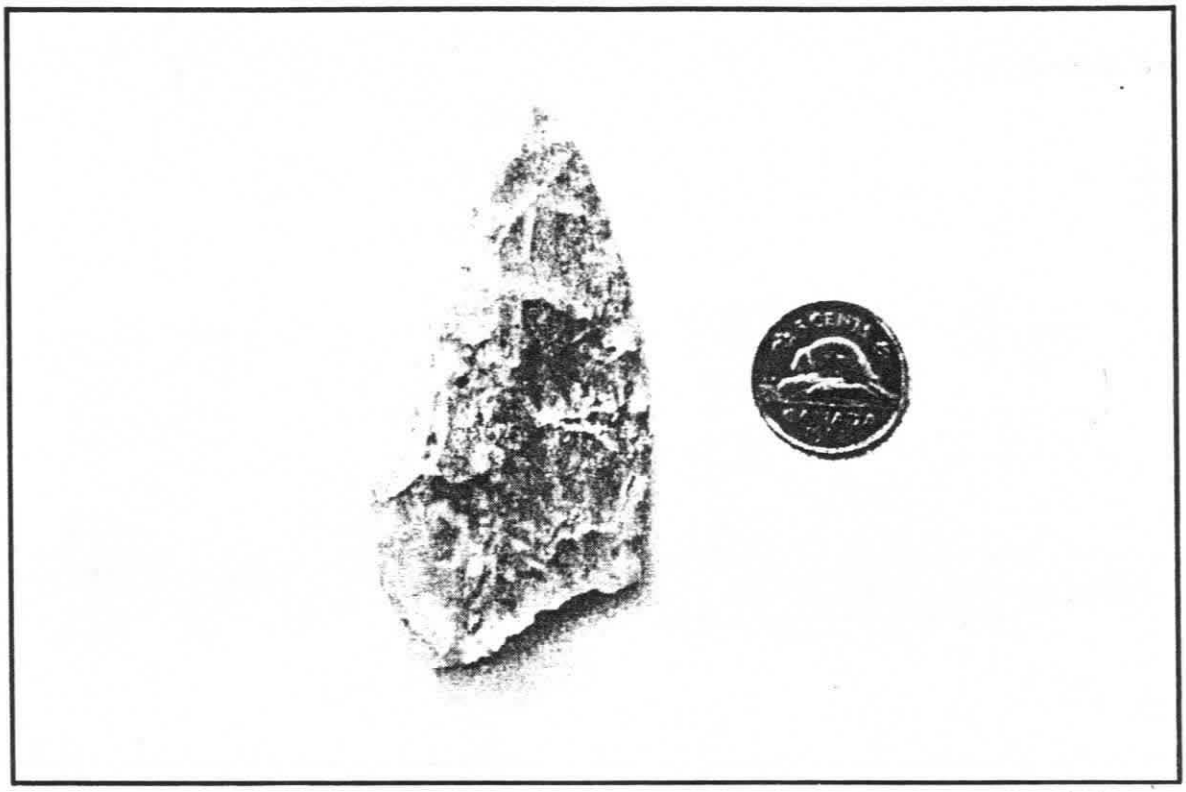

Plate 1: Simms artifact found at Main Brook

- Who is Simms? No mention in text of any artifact from Main Bk.

Marshall (1987) found a Palaeo-Eskimo site (EiAx-1) at Howe Harbour but nothing was found during a further survey of the south coast of Hare Bay. Harp (1964) reports a site (EiAw-1) at Ireland Bight on the north shore of Hare Bay from which two "non-Dorset" knives were recovered. Local residents had long collected artifacts from their gardens and graveyards.

Field data

The 65 km transmission line passes through two distinct areas; the heavy forest between Roddickton and Main Brook and the upland barrens and bogs between Main Brook and St. Anthony airport. From the helicopter overflight the river crossings at Southwest River and Salmon River were considered to have the highest potential for prehistoric resources.

The Southwest River crossing (Plate 2) was accessed from the transmission line crossing of the Main Brook highway. The route traverses brooks and bogs draining into Line Pond but this area appears unsuitable for prehistoric occupation. The crossing area shows signs of flooding and disturbance from pulp operations. The first Bowater camp (Camp 5), set up in 1939 at Eastern Pond, is near the transmission line route.

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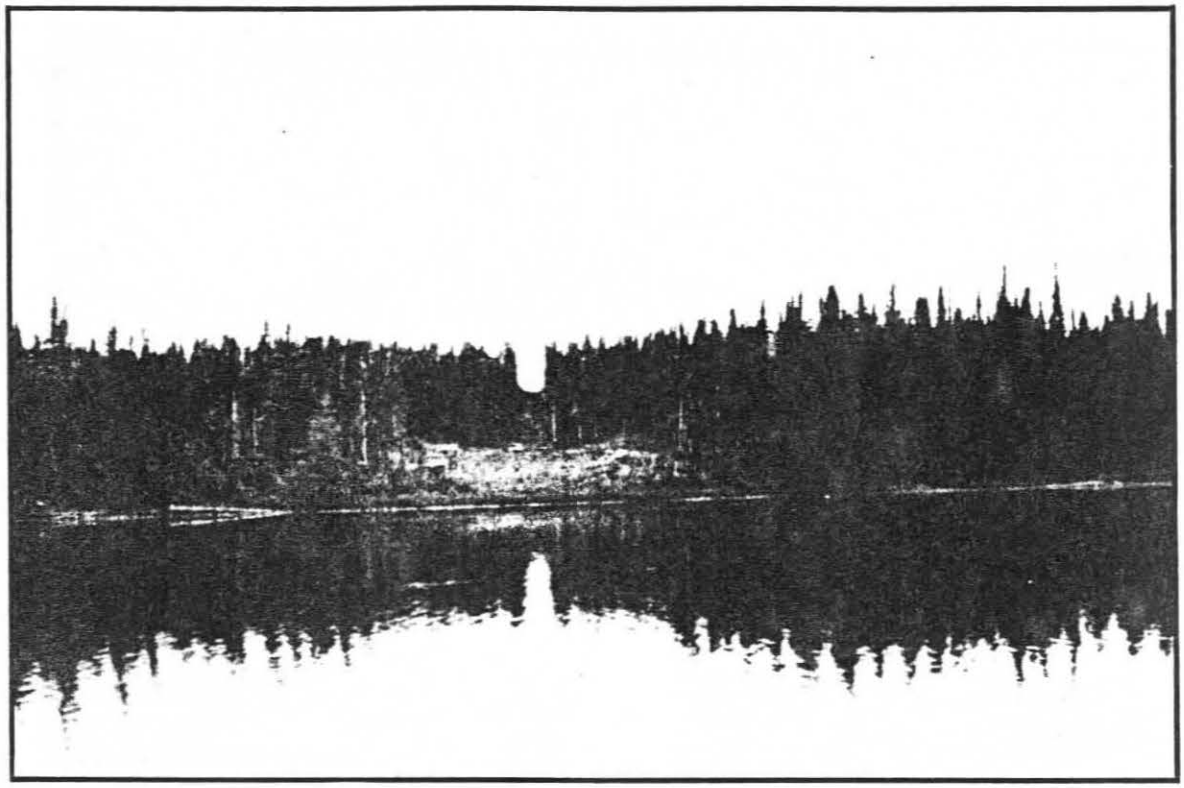

Plate 2: Southwest River crossing

The Salmon River crossing was accessed from 18 Road, near the Main Brook substation (Plate 3). The transmission line route follows a fairly level area of bogs and marshes to the crossing which is at the outflow of the river from First Salmon Pond. Piers for a woodboom and signs of a dam exist near the crossing. The spring flood plain is still littered with pulplogs and shows signs of bulldozing. The area appears unsuitable for native use or occupation. There is an M.A. site (EgBa-1 on Second Salmon Pond

Throughout the transmission line route there are old woods roads and camp clearings. Bowater bulldozed access roads to timber as required and performed extensive modification of stream beds, as at the mouth of Salmon River, to effectively sluice pulp logs.

North of Main Brook (Plate 4) the transmission line follows boggy ground around Hare Bay, crossing treed areas occasionally. This area was the subject of an archaeological survey (Renouf 1984) which failed to find any historic resource sites along the route of a proposed Main Brook to Highway 430 access road. Renouf's test pits at West Brook, just east of the transmission line crossing, were sterile.

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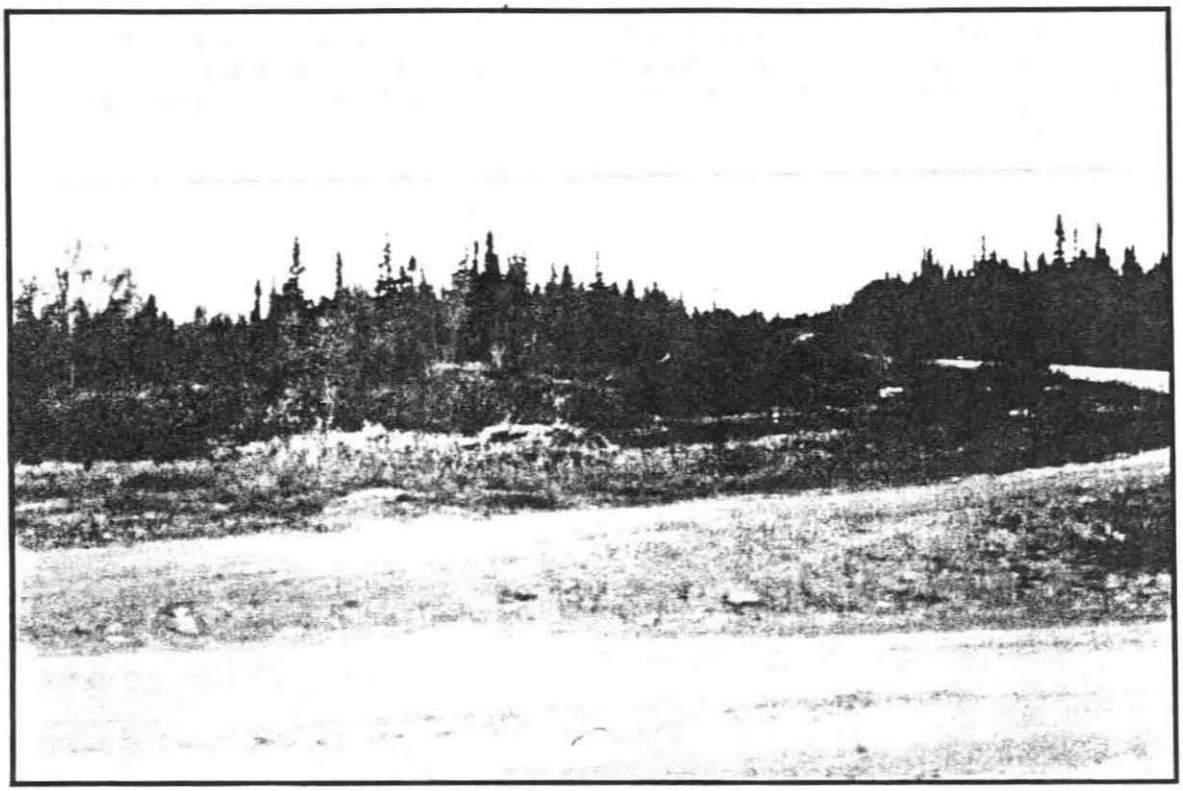

Plate 3: Main Brook substation site

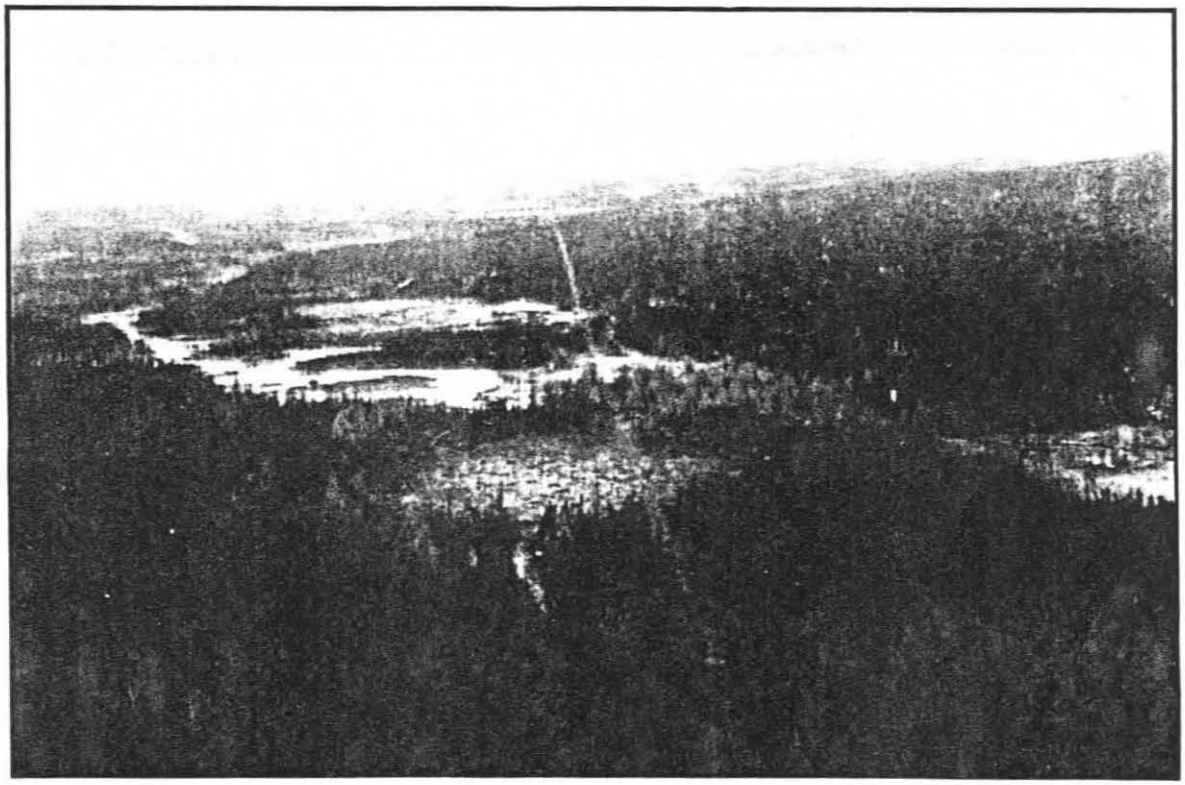

Plate 4: Line route looking south to Main Brook

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The substation site, at the intersection of the transmission line and Highway 430, near St. Anthony airport, (Plate 5) is in a burned, gnarled spruce forest. The line route descends south from the highway through thick spruce forest.

Plate 5: St. Anthony substation site

CONCLUSIONS

No construction areas contain historic resources and no further work is required. Known historic resources in the area are well outside the transmission line route and construction areas.

LIST OF INFORMANTS

Main Brook

Ella Pilgrim - Town Clerk
Rex Cooper
Kadwell and Aletha Pelley
Rex Boyd
Wade Sampson
Ron Chambers
Bruce Pilgrim
George Simms

Roddickton

Robert Johnson
Ross Pilgrim
Valda Pilgrim

St. Anthony

Betty Murrin
Vadney Tucker

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1964 The Cultural Affinities of the Newfoundland Dorset Eskimo. National Museum of Canada, Ottawa.

Marshall, I. C. L.
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Renouf, M.A.P.
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Smallwood, J.R.
1981 Encyclopedia of Newfoundland and Labrador. Newfoundland Book Publishers (1967) Limited, St. John's.

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Appendix 1

TERMS OF REFERENCE

HISTORIC RESOURCES ASSESSMENT FOR THE PROPOSED RODDICKTON WOOD CHIP FIRED GENERATING PLANT AND TRANSMISSION LINE FROM RODDICKTON TO ST. ANTHONY AIRPORT

Newfoundland and Labrador Hydro

Environmental Services Department

October 1987

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Objective

The objective of this study is to conduct an historic resources assessment of the proposed site for a Wood Chip Fired Thermal Generating Plant near Roddickton and associated transmission line from Roddickton to St. Anthony airport.

Study Area

The study area will consist of the following areas as indicated on the enclosed drawings:

(1) the shorelines of Shoal Cove Pond and Northeast Arm, pipeline routes from these areas, and the plant and access roads;

(2) the transmission line route to St. Anthony airport, especially where the route crosses streams, ponds, and where portage or travel camp sites may have been located.

Methods

The consultant shall conduct the study as per the Historic Resources Overview Assessment Detailed Guidelines (1982) and in Consultation with the Historic Resources Division of the Department of Culture, Recreation and Youth. The study shall consist of:

(1) a documentary search consisting of a review of existing literature, and The Historic Resources Division site record files, and other relevant data sources;

(2) consultation with individuals and organizations knowledgeable about the historic resources within the study area;

(3) a helicopter survey of the transmission line right-of-way; depending on the results of this survey the consultant shall undertake additional work, using professional judgement as to the need for ground surveys and test pitting in areas of potential historic resource interest;

(4) test pitting in areas identified by Historic Resources Division as having particular potential for historic sites;

(5) any material found requiring conservation measures will be treated by a professional conservator meeting Historic Resources Division approval; materials will be returned to the Historic Resources in a fully conserved condition.

Other

(1) The Consultant shall be responsible for travel arrangements.

(2) The work shall be conducted following a survey of the centerline of the right-of-way. This survey is expected to be completed by October 31, 1987.

(3) The contact person for Hydro will be David T. Day (737-1764).

Report

(1) A report on this assessment, and recommended mitigative measures shall be prepared by the consultant.

(2) The report shall follow the format suggested in the Historic Resources Guidelines.

(3) Locations of test pits and survey areas shall be accurately presented on maps.

(4) A draft report (one copy) shall be submitted to Hydro within 30 days of completion of the final field survey. Following a review period, one final copy will be submitted to Hydro within 30 days of receipt of review comments.

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ARCHAEOLOGICAL SURVEY OF BURNT POND

Archaeological Research Permit 88-19

submitted to

Conne River Band Council
Conne River, Bay D'Espoir
Newfoundland
AØH 1JØ

August 1989

CREDIT SHEET

Fieldwork and research

G. Penney
T. John
D. Locke

Report wrtiting

Gerald Penney Associates Limited
P.O. Box 13787
St. John's, Newfoundland
AlG 4B3

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MANAGEMENT SUMMARY

An archaeological survey of Burnt Pond centered on the investigation of a reported wigwam site at its present outflow into Granite Lake. An attempt to access the site through Spruce Pond from the Burgeo Highway proved too difficult due to rapids. Likewise, a southern pond, Temagan Gospen, proved too remote an access for the study methodology.

Recommendations include a comprehensive survey of Temagan Gospen and informant interviews in Burgeo as part of an ongoing ethnographic and archaeologic project.

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GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF CULTURE, RECREATION AND YOUTH

ST. JOHN'S

ARCHAEOLOGICAL RESEARCH PERMIT

granted by:

Historic Resources Division
Department of Culture, Recreation & Youth
Government of Newfoundland and Labrador

PERMIT NO. 88.19

NAME Gerald Penney

ADDRESS P.O. Box 1387, St. John's, NF. A1B 4G3

INSTITUTION Gerald Penney Associates Ltd.

is authorized to conduct archaeological investigations at the location stated below, subject to the terms and conditions of the Application for Permit and the Historic Resources Act (1985).

LOCATION(S) Burnt Pond, Newfoundland

All material recovered is the property of the Province.

Valid for the period August 31, 1988 to September 10, 1988

Minister of Culture, Recreation & Youth

29 August 1988
date

per

Martin Bowe - Director -Historic Resources Div.

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INTRODUCTION

This is a continuation of ethnographic studies undertaken for the Conne River Band in an attempt to establish Micmac use and occupancy of southwestern Newfoundland. Previously surveyed areas include King George IV Lake, Island Pond and overview assessments in White Bear Bay, Grey River and Grandy Brook, the headwaters of which rise in the same height of land as Burnt Pond. Penney's (1985) thesis constructed a prehistory for the island's southwest coast.

DESCRIPTION OF PROJECT

An archaeological survey of Burnt Pond, on Newfoundland's southwest coast was undertaken to determine the cultural origins of a site on the east side of Burnt Pond, below Burnt Ridge, reported by D. Locke; to conduct a preliminary investigation of the northern half of the pond, to the rapids below Spruce Pond; and, to seek access to Temagan Gospen.

An important objective was to locate Micmac sites alluded to by Speck (1922) and Millais (1907) as part of an effort to understand the theoretical framework of early 20th century Micmac use and occupancy of the southwest interior.

STUDY AREA

Burnt Pond (Figure 1) is a series of north flowing lakes and ponds draining the high ground between the headwaters of White Bear River and Grandy River, which flow to the south. Burnt Pond originally flowed into Victoria Lake but its waters have been diverted to Granite Lake and subsequently to Meelpaeg. The eastern end of Burnt Pond was partly flooded during the initial diversion but now appears constant at its original level.

Cormack, during his 1822 trans-island trek with Sylvester, encountered two Micmac groups in this area. After leaving James John at Crooked Lake (14 October) they set out westward and reached a Micmac party of 13 people camped along the shoreline of either Meelpaeg or Ebbegunbaeg Lake (18 October). From here they travelled southwest and (29 October) reached Temagan Gospen where the Gabriel family were camped while hunting deer and trapping (Howley 1974:150-159). Appendix A contains a photocopy of Howley's text of Cormack's journal.

Burnt Pond, proximal to major south and north flowing waterways, was likely used by prehistoric peoples for hunting and travelling. A site (DbBl-1) at King George IV Lake (Penney 1987), similarily part of a major travel route, contained Recent Indian

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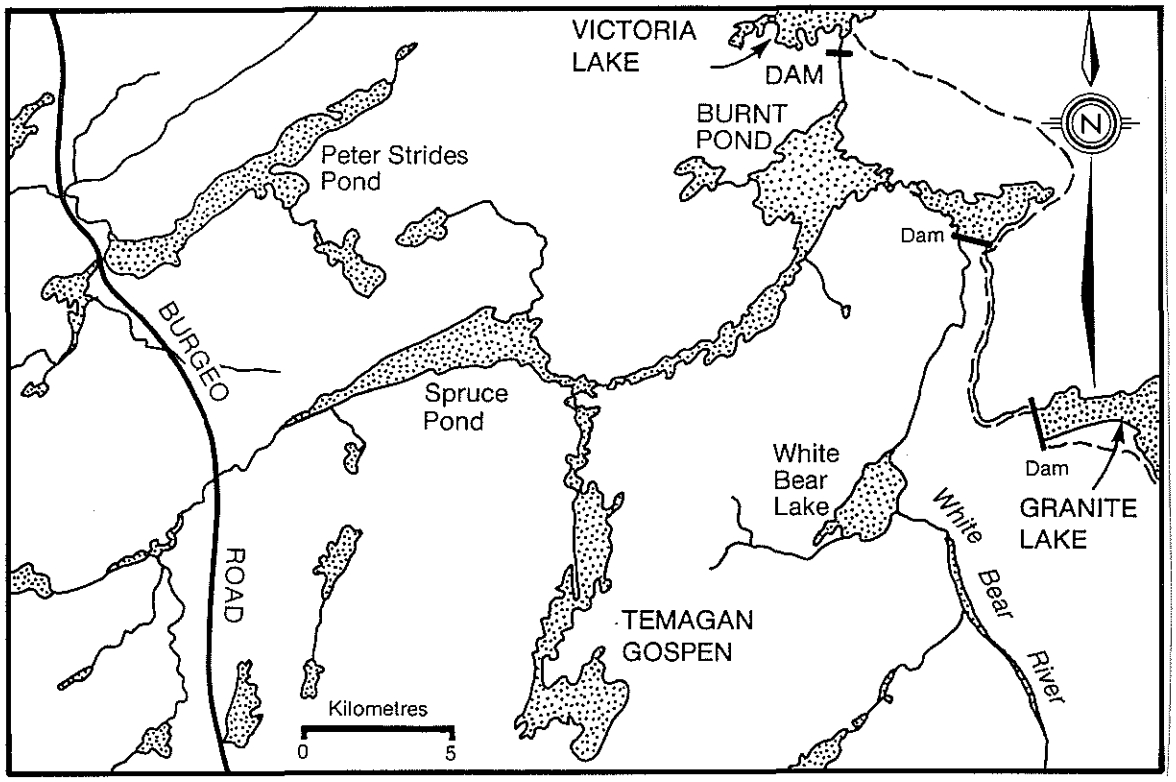

Figure 1: Location map

and Micmac artifacts. Victoria Lake, which emptied into Red Indian Lake and Exploits water system, now flows south to Burnt Pond and, then by canal, to Granite Lake and Maelpaeg. Granite, Spruce, Temagan Gospen, and Burnt Pond once flowed into the White Bear River system before being diverted.

METHODOLOGY

The study area was accessed using an existing road network through Badger. After establishing base camp, the pond was surveyed using a motorized canoe as far south as the rapids at the outflow of Spruce Pond. Areas along the shore which appear as good camping areas were foot surveyed and sub-surface test pits were be dug using standard methodology. Fieldwork took place 31 August to Ø5 September, 1988, and Ø7 June to 13 June, 1989.

RESULTS

Informant data is generally lacking for the Burnt Pond (Figure 2) area. J. Henderson of Burgeo, who had contact with Grandy Brook Micmac, said Crippled Frank Joe (one of Speck's informants) had a wigwam at the gut of Burnt Pond. Interviews at Burgeo with the Joe Warren, Frank Benoit and Eric Grimes families could shed light on the use of Burnt Pond.

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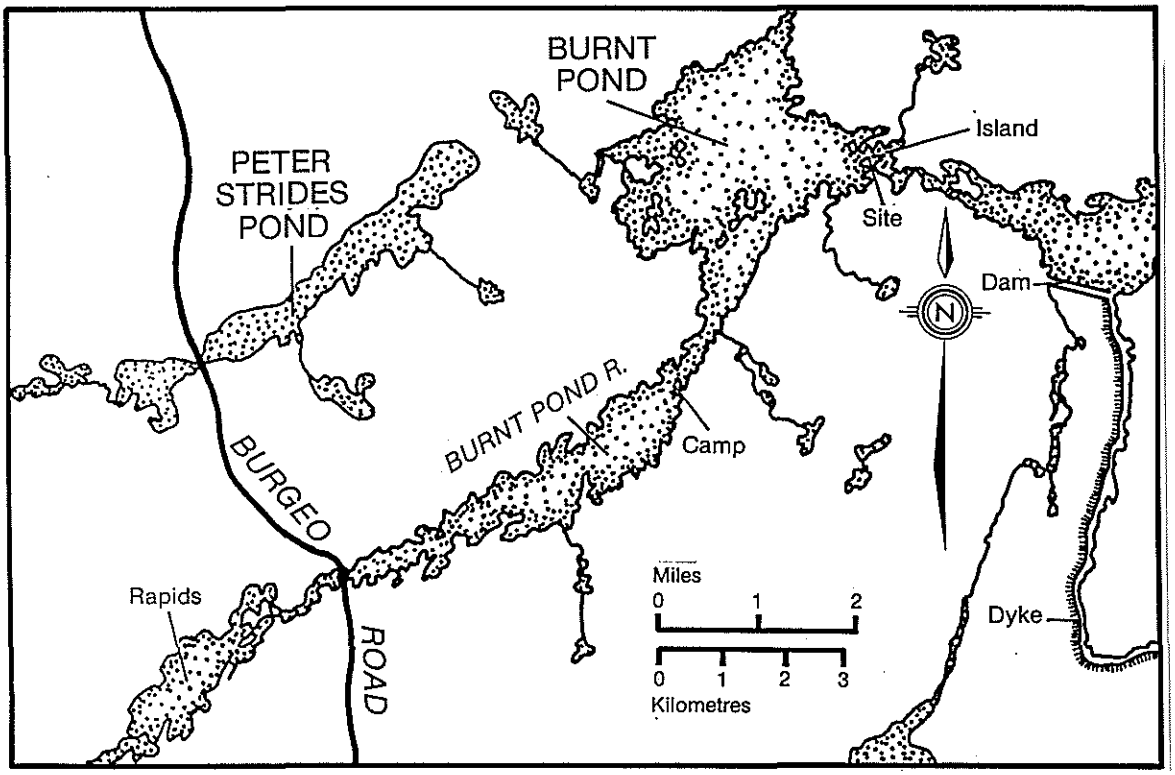

Figure 2: Site location

Speck (1922:132) lists Frank Joe's hunting teritory as Sandy Lake through Red Indian and Victoria Lakes. Philip Hoskins, a Hydro worker at the Burnt Pond dam structure, heard of the site from an unnamed individual from Burgeo who came to the site by skidoo and spoke of "his father's wigwam". Subsequently, Hoskins went potting at the site and found a saw with caribou (bone) handles, stove and boat parts and 50-60 frame traps on a nearby island. Mark White, a Micmac trapper from Bay D'Espoir, was proposed as the wigwam owner, but Mr. Hoskins didn't accept this premise.

An interview with Henry Joe of St. Alban's, the son of Burgeo Peter Joe, was not informative. He recalled his father died about 1950 and thought Crippled Frank Joe of Grandy Brook may have been his paternal grandfather.

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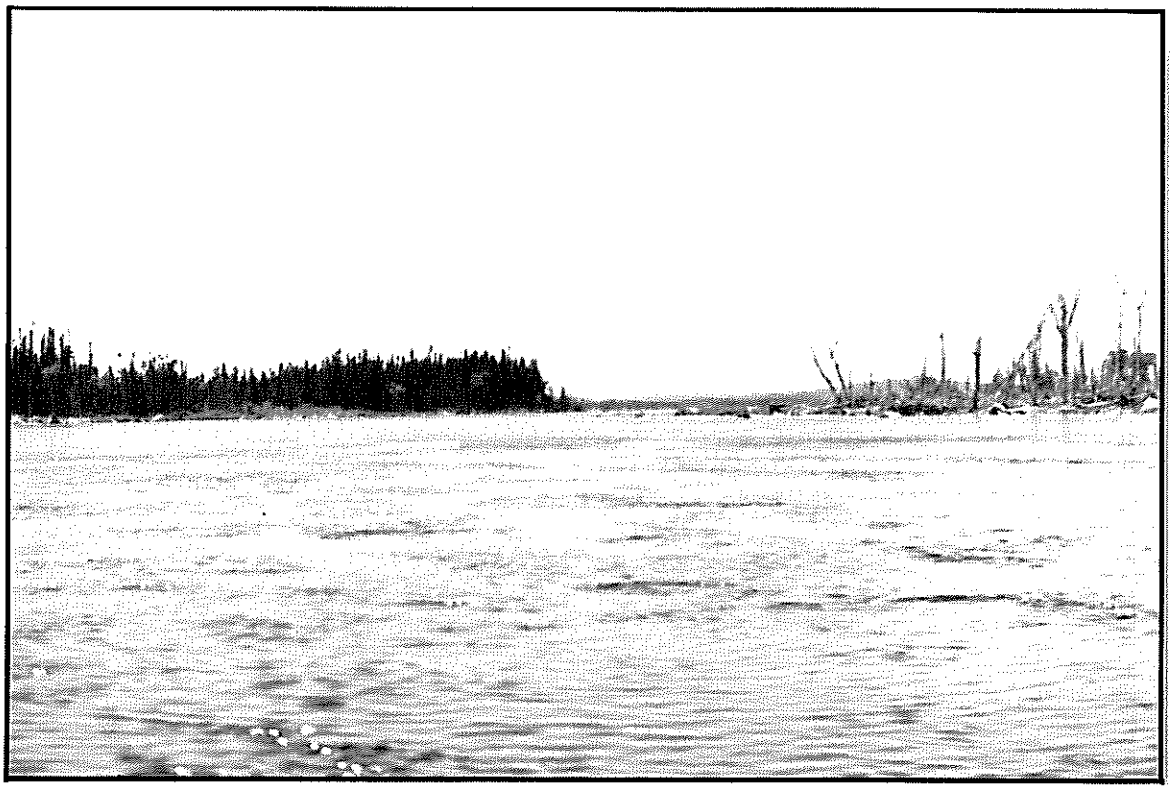

Plate 1: Looking west to site

Plate 2: Upstream approach to Burnt Pond

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Field data

The Burnt Pond site (Plates 1 and 2) occupies a 20 square meter area on a small peninsula jutting out into the eastern end of Burnt Pond, at its outflow, and represents a collapsed tilt orwigwam. Evidence of recent disturbance was found (see above). Its door opened to the east and the ridge pole had bark. Artifacts include four liquor bottles, one with the initials BLC, a patent medicine bottle and window glass. Two stoves, one a ship's the other a cut oil drum are evident. The remains of a canvas covered canoe made with wire nails and having oar locks was observed. Both cut and wire nails and glazed tin enamelware were scattered on surface.

RECOMMENDATIONS

An archaeological survey of Temagan Gospen should be conducted with the objective of locating Gabriel's wigwam as reported by Cormack. Informant interviews in Burgeo should concentrate on the historic use of the Burnt Pond area by Grandy Brook and White Bear Bay Micmac families.

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APPENDIX A

Photocopy extracts from W.E. Cormack's 1822 journals in M.F. Howley, The Beothucks or Red Indians. Coles, Toronto, 1974 (originally published 1915, Cambridge University Press), pp. 151 and 157.

October 18th.—The snow having shrunk a foot at least, we left our wretched encampment, and after a most laborious walk of six or eight miles through snow, thickets, and swollen brooks, and passing many deer, scraping holes in the snow with their hoofs to reach the lichens underneath, without however being able to get within shot of them, we not only reached the lake to the westward, but to our great joy also discovered, in consequence of meeting with some of their marten traps, the encampment of the Indians of whom we had been told by the mountaineer. My dress, once gray, now bleached white, was seen by some of the Indians as we emerged from a spruce thicket, a great distance off. The party were encamped in one large wigwam, or kind of hut. We entered with little ceremony, my Indian kissing them all—male and female. None of them could speak English, and only one of them a little French. A deer skin was spread for me to sit on, at the innermost part of the dwelling. My Indian interpreted, and introduced me in the same particular terms as before. They were Mickmacks and natives of Newfoundland, and expressed themselves glad to see me in the middle of their country, as the first white man that had ever been here. The Indian amongst his fellows is a purely self-dependent being—an innate power of self-denial raises him above dependence upon others, and keeps him beyond their interference even in distressing wants, which yields mental triumph and glory. Want implies inability in the hunter. I observed these people bestow, and my Indian receive attention, with seeming indifference. He smoked the pipe given to him with the same composure as after a feast, although starvation and unconcealable hunger were depicted in his countenance. Supper was soon ready, which consisted entirely of boiled venison. All seated around the fire, in the centre of the wigwam, partook at once—although, enfeebled by want of sustenance, I could eat only a few mouthfulls. The jaws would not perform their office without great pain from want of practice. Fortunately the stomach sympathised, for it could bear but little. They told us that we might reach Saint George's Bay in about ten days; that they had left that place in the middle of summer, and had since then been hunting in the western interior,—several weeks latterly having been spent at this lake, where deer were plenty; and that they intended in a few weeks hence, before the lakes and rivers were frozen over, to repair to White Bear Bay, to spend the winter, that place having been always celebrated for immense herds of deer passing by in the winter season. The Indian idea of a road is to Europeans little else than a probability of *reaching* a distant place *alive*; and I foresaw, from their report, much suffering before we could reach St George's Bay. Here were three families amounting to thirteen persons in number. The men and boys wore surtouts made of deer skins, the hair outside, buttoned and belted round them, which looked neat and comfortable. Their caps were of mixed fur; they had not procured much fur for sale, only a few dozen marten, some otter and musk rat skins; of beaver skins they had very few, as beavers are scarce in the western interior, it being too mountainous for woods, except on the sheltered borders of some of the lakes. In the woods around the margin of this lake the Indians had lines of path equal to eight or ten miles in extent, set with wooden traps, or dead falls, about one hundred yards apart, baited for martens, which they visited every second day. They had two skin canoes in which they paddled around the lake to visit their traps and bring home their game. The Red Indian country we were told was about ten or fifteen miles northward of us, but that at this time, as the mountaineer had likewise informed us, these people were all farther to the northward, at the Great Lake, where they were accustomed to lay up their winter stock of venison. These people corroborated previous as well as subsequent inquiries, respecting the number of their own, and of the other communicating tribes in the Island.

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October 29th.—Drawing near to a mountain-ridge, higher than any we had yet crossed, and which from appearance we supposed might be the last between us and the sea coast, we had great satisfaction in discovering smoke rising from a wood on the opposite side of a lake near the foot of it. We indulged in the hope that some timber party from the settlements at St George's Bay was encamped here. Our toils were in fancy ended. On reaching the lake, the party encamped seemed to distrust us, not venturing to show themselves openly on the shore. After a time, however, they were convinced by our appearance, gestures, and the report of our guns, that we were not Red Indians nor enemies. A canoe was then launched and came across to us. The canoe was of the kind already described, of wicker-work, covered with skins, and paddled by two pretty Indian girls. I unceremoniously saluted them in the Indian manner and we accompanied them to their camp. They were of a party of Mickmack Indians, encamped at this lake because deer and firewood were plentiful. One man only belonged to this encampment, and he was out hunting when we arrived. None of the party understood a word of English; my Indian however explained. They told us, to our no little mortification, that we were yet sixty miles from St George's Harbour, or about five days walk if the weather should happen to be favourable, and that it lay in a north-west direction. The last information proved that my Indian had of late pertinaciously insisted on a wrong course. This small party consisted of eight individuals—one man, four women, and three children; one an infant, was strapped or laced to its cradle, and placed upright against the side of a wigwam, as any piece of domestic furniture might be. They had left St George's Harbour three months before; since then, had been in the interior, and intended to spend the winter at Great Cod Roy River in St George's Bay. As every hour was precious towards the final accomplishment of my object, I proposed to my Indian host to accompany me to St George's Bay; my offer was agreed to, and a stipulation made to set off in two hours. In the absence of this Indian, who told me his name was Gabriel, his family—consisting, as already observed, of females and children—were to provide for themselves. For this purpose two guns and ammunition were left with them. One of the young women was a capital shot; during our halt with them she left the camp and shot a fat deer close by. Having partaken of the best piece of venison the interior could produce, together with smoked deers' tongues, we set off. Owing to our enfeebled condition, this man's vigour and strength were enviable.

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REPORT

HISTORIC RESOURCES OVERVIEW ASSESSMENT
DOLOMITE QUARRY, LEILA WYNNE LAKE, WESTERN LABRADOR

submitted to

LEDREW ENVIRONMENTAL MANAGEMENT LIMITED
P.O. Box 5448
St. John's, Newfoundland
A1C 5W4

submitted by

GERALD PENNEY ASSOCIATES LIMITED
P.O. Box 13787
St. John's, Newfoundland
A1B 4G3

April 1989

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EXECUTIVE SUMMARY

An historic resources overview assessment of a proposed dolomite quarry operation at Leila Wynne Lake, near Wabush, Labrador, was conducted. It included a helicopter overflight of the area, an archaeological survey of the western side of the lake, and consultations with residents.

The quarry site, including the western shore of Leila Wynne Lake and its outflow into Wabush Lake appear low in historic resource potential and no additional work is recommended.

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INTRODUCTION

An historic resources overview assessment of a proposed dolomite quarry at Leila Wynne Lake, near Wabush (Figure 1) was undertaken to determine for the Iron Ore Company of Canada the impact, if any, on historic resources from road and quarry construction. The work was conducted under Archaeological Research Permit 1988-22 and encompasses all required work.

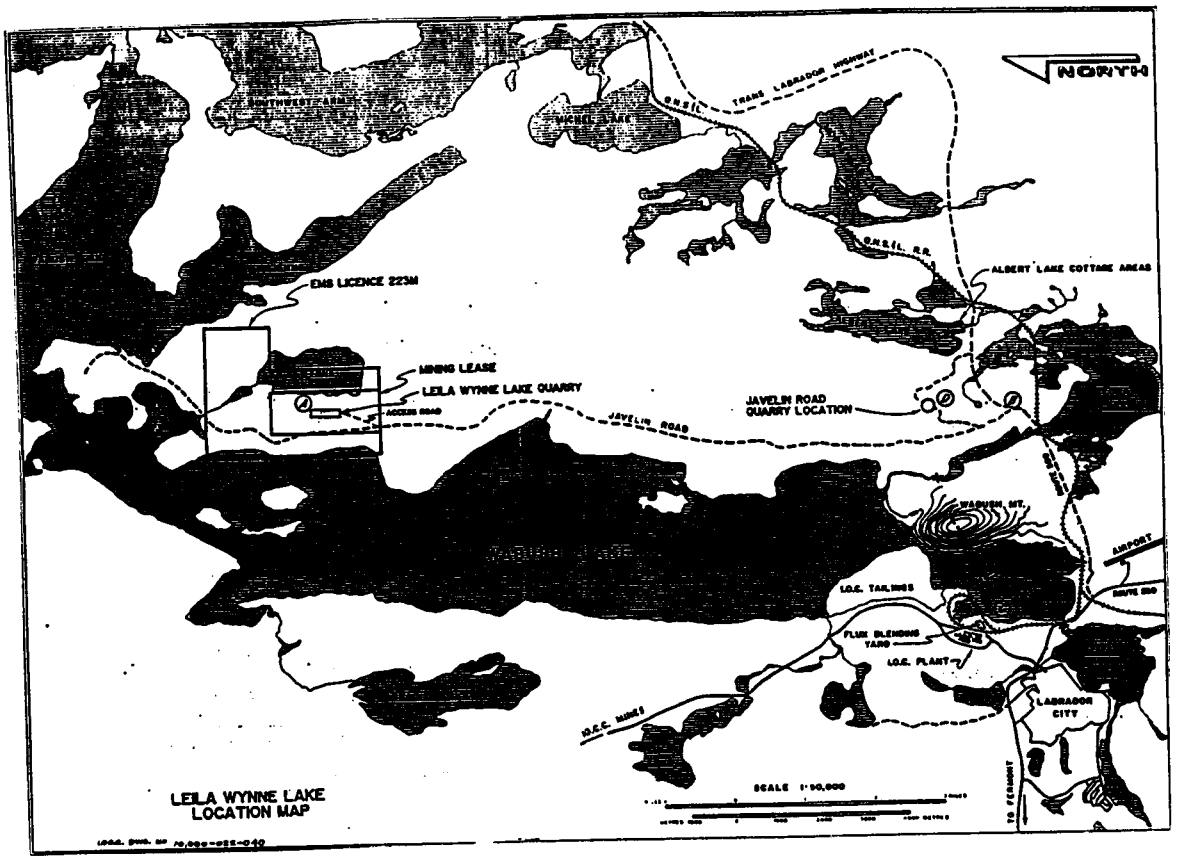

Figure 1: Wabush Lake area

PROJECT DESCRIPTION

The project involves a proposed dolomite quarry to be located on the western shore of Leila Wynne Lake, a pond between Wabush Lake and Julienne Lake (Figure 2), Labrador West. Dolomite is used a a flux in the production of iron ore pellets. The quarry

will replace a near-depleted quarry presently used.

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Figure 2: Leila Wynne Lake study area

OBJECTIVE

To satisfy concerns resulting from a review of the project by the Historic Resources Division, Department of Culture, Recreation and Youth, Government of Newfoundland and Labrador, under the Environmental Assessment Act.

STUDY AREA

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Donald MacLeod (1967), in a survey of the proposed Churchill Falls hydro development study area, found little evidence of prehistoric occupation. At four recent Innu campsites there were two prehistoric and two early historic components. These were not salvaged and are now flooded.

The area of Wabush Lake, in western Labrador, has not been extensively investigated for historic resources. Thomson (1983) recounted Taylor's (1964) report of a single artifact of Maritime Archaic origin - a completely ground and polished fragment of a celt or adze blade from an unidentified site on Wabush Lake. Thomson (1984) and Penney (1986) did not identify any prehistoric sites along the Labrador Tote Road (Trans Labrador Highway) in the Wabush area.

Denton and McCaffrey (1988:137) located three prehistoric sites (GfDs-1 and 2; GgDs-1) 30km northwest of Schefferville in the Labrador Trough. These are workshop and chert extraction sites possibly dating to the Brinex complex of the Intermediate Indian period (3500 - 2800 B.P.).

The area is within the territory of the Schefferville and Sept-Isles Montaignais Indian bands. The Sept-Isles band is an admixture of an original Moisie River group and a number of interior bands including Ashuanipi and Menihek. The Schefferville band, formed in 1954 when a mine opened there, is a sub-group of the Sept-Isles band. Today they occupy a reserve there.

Wabush Lake is on a natural travel route through the Menihek Lakes between the south flowing Moisie River and Romaine River and the Lake Michikamau region. Low, in 1897, described Indian overwintering at Lake Michikamau (Thomson 1984:9), to the north.

METHODOLOGY

A review of literature and documents at the Historic Resources Division was carried out prior to field investigations. Three days (02 October to 05 October) were spent on field investigations.

The quarry area and the road were overflown by helicopter at low speed and low height to determine if particular areas would require extensive ground surveying or test pitting. Mr. Scott Campbell, of IOCC, directed the helicopter flight path to the development area. Mr. Campbell also accompanied on the initial field trip along the Javelin Road and at an existing quarry located near the study area.

Foot surveys of Leila Wynne Lake and paths and trails in the study area were conducted to standards set out in the Historic

Resources Overview Assessment Guidelines (1982).

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DATA AND INTERPRETATION

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Informant and documentary data

No references to prehistoric sites in the quarry or raod route areas are recorded at the Historic Resources Division, Government of Newfoundland and Labrador.

Informants indicated a low appreciation and a low awareness of historic resources in the region. Some recreational use of the countryside is made (Plate 1) but knowledge of the country other than a few established trails and cabin areas (Plate 2) is limited. No oral tradition of fur trapping, in its heyday in Labrador during the first quarter of this century, exists.

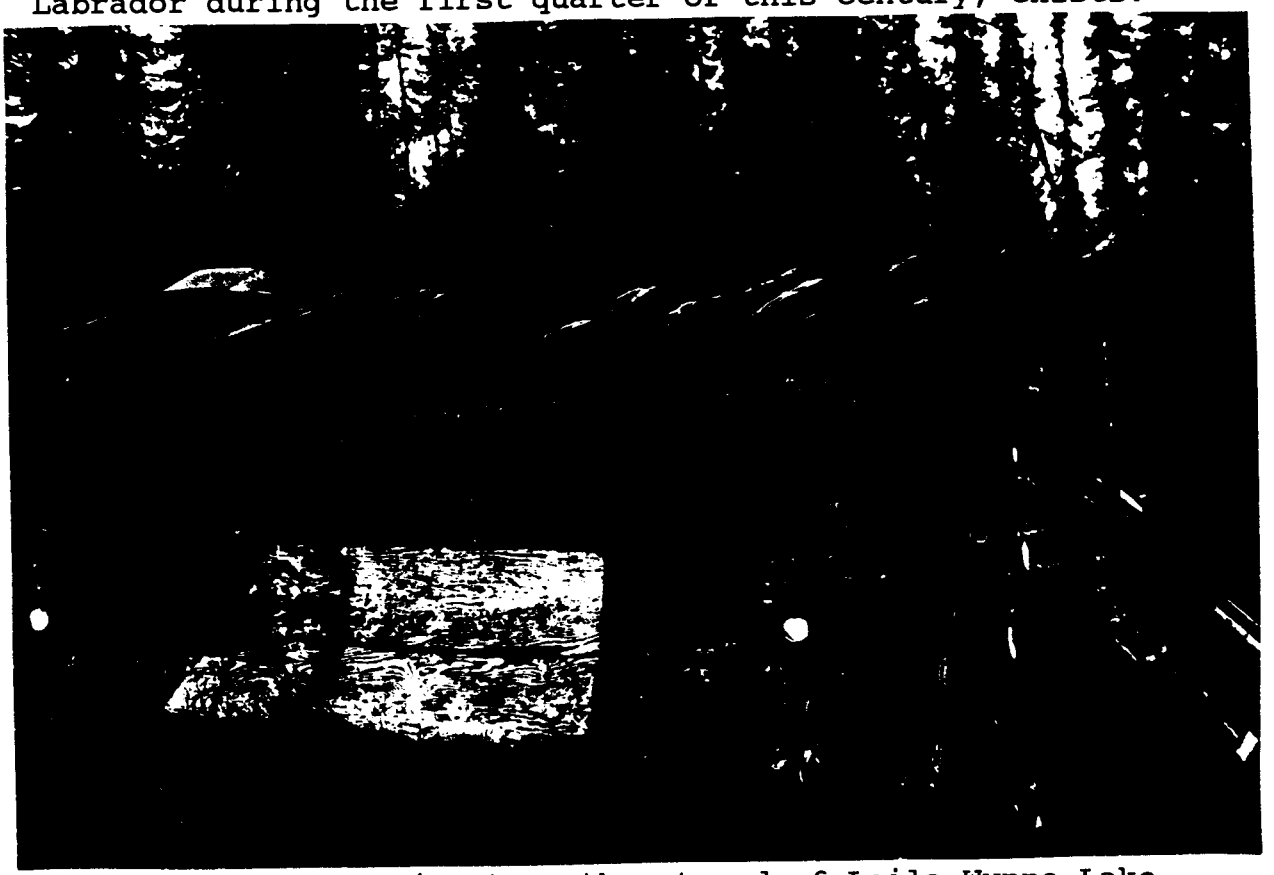

Plate 1: Cabin at northwest end of Leila Wynne Lake

No areas requiring investigation were noted during the helicopter overflight and foot survey of the western shore of Leila Wynne Lake from the mouth of the brook into Wabush Lake (Plate 3) to a skidoo trail accessing the southwest end. The quarry access road (Plate 4), quarry site (Plate 5) and a skidder/tractor trail (Plate 6), leading to Leila Wynne Lake from the Javelin Road, were foot surveyed without results. Visual inspection of bulldozed and machine broken ground cover and seven test pits were all sterile.

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Plate 2: Cove at northwest end of Leila Wynne Lake

CONCLUSION

No areas of interest requiring further testing were observed along the road route or at the quarry site.

LIST OF INFORMANTS

D. Scott Campbell, IOCC
William Campbell, IOCC
Trudy Murphy, Librarian
Stephen Michelin, Labrador Heritage Society, Height of Land Branch
Phyllis Moore, local writer
Mrs. Carl Sheppard, cabin owner
Fred Roberts
David Saunders
Rachel Leger
Rosalind Parsons
Joan St. Marie
Myrtle Gilbert
Don McNeil

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Plate 3: Outflow of Leila Wynne Lake into Wabush Lake

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Plate 4: Access road construction gravel pit

Plate 5: Diamond drilling operations near proposed quarry

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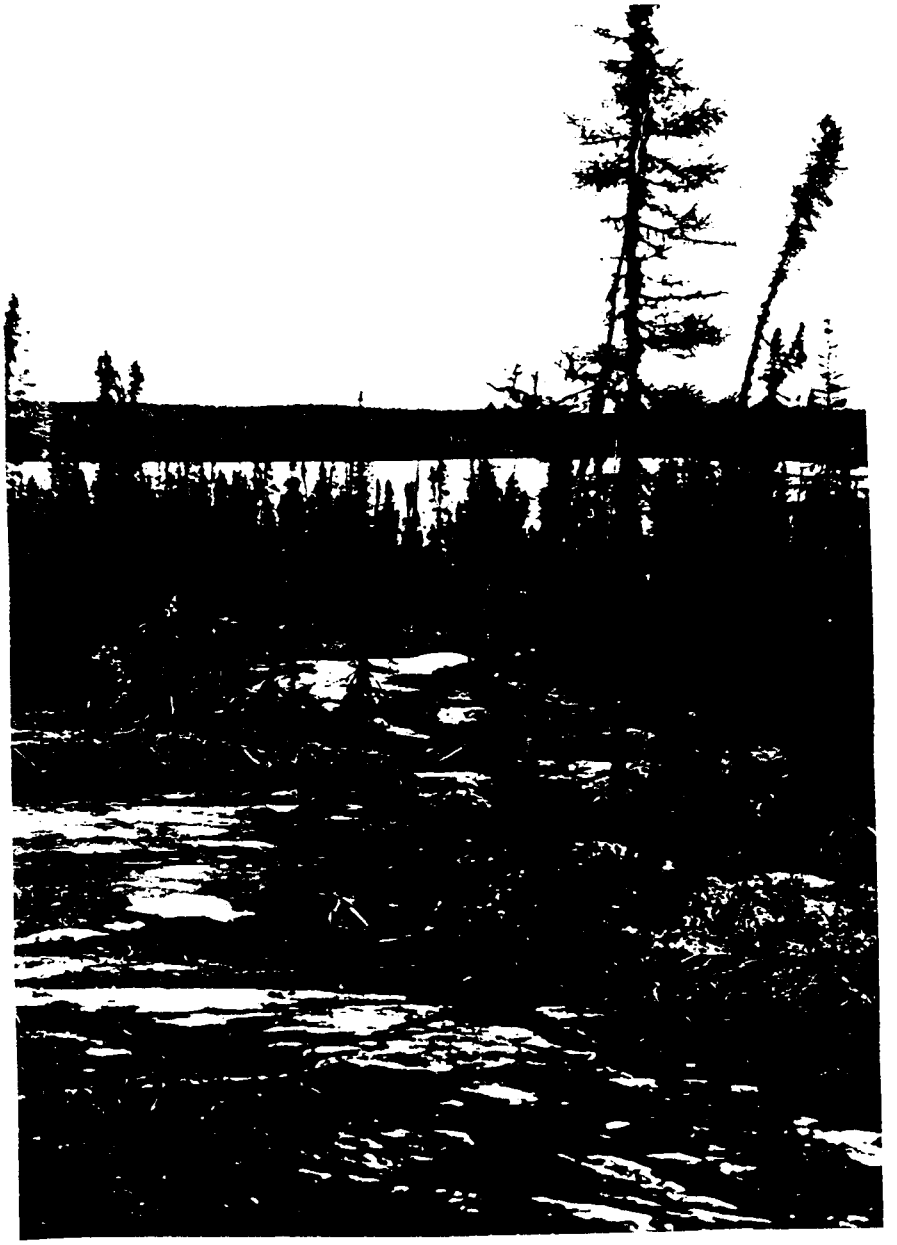

Plate 6: Skidder path to Leila Wynne Lake

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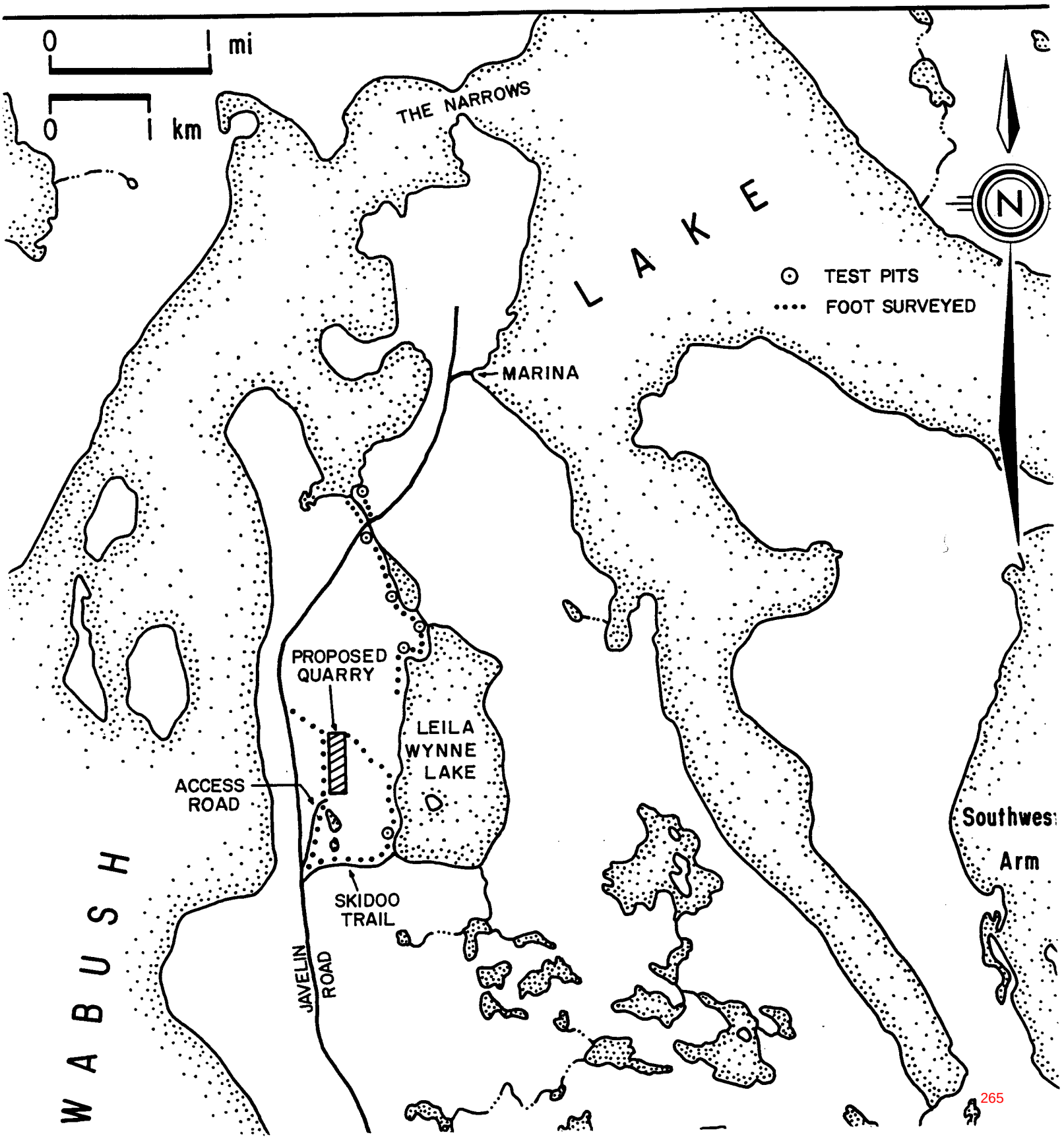

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ANCHOR POINT-1 (CjAe-3) SITE
ST. JOHN'S

STAGE 2: DETAILED IMPACT ASSESSMENT
PROSSER ROCK BOAT BASIN
ARCHAEOLOGICAL RESEARCH PERMIT 88-24

submitted to

PUBLIC WORKS CANADA
Atlantic Region
P.O. Box 2247
Halifax, Nova Scotia
B3J 3C9

MARCH 1989

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HISTORIC RESOURCES IMPACT ASSESSMENT

PROSSER ROCK BOAT BASIN
ST. JOHN'S

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Harry Layman	Lou Murphy	George Tucker
Sam Tucker	Len Wareham	Jack Power

_____
Gerald Penney
President

MANAGEMENT SUMMARY

A detailed impact assessment of the proposed Prosser Rock boat basin concludes that part of the development area, Anchor Point, is the site of one of the oldest military fortifications in St. John's. Dating from the late 1600's it was discovered during an Historic Resources Overview Assessment.

Project documents registered with the Department of Environment and Lands in 1988, under which this Stage 2 report was undertaken, planned total destruction of the site. Subsequent registration, in January 1989, excludes the site from the proposed construction area. Project re-design to avoid adverse impacts to the Anchor Point-1 (CjAe-3) site is the proponent's chosen mitigative measure, however, site protection during boat basin construction is required.

The military structure and its proximity to Signal Hill National Historic Site presents an opportunity to integrate a significant historic resource into the proposed project as a cultural tourist attraction and this is the principal recommendation of this report.

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1.0 INTRODUCTION

The proposed Prosser Rock development consists of the construction of a series of structures related to a breakwater basin. These include a landing wharf, finger piers, Prosser Rock breakwater, Pancake Rock approach breakwater, marginal wharf and slipway / launch ramp. These are encompassed within the Pancake Rock main breakwater. Project details are included in a series of 25 drawings from Public Works Canada (# 730481). Drawings No. 1 (Existing conditions) and No. 2 (Site development) form Appendix 1.

The purpose of this Stage 2 assessment of the study area (Figure 1) was to further test a site feature reported in a Stage 1 report, to assess physical characteristics such as site extent and condition, and assess historic significance in general. It involved archival research on the military history of the southside of the Narrows, test excavation, and local and professional consultations. Fieldwork was performed by the individuals listed in the credit sheet.

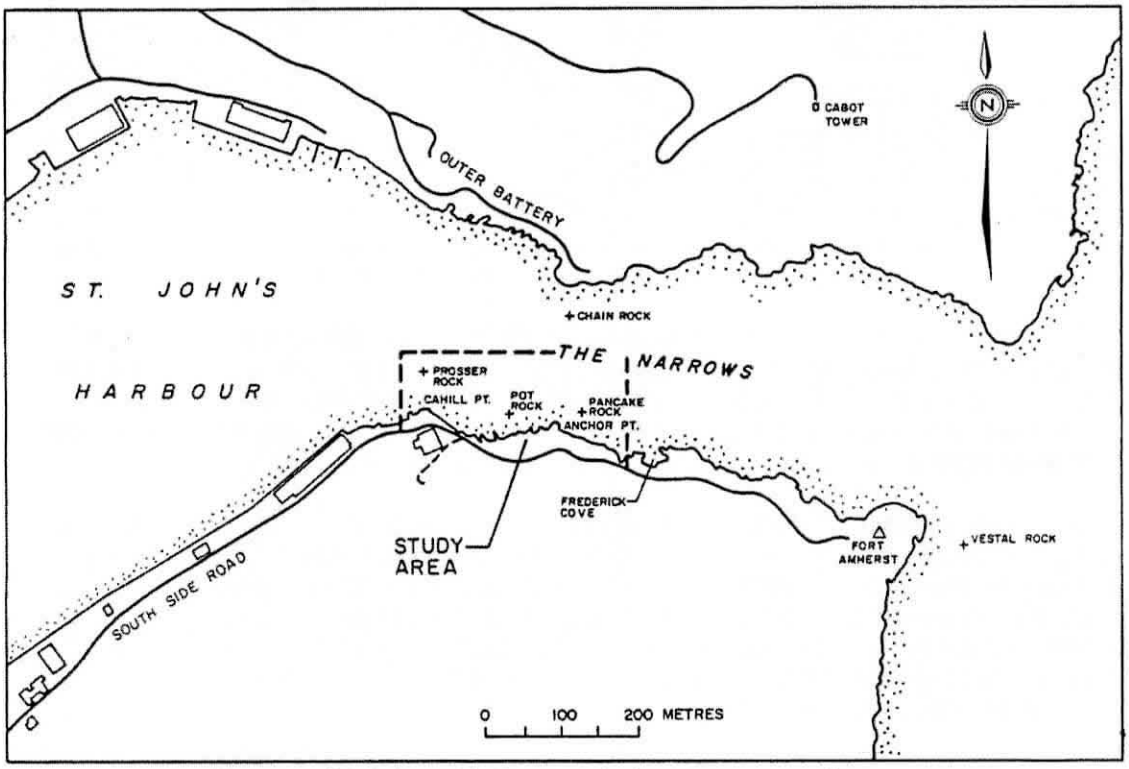

Figure 1: St. John's Harbour and the Narrows study area

2.0 PROPOSED DEVELOPMENT PROJECT

A stone filled breakwater will parallel the shoreline between Prosser Rock and Pancake Rock (Figure 2); its enclosed basin designed to provide protected boat berths for inshore fishermen of St. John's. A 110 m main breakwater at Pancake Rock (5 m high) and a 60 m breakwater (3 m high) extending from shore to Prosser Rock will be treated timber cribworks protected by armour stone. Breakwater and wharf fill material will come from blasting and excavating Anchor Point hill and elsewhere.

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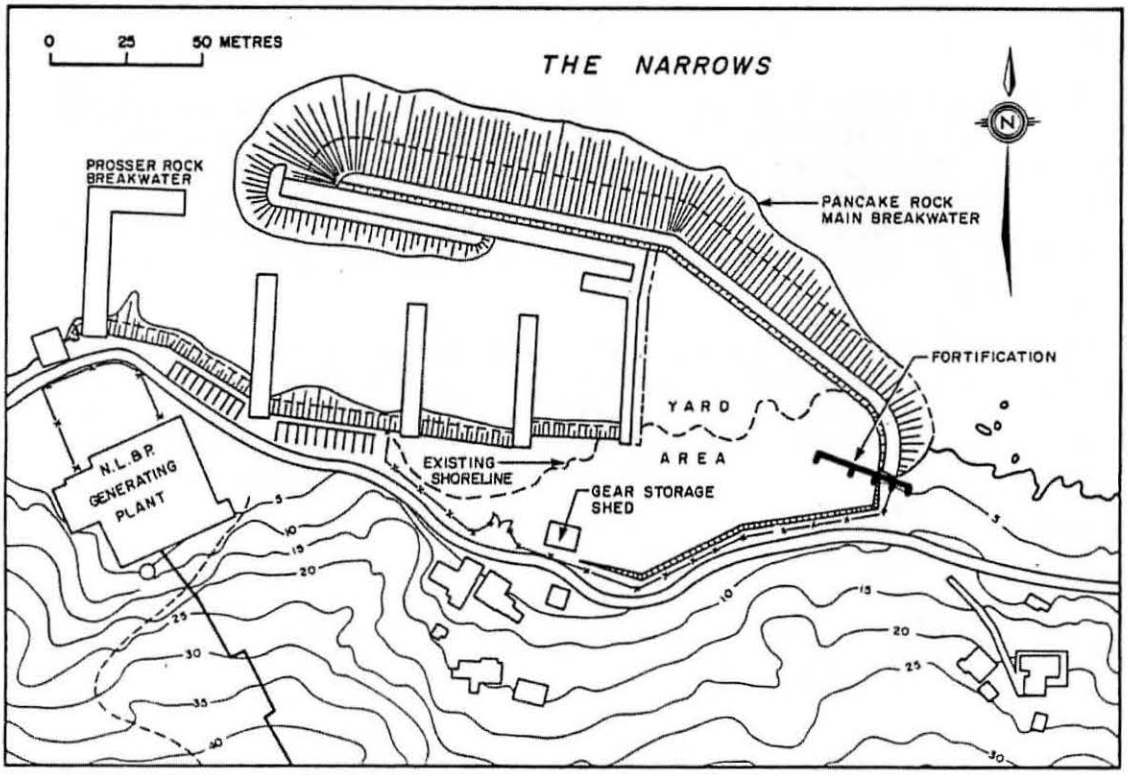

Figure 2: Proposed Prosser Rock boat basin

The basin will have three timber finger piers for berthing fishing boats, as well as berths along the cribwork breakwaters and storage area. A slipway will enable fishermen to haul and launch boats. An administration building will have shower and kitchen facilities. Upon completion it will be administered by local fishermen and will preclude the use of other parts of St. John's harbour for small fishing vessel berths.

The entire proposed construction area will undergo physical alteration as a result of blasting, underwater excavation and backfilling with specification materials. All existing man-made structures and all natural features will be removed from the project area. Asphalt and concrete pavement will cap parking areas and roads. The existing Fort Amherst road will be fenced. The shoreline will be levelled to the elevation of the road at Newfoundland Light & Power Company's thermal plant at Cahill Point. Figure 3 shows a model of the completed project.

Public concerns about environmental impacts on the harbour's flushing ability, navigation and the area's historic value halted a call for tenders and delayed the original schedule. Project scheduling is unknown and the proponent is preparing an Environmental Preview Report.

3.0 PROJECT AREA

The project area is generally coastal bedrock outcrop sometimes covered with humic buildup and fill, deposited by downslope erosion or road construction. None of the project area is level land, as it forms the base of cliffs sloping into the Narrows. The

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road and other areas are levelled with gravel fill. Road, water and sewer and a thermal electric generating plant have considerably altered the existing shoreline.

Site area is of exposed granite bedrock with minimal soil deposits in cracks and crevices. Vegetation is limited to hardy shrubs (Spiraea and Vaccinium), small trees (alder and dogberry) and sedge grass. The slopes of the Southside Hills have a marginal ecosystem, consistent throughout settlement history. Small forests, once covering the north side of the harbour, were quickly cut over so that by 1697 "pickets for the palisades to ring the fort came from nearby ... four or five miles south of St. John's" and only some 200 trees at Long Pond were suitable for timber (Head 1976:46).

Downslope drainage is continuous, particularly after rainfall and during thaw. Existing drainage is such that both the eastern and western ends of the site naturally drain onto the beach. Drainage erosion has increased since site excavation. Downslope erosion has not been entirely negative having caused buildup on the north face of the site's main feature.

The site is exposed to winds from northwest to east and climatic conditions are harsh. Many references to weather causing construction delays occur in the letter book of military engineer Michael Richards (1703) just as in other Avalon Peninsula settlement diaries. High tides, wind and wave action continually erode the Narrows face of the site (Plate 1).

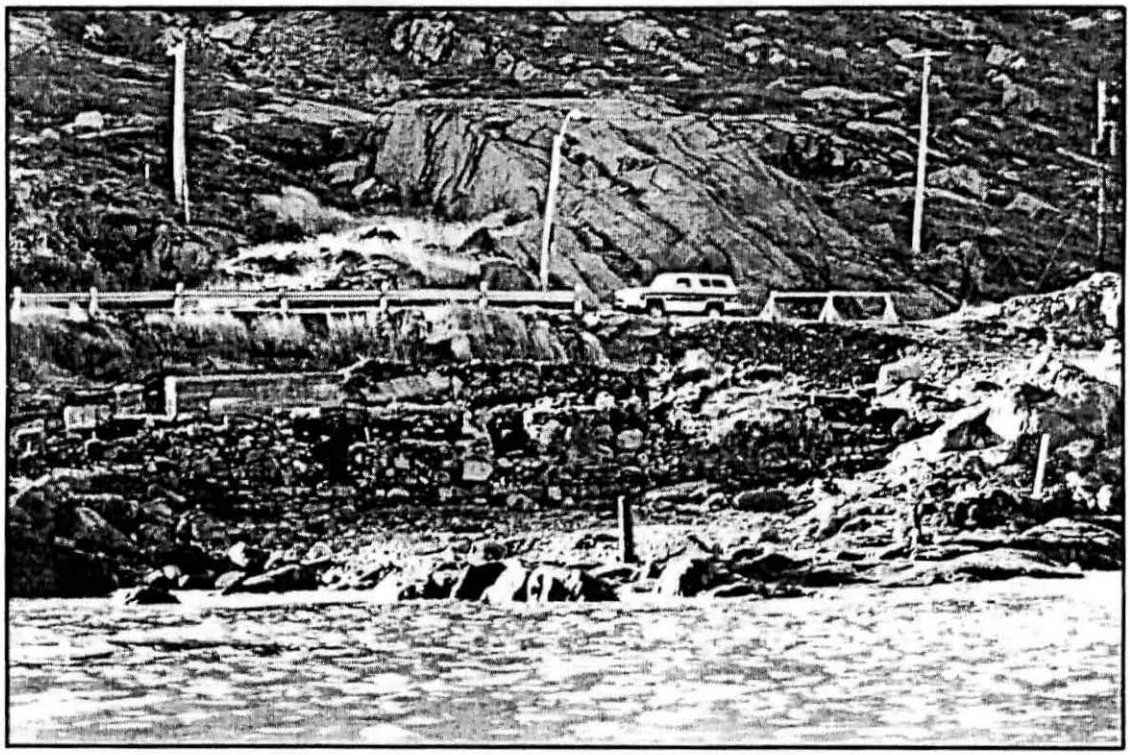

Plate 1: Anchor Point-1 site

Anchor Point is on the south side of the Narrows, directly across from Chain Rock, the two forming the narrowest traverse. Ideally situated for harbour defense, it has been

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used as a battery and anchoring point for harbour chains, booms and nets since the mid-17th century. Chain Rock, opposite, may have similar defense structures. During the second world war the Canadian military secured a torpedo net at the traverse. A cannon and an anchor, set into rock at the waters' edge, were used to fix harbour nets or chain gear but their origin is unknown. The cannon may be a cast iron culverin (18 pounder) or demi-culverin (10 pounder) which were used up to the early 19th century, before rifled ordnance (Hogg and Batchelor 1972:4).

In the 1950's, according to informants, military foundations were re-used by the Holwell family who also had wharves and stages at Anchor Point. There is no distinct archaeological indication of 20th century use except boards, cut nails and recent glass, all easily recovered anywhere along the harbour shoreline.

Wartime construction activities have disturbed the soil resulting in an admixture of 20th, 19th, and 18th century artifacts to the maximum depths of trenches (1.5 m) placed inside the wall. Future excavation may reveal that road construction has buried a portion of the site's southern extremity.

4.0 METHODOLOGY AND MATERIALS

4.1 Archival and informant research

Research into the history of British militarization, settlement and warfare was conducted at the Newfoundland Archives, the Centre for Newfoundland Studies, and the Maritime Studies Research Unit, Memorial University of Newfoundland and private collections. The object of this research was to reference southside Narrows fortification attempts. Concomitant information concerning settlement in St. John's, military building techniques and warfare were collected and are referenced. Copies of maps and charts showing the location of various harbour fortifications were gathered with the assistance of Alberta Wood, Map Room, Memorial University of Newfoundland, and A. M. Modelski, Library of Congress, Washington, D.C.

Informant interviews were informally conducted during field work activities. Knowledge of the site, local history and artifacts finds was sought. Local residents were interviewed several times by various team members.

4.2 Intensive inventory

Field work (03 October to 31 October 1988) further exposed a site feature identified in the Stage 1 overview assessment. A chronology of fieldwork activities forms Appendix 2. Artifacts are conserved and recorded (Appendices 3 and 4). Field methodologies followed standards in Historic Resources Impact Assessment Guidelines (1982).

4.3 Sampling techniques

The study sought to
a. systematically sample the project area;
b. define dimensions of historically significant areas; and,
c. determine the functional and temporal nature of the site's main feature.

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Stage I results determined that few, if any, historic resources exist outside the plateau formed behind a main feature wall. Ten test pits were dug during the Stage I assessment. Seven showed a very thin layer of sod and soil atop hard-packed, undisturbed strata or bedrock with a few 19th and 20th century artifacts; three pits, dug in the plateau south of the wall, were rich in 18th century artifacts.

A 2 m x 2 m grid was established by professional surveyors using a boundary marker set in rock near the study area. From datum, a north-south line was set off and east-west lines were run at 12 m south, 18 m south, and 22 m south. The S22 line continued over Anchor Point hill into the Innis garden where a second grid was laid out. Each 2 m x 2 m square is identified by its southwest corner stake. Stake elevations were taken at the site's main feature.

Figure 4 shows the grid and excavated areas. Eight per cent of the total study grid area was excavated. In the high priority area east of the north - south datum line, 35 % of squares were opened. Ten per cent of this area was excavated to an undisturbed level. Appendix 2 recounts excavation activities and how field results influenced methodology, sampling decisions and manpower commitments.

Due to the nature of the site, ie. a structural feature still largely visible, there is very little probability that judgemental testing overlooked culturally rich areas. Indeed, a systematic sample would have resulted in much less data for site analysis. The time allocated for excavation (800 - man hours) allowed 256 m^2 (64 units of 2 m x 2 m) to be excavated. The Amateur Archaeology Society of Newfoundland and Labrador and other volunteers contributed 118 man hours of labour. A concrete foundation and large boulders precluded further excavation at the site's east end.

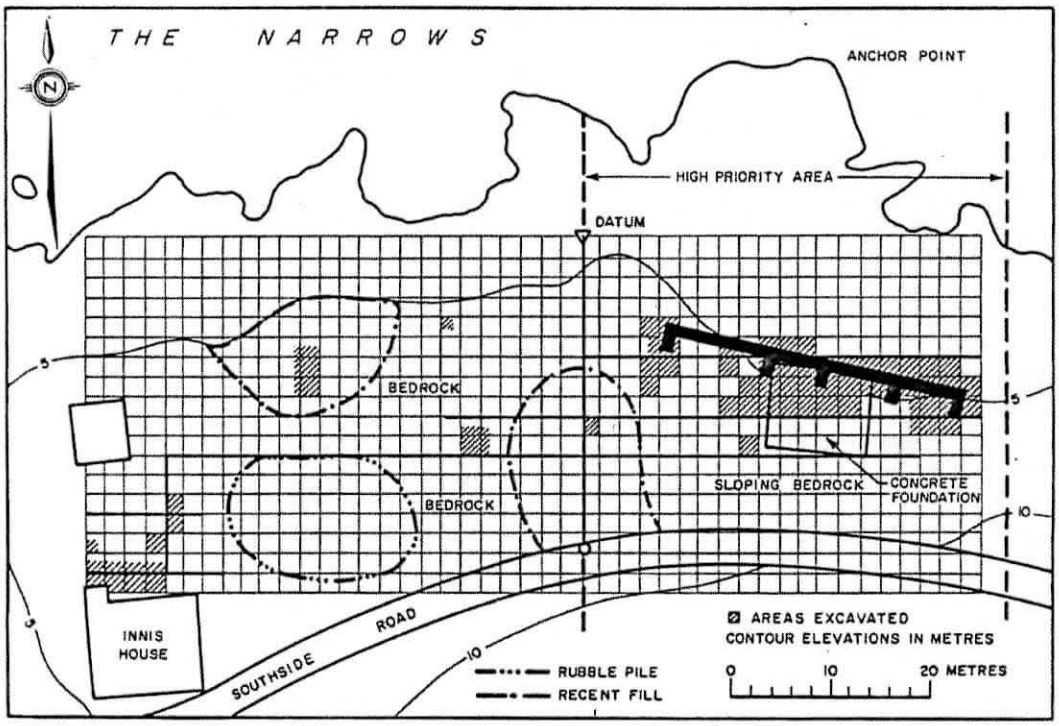

Figure 4: Excavated areas

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Historic Resources Division personnel advised using a systematic sampling design with two parallel lines of 2 m x 2 m alternating test squares to be dug across the site. This design was modified when test pits dug throughout grid area showed much of it culturally sterile and/or of recent fill. Test pits, purposefully placed in these areas for final verification of stratigraphy, continued to support this initiative. Efforts were concentrated in establishing feature extent in an excavation oriented rather than an exploratory sampling process.

4.4 Evaluative testing methods

The north face of Anchor Point hill was used as a dump for rubble, fill, road excavation material, snow removed from city streets, and other non-organic construction wastes. Mechanized earth removal equipment (a John Deere 310, 4-wheel-drive, rubber-tire backhoe and a John Deere 544E, front end loader) was used to remove this from the east slope of Anchor Point hill. Excavated material was stored in areas where test pits proved sterile. Bedrock outcrops were used to store backdirt materials.

A backhoe removed sod from a 288 m^2 section behind the wall; several large boulders from the northeast corner of the site (Plate 2); major portions of a concrete foundation built on the eastern end of the site; sod from a test unit on the eastern slope of Anchor Point hill; and from two test units in the Innis garden. During removal of the eastern slope fill, digging was continued to an undisturbed 19th century occupation level. Subsequent testing showed this to be a thin layer of black humus over an undisturbed substrate of compacted gravel. Sod removal was effected under close supervision. Stripped areas and the bottom of sods were checked for artifacts.

Plate 2: Mechanized sod removal

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Two sod removal techniques were used; shovels at the wall feature and a backhoe in the plateau behind the wall. Generally, once the sod was removed, shovels and picks were used to remove the overburden which, in certain areas, was sifted through 1/4 inch mesh. Each unit was taken down 10 cm at a time. Stratigraphic change, or feature emergence, caused shovels to be abandoned and excavation to continue using trowels. Normally each unit would be taken down to its sterile substratum. In units which came down to a feature, the feature was mapped.

In the Innis garden, after sod removal, the backhoe was used to dig to the hard, red, gravel substrate but attempts to break through this were unsuccessful; as well, bedrock was encountered in these test areas. A backhoe dug test trench 5 m x 2 m (S16W26 to S14W26), in the fill at the north edge of the hill, yielded asphalt and road gravel to 3 m. No further effort was made to remove this fill.

5.0 RESOURCE INVENTORY

5.1 Archival data

By 1700, after a century of settlement, the English population of Newfoundland did not exceed 4000 year-round inhabitants. Matthews (1968:11) recounts that Queen Anne's War (1702-1713) "followed an extremely long and bad depression in the fishery" and that the year-round population "actually fell - not to pass the previous level until later in the 1730's". During King William's (1689-1697) and Queen Anne's wars Dartmouth merchants and ships dominated the St. John's harbour fishery. Arthur Holdsworth (1668-1726), and his brother Robert, whose family was to dominate south Devon trade for generations, were admiral and vice-admiral of St. John's throughout the period 1700-1710 (DCB 1969:291).

The Narrows were locally fortified against privateers in the last half of the 17th century with military engineers arriving only after colonial French / English hostilities. The south shoreline (from Cahill Point, where the Narrows ends, to Fort Amherst) and the north shoreline (from Piggs Point, now the Outer Battery, to North Head) are associated with military installations spanning a 350 period (Figure 5).

Narrows fortifications were organized by Capt. Christopher Martin in 1665 and 1667, and used successfully in 1673 against "Hollanders on their way to New York" (Prowse 1972:175). Ring Noone, an earthen platform, built by local residents sometime in the late 1600's, was rebuilt by Royal Engineers after 1697. It is not clear if Ring Noone was located at Anchor Point or further west as indicated on Janzen's (1987:24) plan of harbour fortifications. An older platform, seemingly situated nearer the much later Fort Frederick, was presumably abandoned by 1700 (ibid:24).

Thornton's map of 1689 shows two fortifications on the south side of the Narrows, Ring Noone west of Anchor Point, and South Forte, east of Anchor Point. "A Draught of St. John's Harbour" (1698) shows a South Battery east of Anchor Point. Sir Martin Beckman's map (1698) shows a rectangular South Fort and battery at Anchor Point.

Capt. Lilly, of the 1693 Wheler naval expedition, who laid out Fort William at the request of St. John's citizens, suggested that guns on the south side of the Narrows be moved to the north side. Whether this took place is unknown, but, by 1698 fortification efforts were concentrated at Anchor Point and above Chain Rock.

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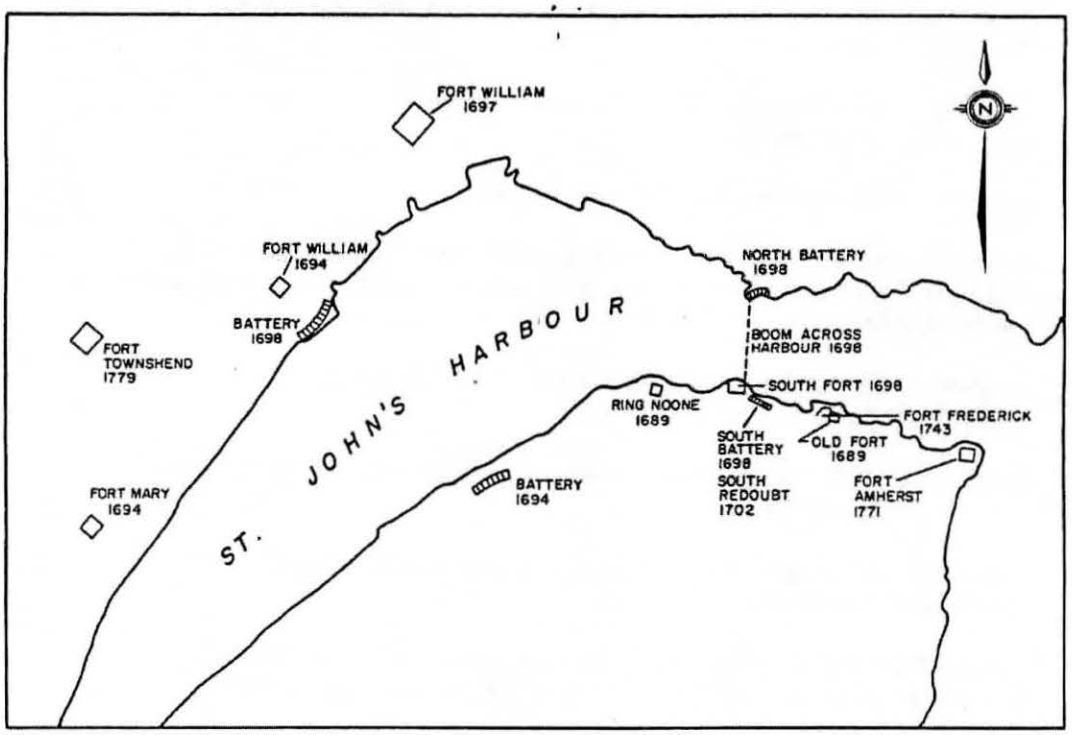

Figure 5: Historic harbour fortifications

An undated map (signed "Brig. M. Richards") shows an eight gun battery at Anchor Point and an "Old Platforme" further to the east at Frederick's Cove. The map is notated on its reverse, "This is related to the Beckman chart - the Old Platform deals with the earliest fortifications of St. John's."

Prowse (1972:213) places a small fort east of the study area which, in conjunction with a fort at Chain Rock, helped repel a 1696 French invasion. A French chronicler (ibid:232) places three forts in the harbour, one at the Narrows, and mentions an eastern fort as being burnt by the French in 1697. The French attack of 1696/97 demonstrated to merchant fishermen and the Board of Trade that military defense of the harbour was necessary. As a result, Col. John Gibsone, with a 2000-man land and naval force under Sir John Norris, arrived in 1697 (DCB 1969:246). The formation of the Newfoundland Independent Company and a formal approach to fortification followed under Michael Richards (1673-1722), captain and engineer in Newfoundland between 1697 and 1703 (ibid:564).

Engineer Michael Richards' letter book (Stowe Mss.) provides information on southside fortification construction. Calling it the "south redoubt" or "south battery", he describes it as the most important defensive position in the harbour. The following references to southside activities are from his letter book

> June 5, 1700 - "six great guns" were brought ashore on the south side; a kiln for mortar was constructed; and, a 30 foot long wharf was built.
> June 20, 1700 - 300 tons of stone were brought to the southside.

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June 24, 1700 - a bellows (to operate lime kilns) was erected at the south battery.

June 25, 1700 - the difficulty encountered in cutting stone for the south battery was noted.

July 11, 1700 - another lime kiln was begun.

undated - concern over the late arrival of building supplies was noted; "I hope the Portland stone will come over by the first ship for the foundation of the battery must be laid with stone."

Autumn, 1702 - 700 tons of rubble were "raised at the south battery" for inside filling.

October 3, 1702 - an awaited Portland stone shipment for the south redoubt arrived.

November 22, 1702 - the south battery was palisaded and the front foundation begun.

June, 1703 - the south redoubt was built up to the cordon (line of the gun mouths) and completion was scheduled for that summer.

Reference to Portland stone is important. Portland in Dorset, noted for its marble (and related gypsum, alabaster and chalk) deposits, came to prominence when Inigo Jones and Christopher Wren used it to build London's Whitehall and St. Paul's Cathedral between 1620 and 1680 (Clifton-Taylor and Ireson 1983:65-80). It is suggested by Richards that rubble and stone unsuited for building be shipped as ballast by Dorset fish merchants, to be converted to lime for mortar.

A limekiln, a conical pile of layered marble, chalk or gypsum chips and hardwood or charcoal (6 feet high and 8 feet in diameter at the base), when burned, reduced the calcium carbonate content of the stone to slaked lime. This method, in vogue from Roman times, was obviated only with the invention of Portland cement in the 1850's. It was designed to look like Portland stone (marble) when hardened (ibid:126-129). Richards' letters have considerable discussion regarding log cutting at Long Pond, hiring of horses and townspeople, the need for birch wood and the difficulty in obtaining "chalk" which was not contaminated with salt water during voyages from England.

In 1703 Lt. Lloyd succeeded Capt. Richards and John Roope was sent to supervise the placement of the harbour boom. Needing "great trees" the boom was made using local materials only to be destroyed in a 1705 storm, the timbers adjudged as too flimsy (Head 1976:46). The requirement for trees from which timbers could be squared to two feet meant the nearest supply was in Trinity Bay or Bonavista Bay and the resulting recommendation was that the timber would be more economically procured in England (ibid:47).

A 1705 French raid by Subercase was, in part, repelled by the new harbour fortification under Lt. Latham. Rev. Jackson, chaplain of the St. John's garrison in that year, described the south battery as a "pretty little castle all of stone and substantial timber" accommodating 30 men (Candow 1979:12). A 1705 French description was of "a

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castle, enclosed by good and strong walls, partly wet at high tide" (ibid:265). The southside fort and Fort William survived (after a siege of 33 days) but the town was burned.

During the winter of 1708-09 the French, under St. Ovide, again attacked St. John's. This time the southside defenses were described by a French observer as " a strong work... [with] quite a good supply of artillery, large cannon... a bomb mortar [and] ... a bomb-proof vault" (Prowse 1972:268). Regardless, it was captured by landward attacks and totally destroyed by gun powder and its ordnance removed to Placentia.

The term "castle" was used to describe structures which do not resemble current association with that term. Built until the early 18th century they were examples of a defense technology developed during the reign of Henry VIII. At that time

> ... defenses were constructed along the coasts of England from Hull to Milford Haven. While some of the castles were brought up to date, the main innovations were a series of batteries or "block houses". They were, and still are, called "castles". This is a misleading term for they marked a major advance in military technology. These new structures were actually stone-built, protected batteries from which large calibre cannon could cover the adjacent sea and coastline (Taylor and Muir 1983:168).

Three castles, built between Weymouth and Poole, were still important defenses against Barbary pirates in the mid-1600's. Portland Castle, built in 1540 and rebuilt in the early 1800's still stands largely unaltered. An 18th century engraving shows it to be a gun emplacement, a two-story blockhouse and a landward wall (Burnett 1982:24).

Block houses varied considerably in design but most had central towers (keeps), living quarters for the garrison and a basement for stores and ammunition. The keeps were either completely, or partially, surrounded by a lower curtain wall behind which were casements or vaulted rooms for the guns and a parapet above surrounding other open gun emplacements (Taylor 1970:154). They were "positioned not to resist invasion across open beaches, but to protect major ports or estuaries" (ibid:169-170). They continued to be used until the 19th century along America's Atlantic coast.

Cannon, in such positions, were usually arranged to cover a wide field of fire and the Richards' map shows this to be the case at Anchor Point (Figure 6). It was not drawn in plan but rather in a notational style indicating angles covered by each cannon.

The Newfoundland garrison was removed to Placentia after 1713 and St. John's fortifications were allowed to fall into disrepair. A 1748 building effort took place at Frederick Cove but the Narrows chain was fixed at Anchor Point and four 18-pounders were located "on or near the site of the former Southside castle" (Candow 1979:15-16).

By 1779, Fort Frederick (named after Capt. T.L. Frederick, commander of the Newfoundland station from 1777-1778) had taken over the main duties of guarding the harbour. In 1811, Capt. Elias W. Durnford, charged with renewing the city's defenses, reported the barracks at Fort Frederick were "decaying" and that an

> old stone building on the southside, northwest of Frederick's Battery was used as a barrack for the civilian workmen employed on that side of the narrows. The cable and purchases for laying the boom across the Narrows were also kept there (ibid:48).

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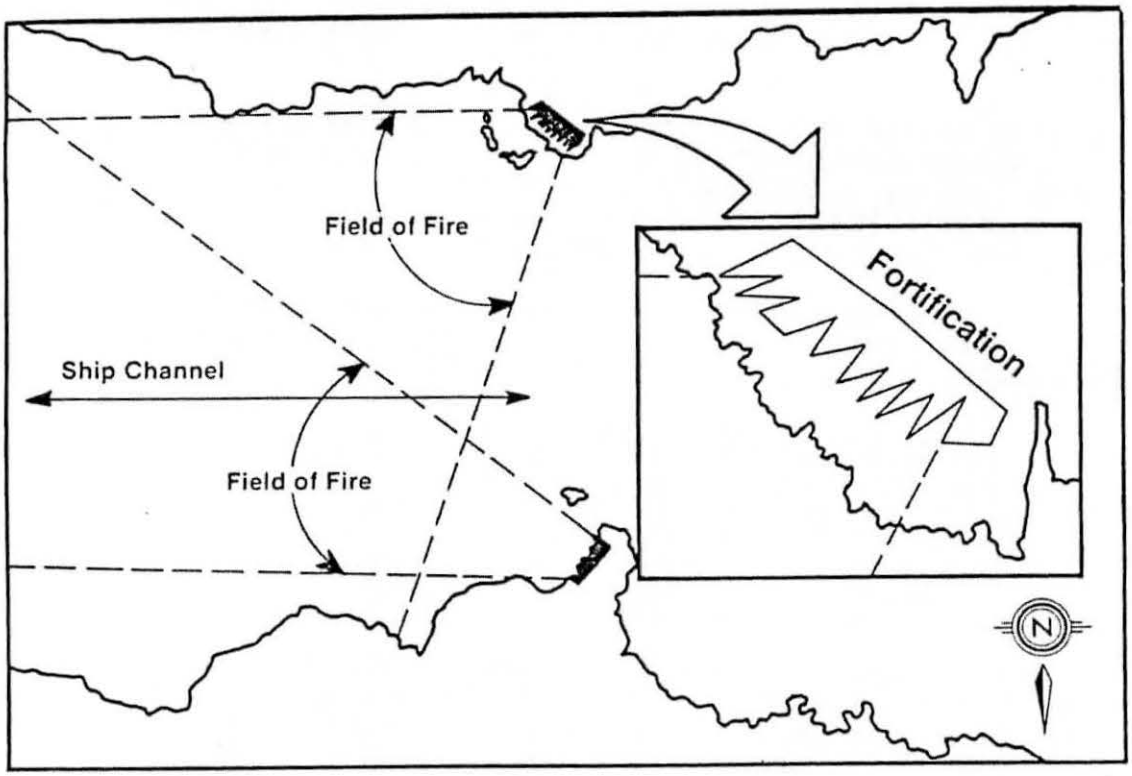

Figure 6: Field of fire diagram

By 1835 the southside forts were abandoned. In 1848 the Fort Frederick barracks burned. The Registry of Deeds has an entry for 26 December 1860 granting the land between the southside and Freshwater Bay to the Board of Ordnance. It is suspected a state of international unrest, including the American Civil War, required use of the area for military purposes. This fortification effort, as well as those of 1915 and 1940, concentrated at Fort Amherst. A first world war boom and a second world war anti-submarine net were fixed at Anchor Point. Buildings constructed at Anchor Point in the 1940's housed men associated with a signals operation at Fort Amherst as well as those with duties pertaining to the anti-submarine nets (Candow 1979:85; Murphy 1981:10-11; O'Neill 1975:94). Reciprocal land transfers between private and military possession occurred, with the most recent being the Anchor Point area back to the Holwell family after 1946 (Layman, personal communication 1988).

5.2 Informant data

Area residents expressed surprise the site existed. Generally, they followed the lead provided by a provincial historic sites plaque, on the west side of Anchor Point hill, and thought a fort or "castle" would have been located on top of the hill. Anchor Point was last used for building when the Holwell family erected a house on the foundations of a wartime barracks. After the house burned, by the late 1970's, the field was used for gardening and pasture. At the rock outcrop forming the west end of the cove, a fishing stage and shed and a small store stood until the late 1970's.

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Over the past 10 years rubble, road gravel, asphalt, concrete and wood debris was dumped along the east and north facing slopes of Anchor Point. This overlay foundations of 19th and 20th century buildings and extended the north edge of the hill 5 m. Elderly residents recall fishing flakes, wharves, stages and stores throughout Anchor Point in the mid-1950's. Some inhabitants have clay pipes, musket and cannon shot, buttons, coins and other artifacts collected from the area, especially from Fort Frederick.

5.3 Evaluative testing results - artifacts

Table 1 shows artifact categories and quantities created during initial cataloguing. Subsequent analysis of ceramic and clay pipe fragments shows number variation, differences arising from some fragments being too small, or otherwise unsuitable, for analysis.

TABLE 1: Artifacts from Anchor Point-1 (CjAe-3)

ARTIFACT TYPE	RECORDS	ITEMS	% ITEMS
Bone	67	373	11
Brass	11	11	<1
Copper	18	28	1
Earthenware	247	1045	30
Glass	109	267	7
Gun flint	13	14	<1
Iron	134	346	10
Lead	18	20	<1
Pipe	187	1280	37
Stoneware	51	85	2
Other	23	32	1
Total	878	3501	100

Ceramic artifacts, in two primary groups, have 12 types dating to pre-1750 and 15 to post-1750. Tables 2a and 2b show types, number and percentages of these.

TABLE 2a: Ceramic artifact pre-1750

TYPE	No.	%
Iberian	583	55.05
Unglazed North Devon	48	4.54
Saintonge buff	30	2.83
North Devon	28	2.64
Westerwald	22	2.08
Delftware	17	1.61
Saintonge	14	1.32
West country yellow	13	1.23
Tin glaze	6	0.57
Fire brick	5	0.47
Smooth North Devon	3	0.28
Merida	1	0.09
Total	770	72.71

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Table 2b: Ceramic artifacts post-1750

TYPE	No.	%
Ironstone	50	4.72
Recent porcelain	42	3.97
Refined white earthenware	45	4.25
Salt glazed stoneware	40	3.78
Printed white earthenware	34	3.21
Brick	33	3.13
Brown glazed recent earthenware	14	1.32
Brown glazed white earthenware	13	1.23
Black New England refined earthenware	5	0.47
Printed recent earthenware	4	0.37
Staffordshire Bristol	3	0.28
Drain tile	2	0.19
Moulded white earthenware figure	2	0.19
Hand decorated white earthenware	1	0.09
Glazed recent earthenware doorknob	1	0.09
Total	289	27.29

Iberian red earthenware sherds dominate the pre-1750 group reflecting English trade contacts with Spain and Portugal during the period. Originally used for oil, wine and vinegar storage and shipping most were glazed inside (Pope 1986:100). Their percentage distribution is possibly biased by their large size. North Devon ware fragments are of a gravel tempered variety, and base and rim fragments suggest meat pots and at least one jug. Clay "marbles" are similar to "allies" found at Signal Hill (Jelks 1973:76). Westerwald tankard fragments (Plate 3b), with a manganese salt glaze, suggest a date after 1660 (Pope 1986:120). Fragments of Rhenish stoneware (Plate 3f) are a type commonly found in Bellarmine bottles of the late 16th and 17th centuries (Noel Hume 1969:276-278). French Saintonge buff earthenware with an apple green lead glaze (Plate 3d) and other Saintonge sherds date to the late 1600's (Barton 1981:68). Delft (Plate 3c) and other, undecorated, tinglazed earthenwares predominate the refined pre-1750 material. Post-1750 ceramics are mostly 19th century wares.

Pipe bowl fragments, found in undisturbed context, can be very period specific particularly with a large sample (Walker 1977:13). Twenty-one of 25 bowl fragments suitable for analysis are identified to the period 1650 - 1730; 16 more specifically as being of North Devon origin, probably from Barnstaple. These pipes, with a bulbous (chinned) bowl, were manufactured from 1650 to the early 1700's (Pope, personal communication 1989). Representing 67 % of the sample they reflect Dorset, Devon and Somerset trade links. Five pipe bowls, stylistically similar to late 17th and early 18th century (Walker 1977:1515-1551) specimens, are not positively dated. Three are of a late 18th century style (ibid:1515-1551; Jelks 1973:73-74), and one is a 20th century Woodstock pipe made by the Mcdougal Company of Glasgow (Walker 1977:1555). One stem (Plate 4h) has the initials "L E" and a continuous pattern of impressed diamonds, with a raised dot in each, banded above and below by two dashed lines. It was made by Llewellyn Evans (1661-1686) of Bristol, noted for his American exports (ibid:607).

Pipe stems were analyzed using a straight line reduction formula based on stem bore diameters. For English pipes, early pipe stem bores are larger than later ones. Each bore size, from 4/64ths to 9/64ths inch, covers a 30 to 50 year period from early 17th century to late 18th century. While 1000 samples are usually required for dating, the 907 stem fragments from Anchor Point gave a mean date of 1687 ±20. Table 3 shows the number of stem fragments for each bore size and the relevant period.

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TABLE 3: Pipe stem bore size analysis

SIZE 64ths	DATES	#	%
4	1750-1810	8	00.88
5	1710-1750	146	16.10
6	1680-1710	318	35.06
7	1650-1680	370	40.80
8	1620-1650	65	07.16
9	1590-1620	-	-
	Total	907	100.00

Thirty-five percent of stems date from the period 1680-1710 but equally interesting is the 40 % from the 1650-1680 period and the 16 % from the 1710-1750 period. While this may be accounted for by inherent overlap, and the lag between manufacture and export, it also suggests a continuous use of Anchor Point throughout the period 1650 - 1750.

Bottle glass, less common than pipe and ceramic material in undisturbed areas, is dated to circa 1700. A rim fragment (Plate 5a) and a neck fragment (Plate 5c) are 17th century diagnostic (Noel Hume 1969:63-64). A bottle seal (Plate 5b), with the inscription, "A Holdsworth Dartm.", refers to Arthur Holdsworth (1668-1726) of Dartmouth, Devon, who participated in Richards' plan to have ships deliver Portland stone in ballast for fortifications efforts (DCB 1969:291; Richards 1703:n.p.). The bottle seal is one of the site's most interesting artifacts.

Artifacts highlighting the military occupation of the area include British (Plate 6a,b,c) and French (Plate 6d) gun flints; .75 calibre lead musket balls (Plate 6e,f,g); brass friction tubes (Plate 6h,i) used to ignite cannon (Tunis 1954:115); a brass musket band used to bind the barrel and stock (Plate 6j); and, a brass button bearing the crest of the Royal Artillery (Plate 6k). The button, found in disturbed context above the rubble, dates from the 1790's; another brass button, with attached wire loop (Plate 5e) is of early 18th century make (Bailey 1971:20-25; Jelks 1973:84-90). Two pieces of broken cast iron cannon balls are from a 32-pounder and an 8-pounder.

Wrought iron nails (Plate 7a), many with rose heads (Plate 7b) date to the 18th century (Noel Hume 1969:252). Iron tools, including an ax (Plate 7c) and a boat hook (Plate 7d) have an undetermined age. All iron artifacts are partially mineralized. Three coins, identified by the Numismatic Branch of the Bank of Canada, Ottawa, are a 1694 William and Mary copper farthing, a George III copper halfpenny from the period 1770-1775 and a silver Newfoundland half dollar (1870-1900).

The bottom of chambers 1 and 4 (see page 30) represent undisturbed layers and in these were found coarse red earthenwares (green glazed), pipestem fragments, bottle fragments, mammal and fish bone, bits of red brick, clinker and iron nail fragments. Bottle glass, earthenware and pipe fragments from here are of early 18th century origin. A mixture of 19th and 20th century artifacts including transfer printed white earthenware, refined white earthenware, cut and wire nails, recent bottle glass and window glass were found throughout the study area.

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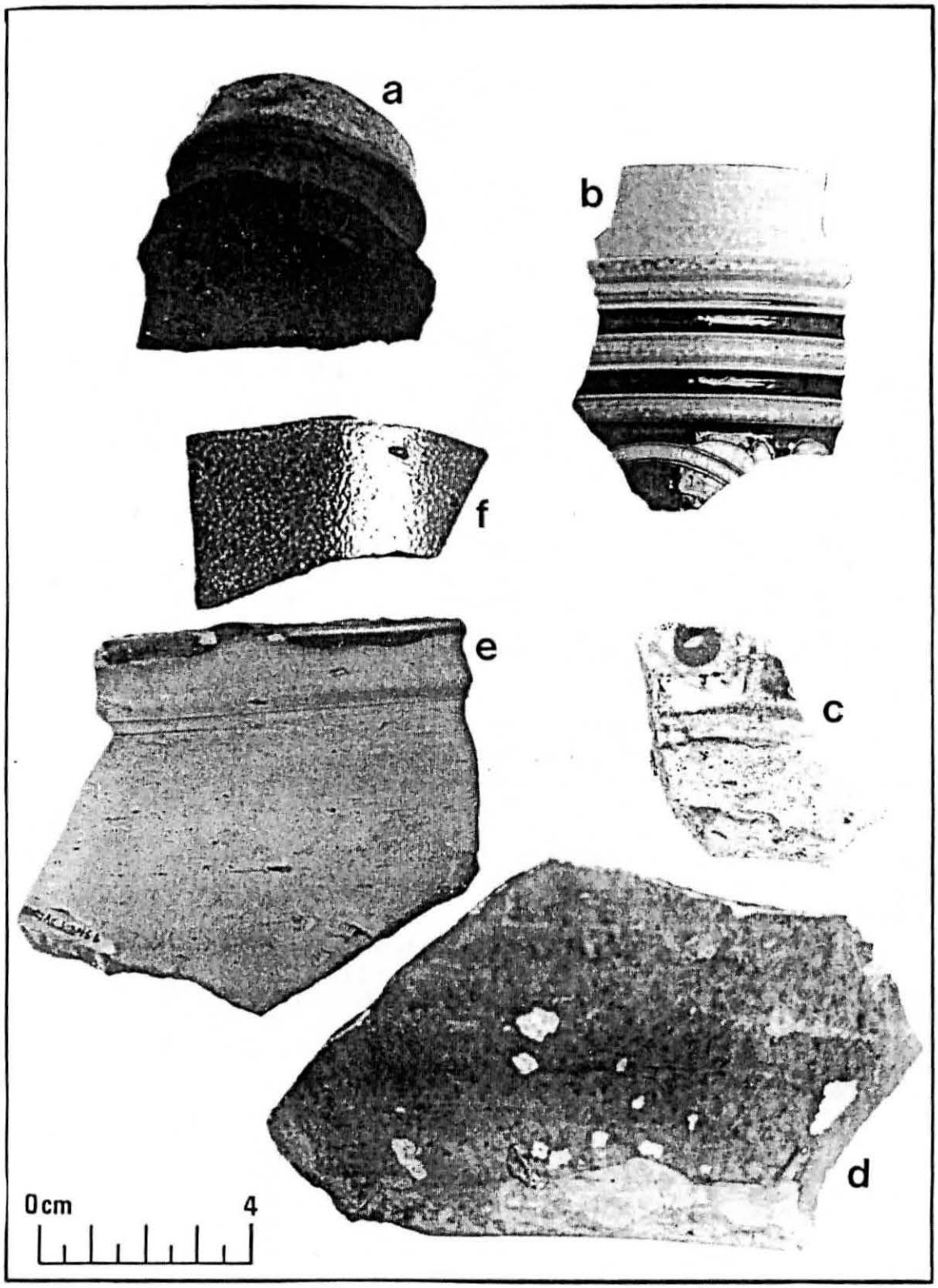

Plate 3: Ceramic artifacts
a. Iberian earthenware rim sherd with lead glaze b. Westerwald rim sherd
c. Delftware with tin glaze d. Saintonge (French) base sherd e. Iberian earthenware rim sherd with interior lead glaze f. Rhenish stoneware sherd

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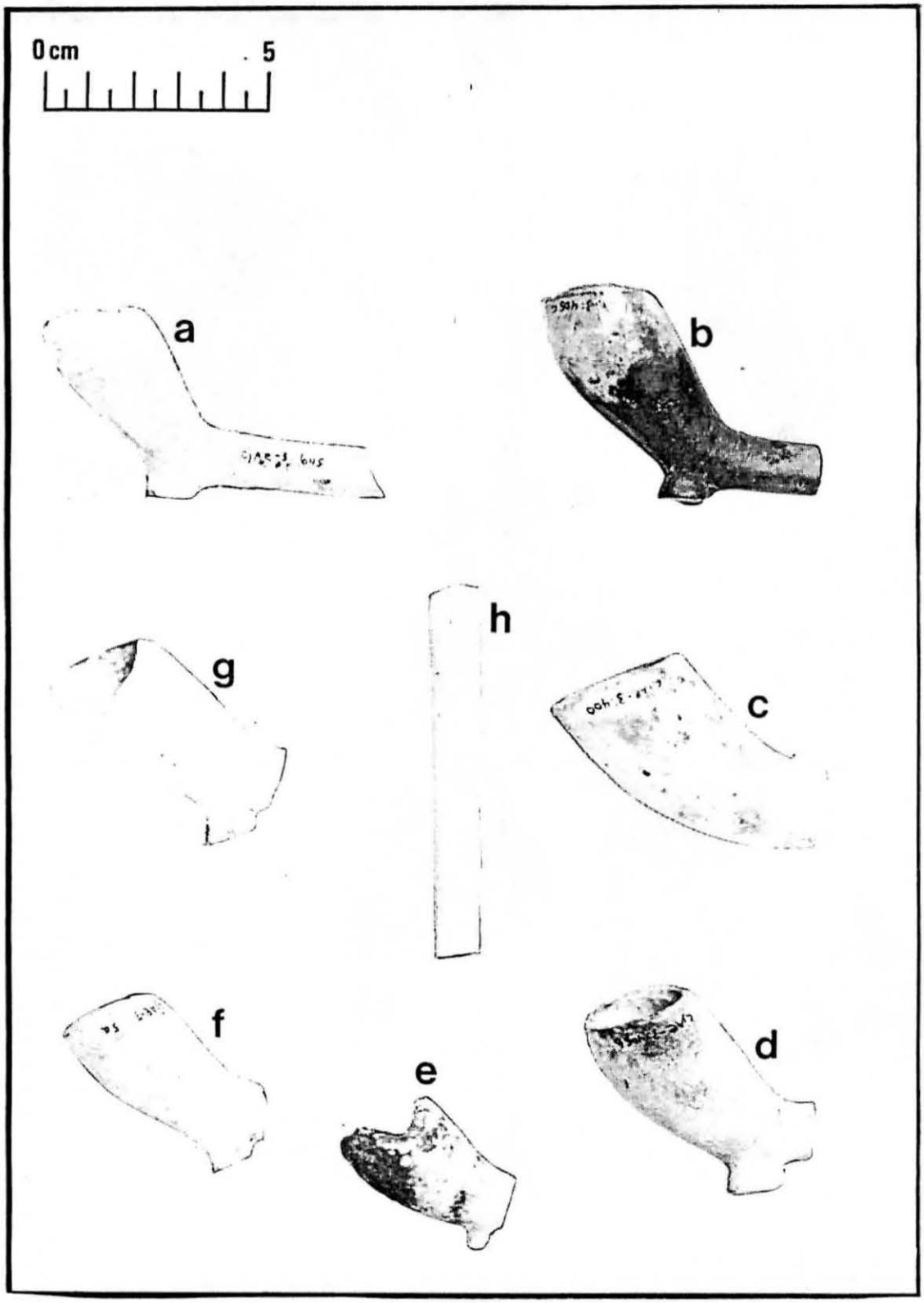

Plate 4: Clay pipe artifacts
a, b, d, f and g. Barnstaple pipes c. Woodstock pipe by Mcdougal of Glascow
e. North Devon pipe fragment h. Llewellen Evans stem

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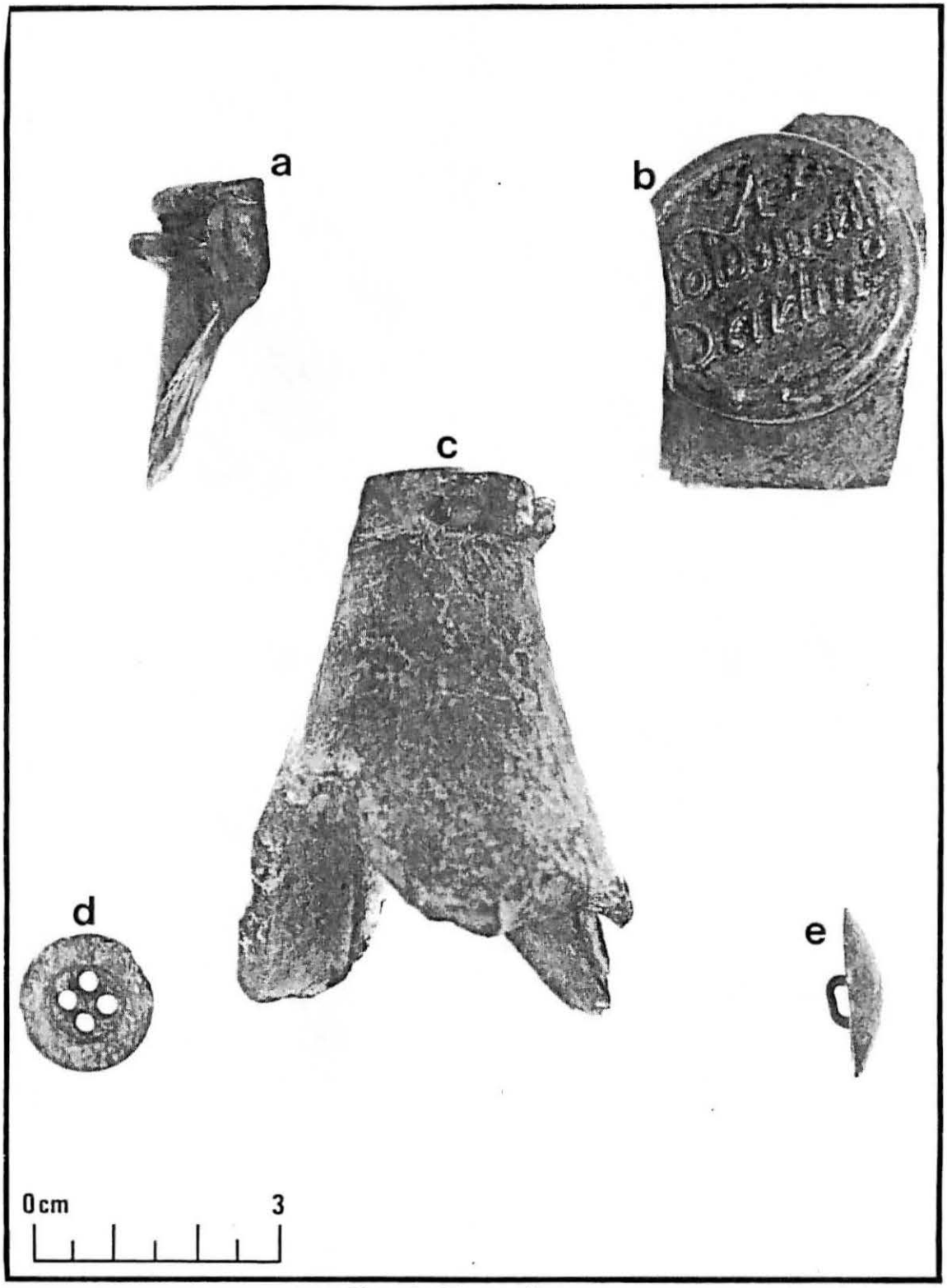

Plate 5: Other artifacts
a. glass rim fragment b. inscribed bottle seal c. bottle neck and rim fragment
d. bone button e. convex brass button with wire loop

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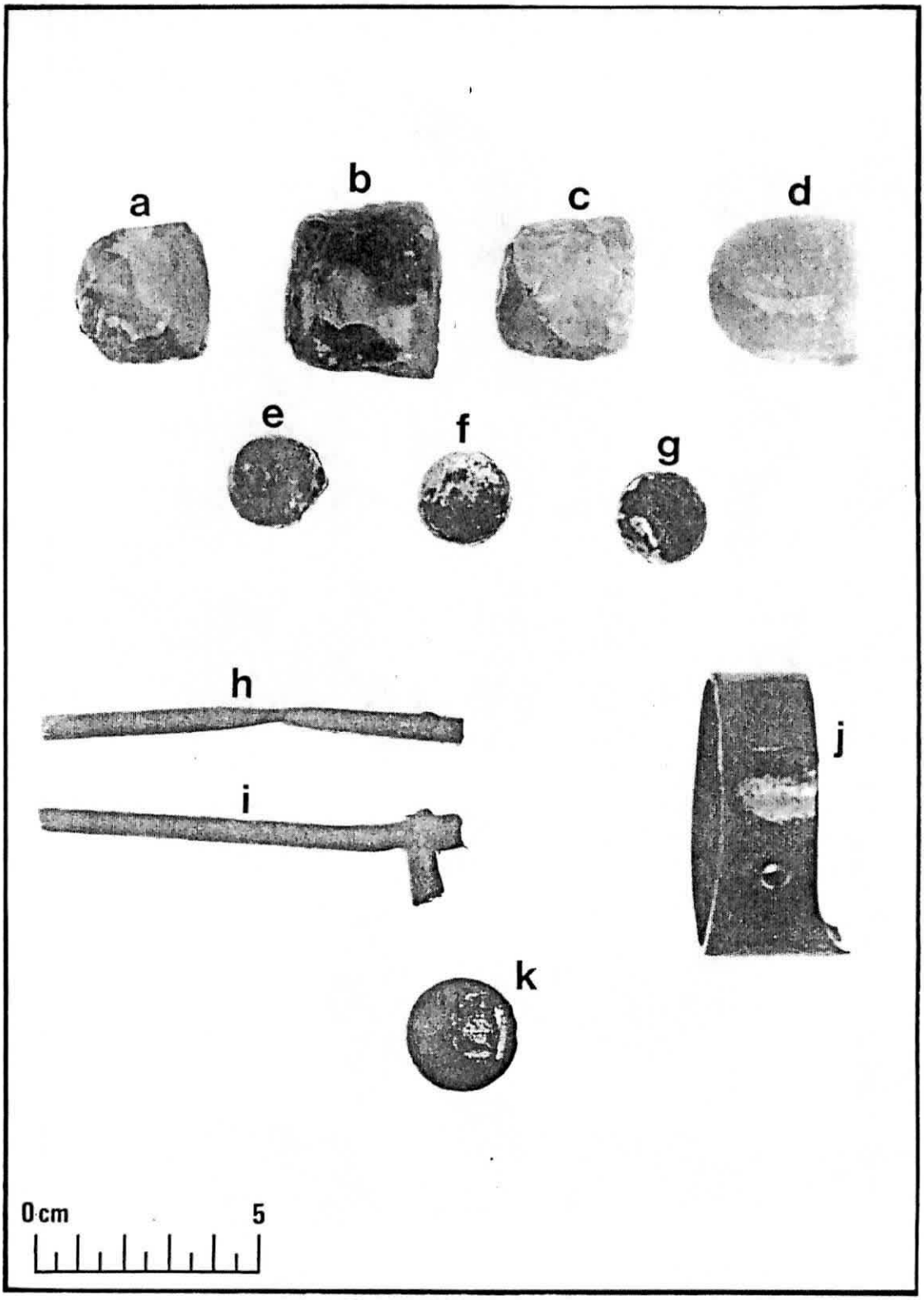

Plate 6: Military artifacts
a, b and c. English gun flints d. French gun flint e, f and g. lead musket balls h and i. brass friction tubes j. brass musket band k. Royal Artillery button

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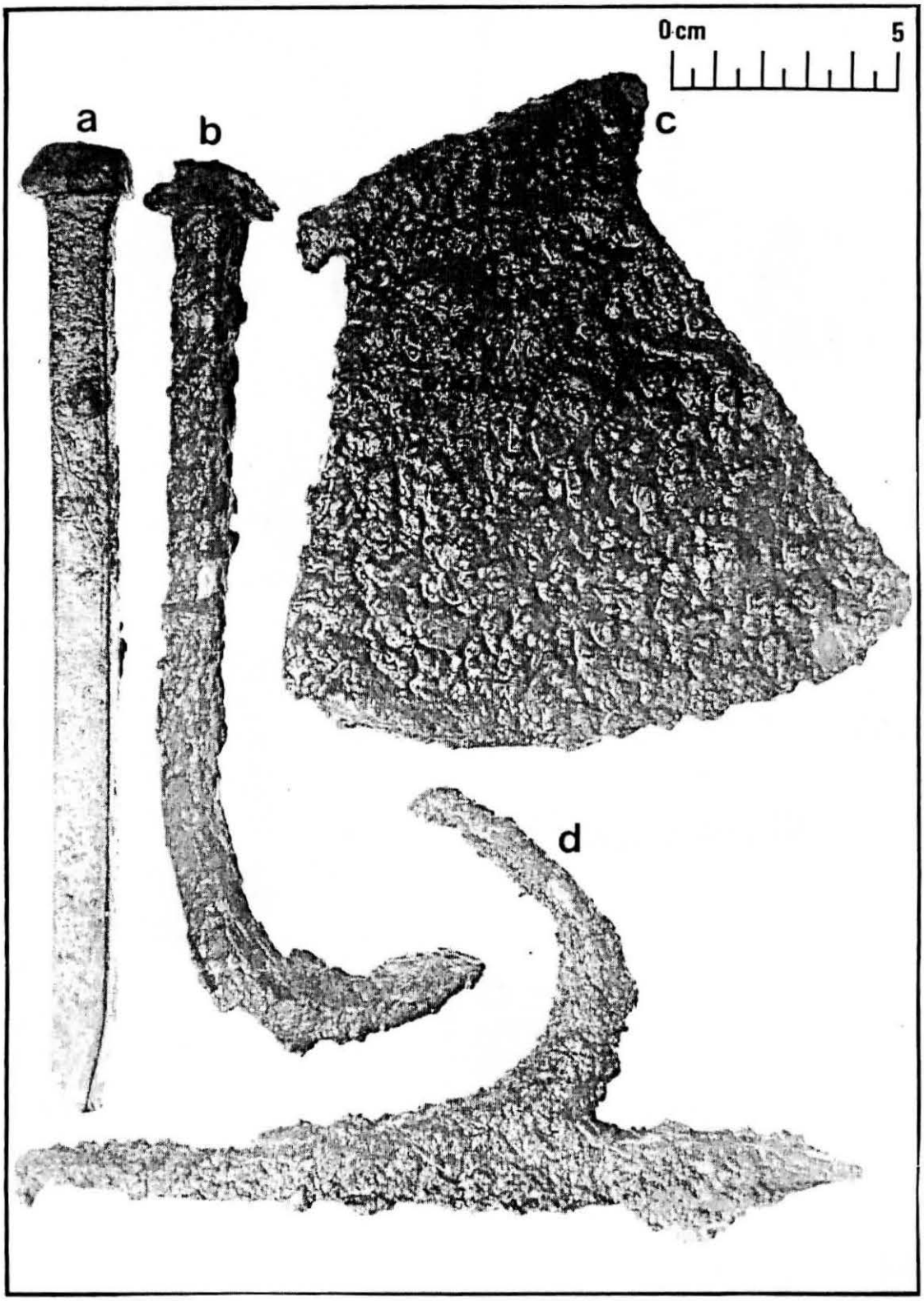

Plate 7: Iron artifacts
a. wrought iron nail b. rose head nail c. ax d. boat hook

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5.4 Evaluative testing results - features

The main site feature is a wall which, from the bedrock outcrop on the east side of Anchor Point hill, extends 29.9 m southeast over a cobble beach (Plate 8). It is 1.52 m wide and 4 m high (at its greatest remaining height) and appears to be built directly on the beach. There is at least a 30 cm beach cobble buildup against its north face. At 20 m east the wall rises over another bedrock outcrop.

The wall is constructed with a mixture of rough and cut stones varying in size from cobble to extremely large boulders. Built carefully, layers were mortared and kept level with smaller insert rocks. The seaward face of the wall has had mortar and smaller levellers washed out. A similar seaward facing gun battery (12 guns) designed for Rochefort Point, at Louisbourg, by French engineers 50 years after Anchor Point, called for a wall 2.3 m to 2.6 m wide and 2 m to 4 m above sea level (Fry 1984:30), similar dimensions to the Anchor Point wall.

Five mortared stone walls (.91 m or 3 ft. wide) extend south, at right angles, from the main wall. They are

- Feature 1, the west wall, is 1.37 m long.

- Feature 2, 9.74 m (2 rods) east of Feature 1, is 1.67 m long and 2.06 m deep.

- Feature 3, 4.87 m (1 rod) east of Feature 2, is 1.22 m long.

- Feature 4, 4.87 m (1 rod) east of Feature 3, is of undetermined length and depth due to 1940's construction disturbance.

- Feature 5, the east wall, is 1.95 m long.

These divide the structure into four internal units, labelled (west to east) as chambers 1 to 4. Chamber 1, at 9.74 m (2 rods), is exactly twice the width of the other three (4.87 m) positing a sixth wall between Features 1 and 2. Chambers is to be understood as a classification term as these internal features are not completely defined. The walls may be "counterforts" (ibid:142) designed to strengthen the main wall and support structures. Counterforts, firmly packed with rubble and earth, helped the exterior wall absorb shot impact and were standard for this type of fort as was lining the parapet with turf for impact absorption and erosion control (ibid:159).

A mortared drain, 2.65 m west of feature 5, measures 20 cm x 14 cm. Bedrock inside the wall has been blasted to facilitate drainage into what was most likely a latrine.

5.5 Evaluative testing results - stratigraphy

Sod (average 8 cm thick) covers most of the eastern end of the study area. It lies on a stratum of dark silt (from 2 cm to 24 cm). Generally sod and silt lie on a hard substratum of sterile red clay and gravel or on bedrock. The sod and silt levels, when not sterile, produced a mixture of 19th and 20th century materials.

A grassy plateau (40 m x 18 m), extending 40 m east from Anchor Point hill is bounded to the north by the main feature wall and to the south by the gravel roadbed. Prior to excavation it contained concrete foundations and blocks, a length of heavy

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Plate 8: Main wall looking east

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marine chain and waste wood and other construction materials. Here, as elsewhere, a sod layer is followed by a layer of silt. However, the silt is of much greater depth (varying from 30 cm to 70 cm) and contains not only 19th and 20th century artifacts but also 17th and 18th century material. Here, beneath the silt, instead of the sterile, red substratum found elsewhere, is a deep layer of rough and cut stone. The rubble contains early 18th century artifacts, including pipe and ceramic fragments, as well as 20th century material, especially wire nails.

A 2 m x 16 m east-west transect across the plateau sought to determine the maximum depth of the rubble but hand excavation among large stones was difficult and eventually the effort was abandoned. Stones, weighing as much as 500 kg, require mechanical assistance for removal. One 2 m x 2 m unit, dug to a depth of 1.5 m, yielded 18th century materials in the rubble matrix.

Chamber 1 (Plate 9), and all of chamber 4 (Plate 10) were excavated to below the rubble fill. Both have floors of mortared stone under undisturbed matrices containing artifacts of early 18th century origin.

Plate 9: Northwest corner of chamber 1

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Plate 10: Northwest corner of chamber 4

Beneath the rubble in chamber 4, a 3 cm lens of charcoal (level 2) was rich in early 18th century ceramics, pipe and bottle glass fragments and less diagnostic fragments of red brick, wrought iron nails, clinkers, mammal and fish bone. Beneath the

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charcoal and above the mortared stone floor a 10 cm layer of mortar (level 3) produced similar material in smaller amounts. Beneath the rubble in the northwest corner of chamber 1 a 5 cm deposit of silt and charcoal above the mortared stone floor produced artifacts similar to those from levels 2 and 3 of chamber 4. In both chambers there is evidence of drilled and blasted bedrock.

Profile 7 (Figure 7) shows the north face of the northeast corner of chamber 1. The unit was dug to the bottom of the west face of feature 2 at which point a mortared stone floor was again encountered. Beneath a thin layer of humus is a layer of disturbed rubble and silt. This is followed by a thick, loose layer of silt and ash, a thin layer of ash and mortar, another silt and ash layer and a thick layer of loose stones, largely devoid of soil, lying atop the mortared floor. Profile 8 shows a cross section of collapsed wall displaced and covered by recent downslope erosion.

Given the preliminary nature of excavation it is difficult to draw conclusions based on stratigraphy. However, undisturbed strata of early 18th century material, directly above the interior floors, indicate the structure was built at that time. The presence of a deep deposit of rubble sealing off undisturbed strata points to destruction at the end of the initial period of occupation. Artifacts from the late 18th century, 19th and 20th centuries, found in the rubble and the overlying silt, show continued utilization and disturbance at the site.

6.0 RESOURCE EVALUATION

6.1 Significance

The Anchor Point-1 site encapsulates the era of official British reconition of the of the Newfoundland cod fishery. The formation of the Newfoundland Independant Company and the construction of Fort William and shore batteries was the imperial response to the French capture and destruction of St. John's in 1696. The site is important to the heritage of Newfoundland and Labrador and is significant for architectural, public and economic reasons.

The site's main feature, a "castle", represents the only known surviving feature from the period of the first garrison (1697-1713). The south castle or south battery, constructed by engineer Michael Richards, was designed to function with a north battery at Chain Rock to protect St. John's Harbour and its residents, especially in winter after the departure of the naval squadron. Fort William, the main defense installation in St. John's of the period, is thought mostly destroyed by recent hotel construction.

Architecturally, the site is significant in the evolution of military technology. The structure built here by Richards is not to be confused with much more recent harbour defense "castles" built along the eastern seaboard of America during the 19th century. During the three centuries from 1500 fortification arts were usually practised by individual "engineers" (Swyer et al 1957:372) with each design virtually identifiable by personal motif and peculiarity. Vauban (1633-1707), the famous French engineer, wrote "the Art of Fortification does not consist of rules and systems but solely in common sense and experience" (ibid:372).

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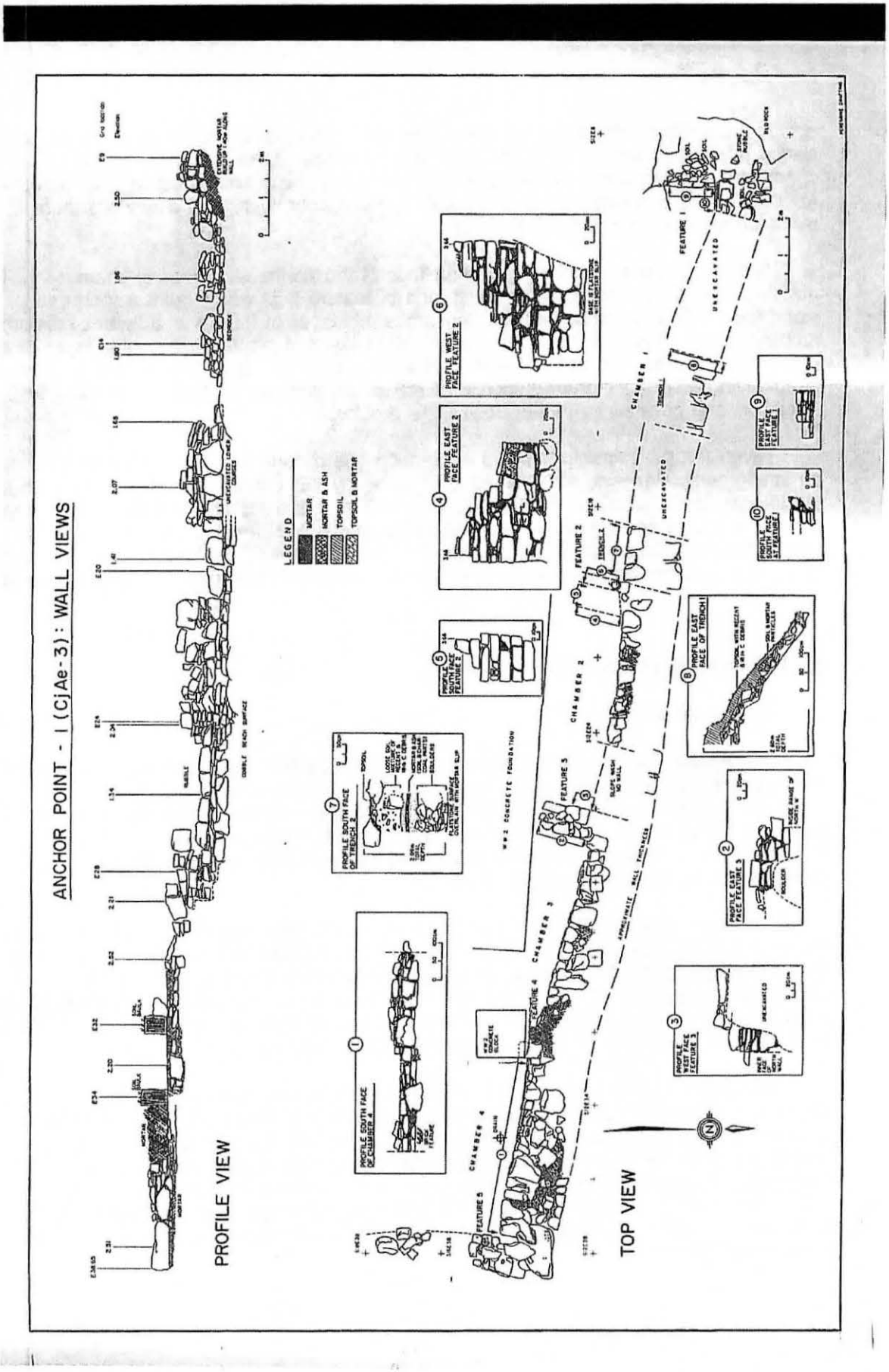

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Site location, with easy access and proximity to a large resident population and the National Historic Site at Signal Hill, means the site now is a focus of public interest. Built to protect fisherman, its development as part of a "living" fishery facility, 300 years later, could create a substantial cultural tourist attraction. The ongoing development of Signal Hill's historic resources could be further enhanced by inclusion of the Narrows defense sites, the first important defense of the English fishery at St. John's.

6.2 Integrity/condition

Although mortar and smaller stones have been eroded from the outer wall face its lower courses of large boulders is still intact. These are weighted into place by overburden (upper wall rocks, mortar and humic layers), which has slipped down the final slope to the beach. Excavation of this overburden has increased its susceptability to erosion. Inside, wall structure and artifact preservation is good although the 2 m excavated trench could weaken the structure. The feature is still very distinc despite its age and erosion and lends itself to restoration.

7.0 IMPACT IDENTIFICATION

Assessments made during Stage 1 can only be re-iterated. There is a military feature at Anchor Point (dated to the last decade of the 1600's) representing the earliest, known, surviving harbour defense structure of its kind in St. John's and possibly in Newfoundland. Figure 8 shows feature position at Anchor Point-1 and delineates the boundaries of a high priority area in terms of impact identification.

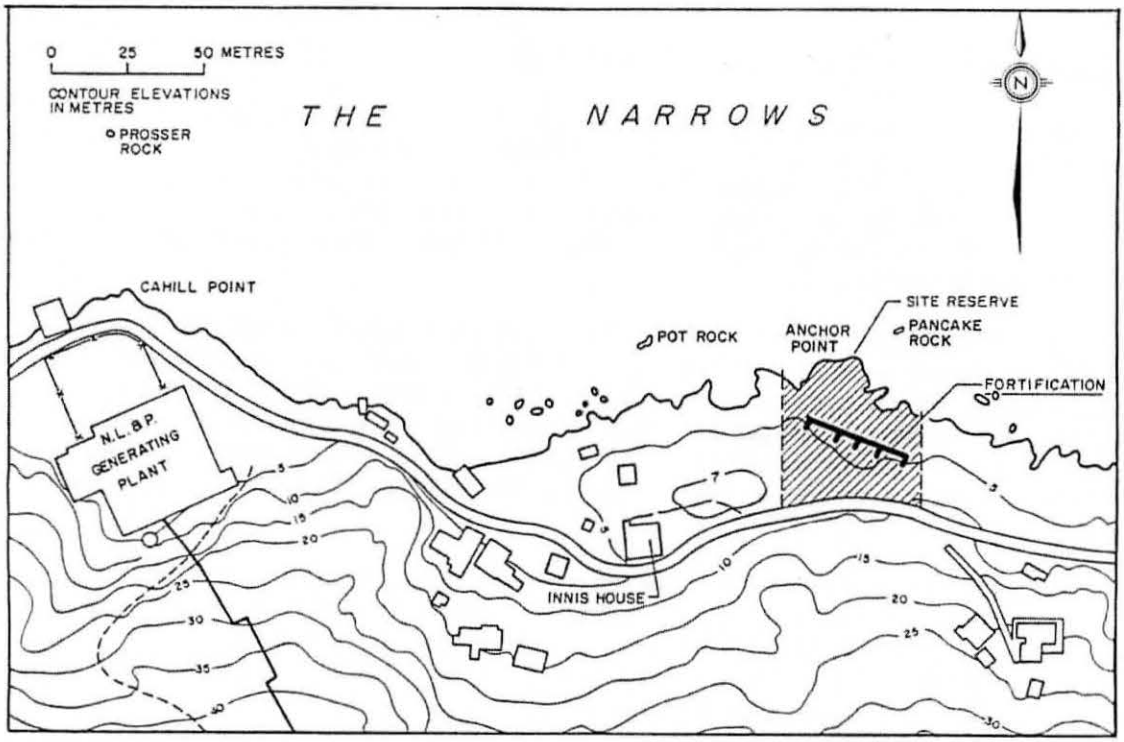

Figure 8: Site location in project area

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Two adverse impacts continue to deplete the resource; battering of the main wall by the sea; and, archaeological excavation, which has opened slope trenches encouraging rapid downslope erosion of the protective soil overburden. Even without the proposed development these will result in considerable site destruction and require mitigation.

Proposed construction plans (Public Works Canada tender document #730481) called for complete removal, almost to sea level, of the area from west of Anchor Point Hill to the east end of the site. A subsequent re-registration of the project with the Department of Environment and Lands does not include the area east of the north-south datum line but blasting and removal of the hill west of the site does pose some threat. This has been addressed by the proponent who proposes to fence off the site and fill it with sand to protect the wall structure. As proposed by PWC in their registration document (January 1989), this should be coordinated with professional excavation and restoration activities.

8.0 EVALUATION OF RESEARCH

For the purposes of preliminary archaeological investigation, site survey and sampling techniques proved efficient and productive. Documentary research confirms Anchor Point as a site of major military significance since the mid-1600's and archaeological evidence supports site use from then to present. Feature excavation mets the stated objectives of the assessment study and determined that the project area includes a military site of singular importance in Newfoundland's colonial and military history. Testing produced a stratigraphic and structural framework for further excavation.

9.0. IMPACT MANAGEMENT RECOMMENDATIONS

The protection and preservation of the Anchor Point-1 site (CjAe-3) is the major recommendation of this report. This is to be achieved through re-designing the proposed boat basin to incorporate the Anchor Point-1 site and to address its protection during construction. Construction stabilization procedures planned by the proponent, outlined in the January 1989 registration, should be integrated with a program of professional excavation and restoration.

The preferred impact management plan includes site preservation, protection and availibility for development as a cultural tourist attraction. This should be accomplished by incorporating the site into the Prosser Rock boat basin project. Should this not be possible, efforts to provide adequate funding through provincial and federal government sources should be made. Parks Canada, through the National Historic Sites Program, should be approached as the site can be tied into the existing military reconstructions at Signal Hill.

General mitigative measures include reserving from the proposed project the area having high historic resources value; provision of a seminar for contractor personnel and planning executives concerning the site and its implications; site monitoring for erosion or adverse impacts by construction activities; reserving a portion of land for archaeological field teams and public access to the site.

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Appendix 1: Public Works Canada drawings 1 and 2 of Prosser Rock project

1 of 25: Plan - Existing conditions, removals and boreholes
2 of 25: Plan - Site development

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REPORT

HISTORIC RESOURCES OVERVIEW ASSESSMENT
BERRY HILL TO DANIEL'S HARBOUR
TRANSMISSION LINE

88.28

submitted to

NEWFOUNDLAND AND LABRADOR HYDRO
P.O. Box 9100
St. John's, Newfoundland
A1A 2X8

MARCH 1989

CREDIT SHEET

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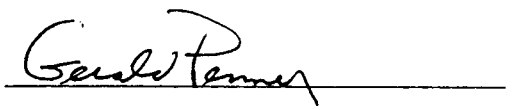

Gerald Penney
President

MANAGEMENT SUMMARY

A helicopter overflight, foot surveys and test pits failed to locate any historic resources within the transmission line right of way or at either of two substation sites (Berry Hill and Daniel's Harbour). The presence of 16 coastal and inland prehistoric sites, at St. Pauls, Cow Head, Parson's Pond and Portland Creek suggest a high priority area.

It is recommended that, when established, the center line of the transmission line at St. Pauls River, Parson's Pond and Portland Creek River be further archaeologically surveyed. A reported prehistoric site at Parson's Pond, near the existing transmission line crossing, should be monitored and its condition determined.

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INTRODUCTION

Newfoundland and Labrador Hydro (Hydro) proposes to construct, operate and maintain a transmission line from Berry Hill, near Rocky Harbour, to Daniel's Harbour on Newfoundland's Great Northern Peninsula. An Historic Resources Overview Assessment was undertaken for Hydro following a supplied Terms of Reference (Appendix 1). Fieldwork was performed under permits from Historic Resources Division, Department of Culture, Recreation and Youth (Archaeological Research Permit 88-28) and Gros Morne National Park authorities at Rocky Harbour.

DESCRIPTION OF PROJECT

A proposed 138-kilovolt transmission line, to run between Berry Hill and Daniel's Harbour, on Newfoundland's west coast (Figures 1 and 2), is required to meet the area's electrical energy needs. The proposed schedule requires surveying and route clearing operations in the summer of 1989, line construction beginning in April 1990, and full operation by December 1990.

OBJECTIVES

The objectives of the historic resources overview study are:

(1) to identify and assess the historic resources potential which may be adversely affected by the proposed development;
(2) to increase our knowledge of early European and prehistoric and historic native utilization of this region; and
(3) to recommend the appropriate methodology and scope for more detailed impact assessment studies, if required.

STUDY AREA

The study area is the proposed and alternative transmission line routes (Figures 1 and 2) and substation sites. The transmission line corridor will be clear cut up to 30 m in width through forested sections. Where it parallels existing lines cutting widths will be reduced to about 15 m.

METHODOLOGY

Fieldwork was conducted 02 November to 06 November, 1988. The transmission line route was overflown by helicopter at low level and at low speed (75 m / 100 km per hour). The overflight was used to identify potential areas for subsequent ground surveys other than major river crossings.

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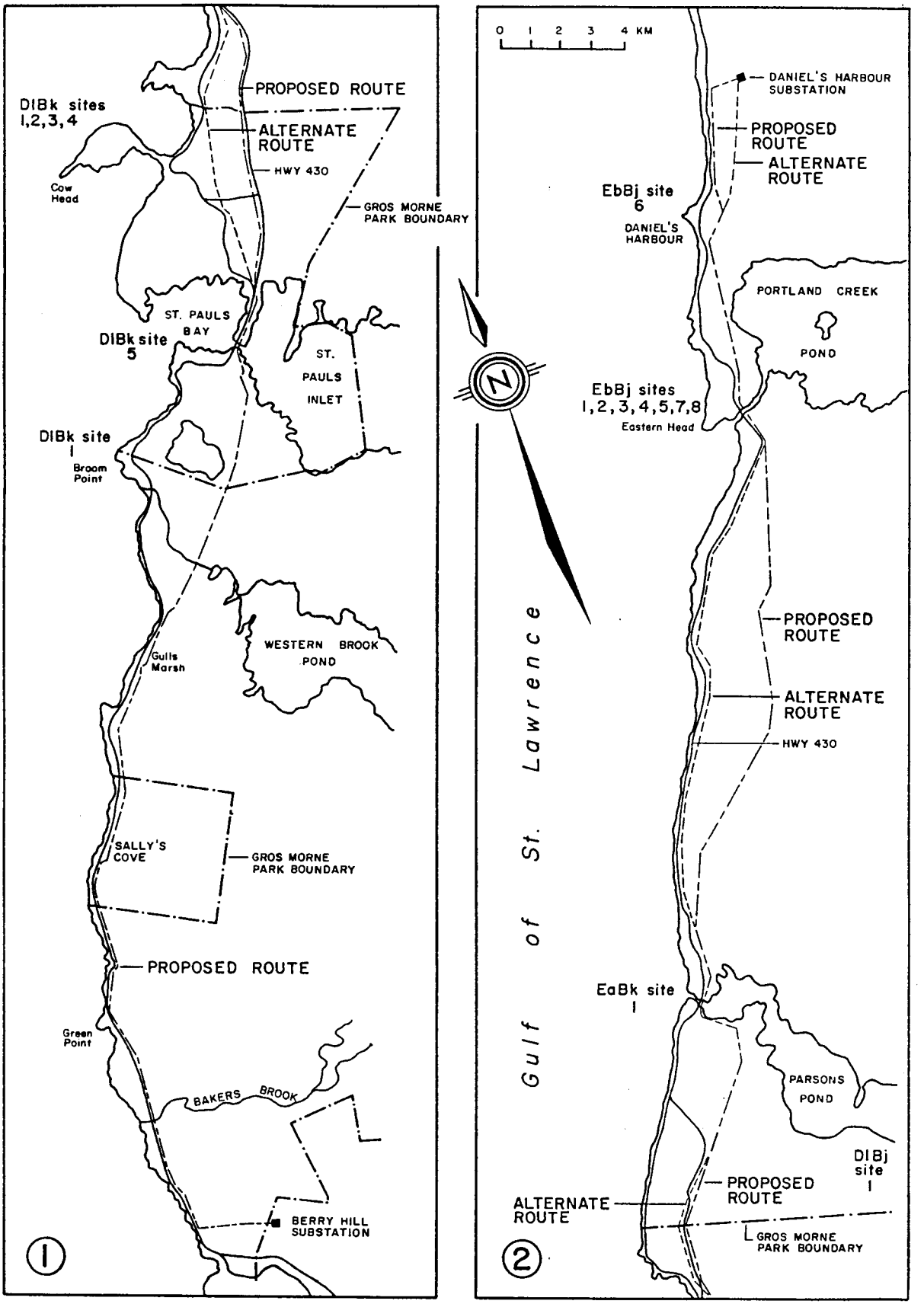

Figures 1 and 2: Study area

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Informal informant interviews took place at Rocky Harbour, Sally's Cove, Portland Creek, St. Pauls Inlet, Parson's Pond, Daniel's Harbour, and Cow Head. Information concerning knowledgeable individuals, sites, artifacts and areas reputed to contain sites was sought and recorded.

Ground surveys of the Berry Hill and Daniel's Harbour substation sites and shorelines at waterbody crossings were made. Random test pits, at Berry Hill, Baker's Brook, Gulls Marsh, Western Brook Pond, St. Pauls and Daniel's Harbour were sterile.

Artifacts recovered at St. Pauls Inlet are catalogued and conserved according to standards outlined in Appendix I: Terms and Conditions of Permits Concerning Conservation Procedures. They are recorded and currently stored at Gerald Penney Associates Limited.

RESULTS

Documentary data - prehistory

A report (Hooper 1988) on fossil deposits in Gros Morne National Park concluded that the line route is clear of fossils of both marine and terrestrial origin. It points out that significant fossil deposits do occur at Green Point, Martin's Point, Broom Point and Cow Head. Transmission line river crossings were surveyed for glacial/marine fossil deposits, of Pleistocene or Quaternary origin.

Newfoundland's west coast appears to have been heavily occupied during most of the prehistoric period (Tuck 1982, 1976). Maritime Archaic and Palaeo-Eskimo sites dot the seacoast from Bonne Bay to Daniel's Harbour with concentrations at Cow Head, Parson's Pond and Portland Creek (Figures 1 and 2).

A recent survey (Thomson and Biggin 1987) of Portland Creek and Parson's Pond found five sites of Palaeo-Eskimo and Maritime Archaic origin. A major site at Cow Head (DlBk-1), excavated by James Tuck of Memorial University of Newfoundland in the 1970's, produced Maritime Archaic artifacts from its lowest stratum. These were overlaid by artifacts of Palaeo-Eskimo and Dorset origin. Some evidence of Recent Indian and Beothuk was also recorded from the site which spans 5,000 years (Tuck 1978:140). Factory Cove, at the northern tip of Cow Head, is a large Groswater (2400 - 2100 B.P.) site.

At Broom Point there is a moderate size Middle Dorset site (Auger 1984, Krol 1986). The headland, described as being used seasonally (non-winter) by northern, coastal, migratory hunters, is ideally suited for hunting and fishing.

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These more recent excavations, and earlier surveys and excavations by Harp (1968), Wintemberg (1939,1940), Jenness (1929) and Howley (1974) have created an heightened awareness of prehistory and sites in local communities.

Documentary data - history

The west coast of Newfoundland was the last area to be permanently settled by Europeans. During the 17th century it was an extension of the French "Petit Nord" fishery centered on the east coast of the Great Northern Peninsula. By 1734 a few French families were settled at Codroy and Port Aux Basque (Head 1976:163) and by 1800 English families were also settled along the south part of the coast (south of Bay of Islands).

In 1835 the Roberts family, of Devon via Harbour Grace, arrived at Rocky Harbour. Soon after other settlers arrived from Conception Bay such as the Paynes, Mudges, Wiltons, Halfyards, Sheppards, Noels and Parsons (Mudge n.d.:27).

Until 1904 the study area remained part of the French shore but in 1878 the British government appointed a magistrate and recognized the rights of settlers (Neary 1961:222). The economy of the area received a boost with the development of a herring fishery (Mudge n.d.:51) in the 1870's and another in the 1880's with the lobster canning industry. In 1888 there were 26 lobster factories along the west coast employing 1100 people (ibid:62).

Mudge suspects an "Englishman dressed like a Red Indian" encountered by a British warship, in Bonne Bay circa 1790, may have been Neddie Norris, the reputed first settler of Bonne Bay, who gave his name to Norris Point and Neddie's Harbour. Smallwood (1981:224) states the first settlers in Bonne Bay arrived between 1807 and 1838; and, Rocky Harbour had a population of 90 in an 1857 census.

Informant data

Awareness of historic resources in the study area ranges from high by National Parks officials to low by individuals. One St. Pauls resident stood next to an exposed site as he stated he had no knowledge of sites. Most know something of the large sites at Cow Head and Port aux Choix.

Green Point, Gulls Marsh (north of Sally's Cove) and Eastern Head at Portland Creek were suggested by informants as possible sites and were briefly surveyed as a result.

In Daniel's Harbour two small collections of Dorset artifacts from the community beach were recorded, however, the collections were not visually inspected. Reginald Roberts of Sally's Cove, an active 78-year-old trapper, was suggested as a good informant but he was not at home during the survey.

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Field data

River crossings at St. Pauls, Parson's Pond and Portland Creek (Figure 4) were visually assessed, foot surveyed and randomly shovel test pitted without results. During the helicopter overflight areas appearing to have potential historic resources were noted and surveyed.

The substation site at Berry Hill was accessed by vehicle and four sterile test pits were dug in the area to be further disturbed. Both banks of Baker's Brook (Plate 1) crossing, near the highway bridge, were examined but nothing was located.

The Western Brook (Plate 2) crossing, at the site of the existing line crossing, was accessed overland from Highway 430. This crossing, near where the brook flows out of the pond, is low and wet; just downstream is a rough stretch of rapids. Test pits and ground surveys produced no evidence of occupation.

Prehistoric site DlBk-5 (Figure 3; Plate 3) at St. Pauls Inlet was identified by stone tools, flakes, and bone eroding from wind blow sand dunes on the southwest of the causeway bridge. A brief reconnaissance established the site extends inland for 100 m as flakes and artifacts were observed in an active root vegetable garden. No indication of occupation was found east of the bridge at the transmission line crossing.

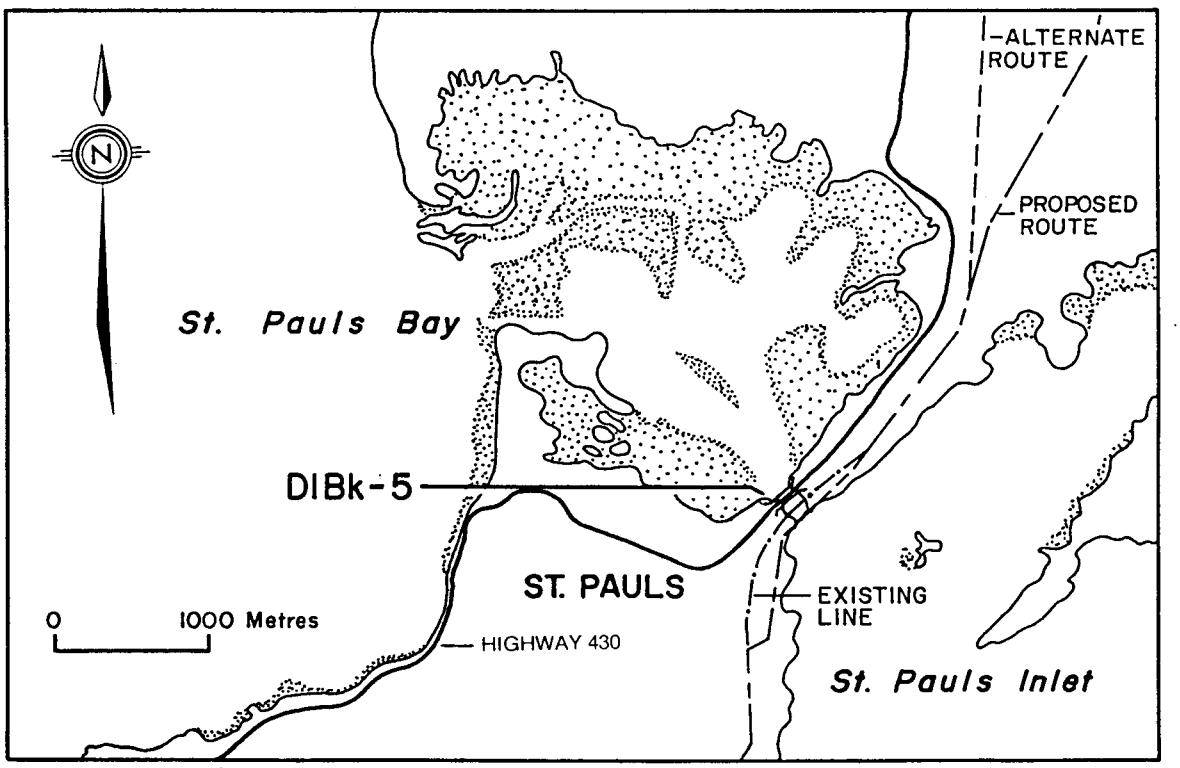

Figure 3: St. Pauls Bay-1 (DlBk-5) location

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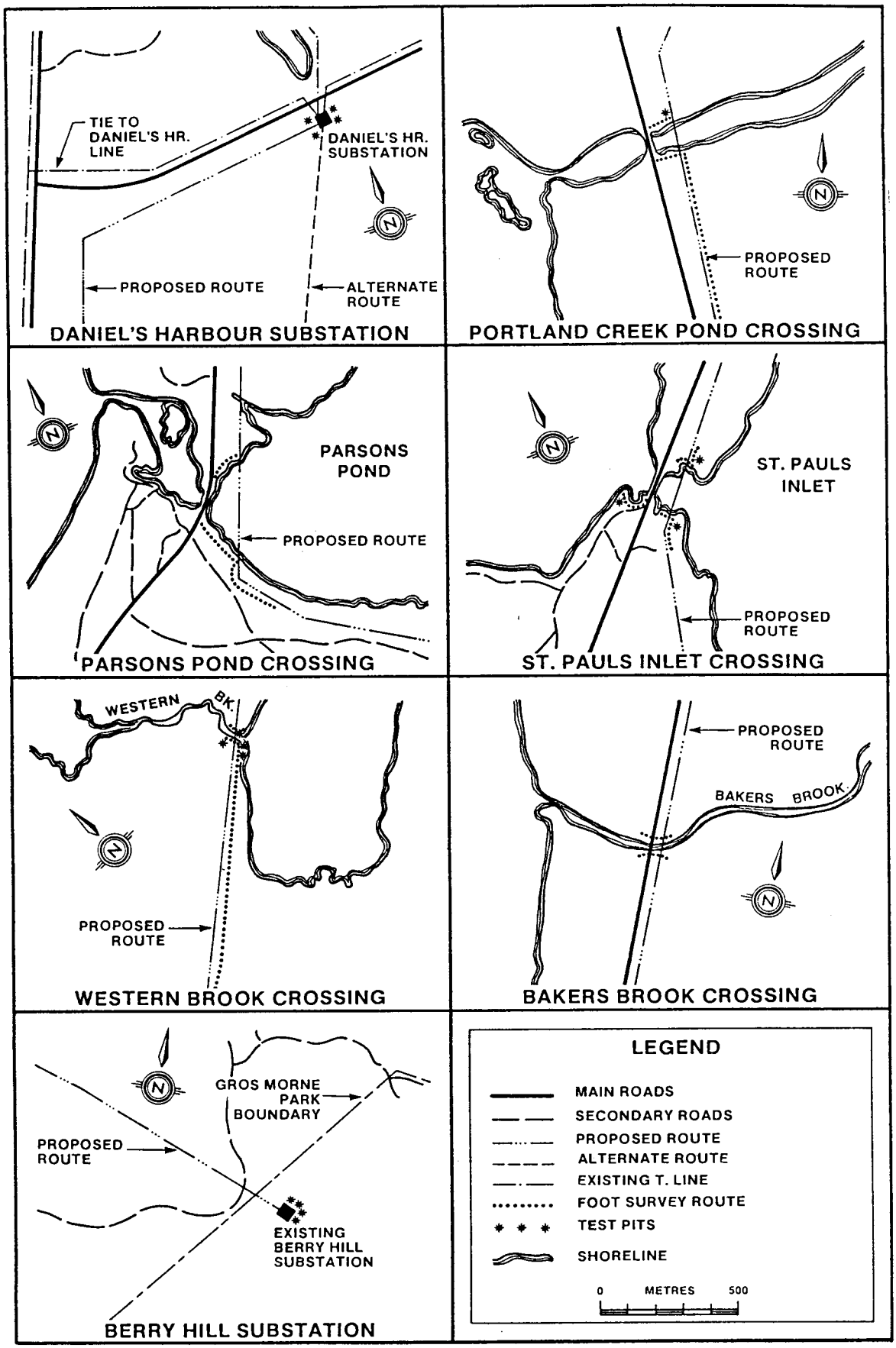

Figure 4: Test areas

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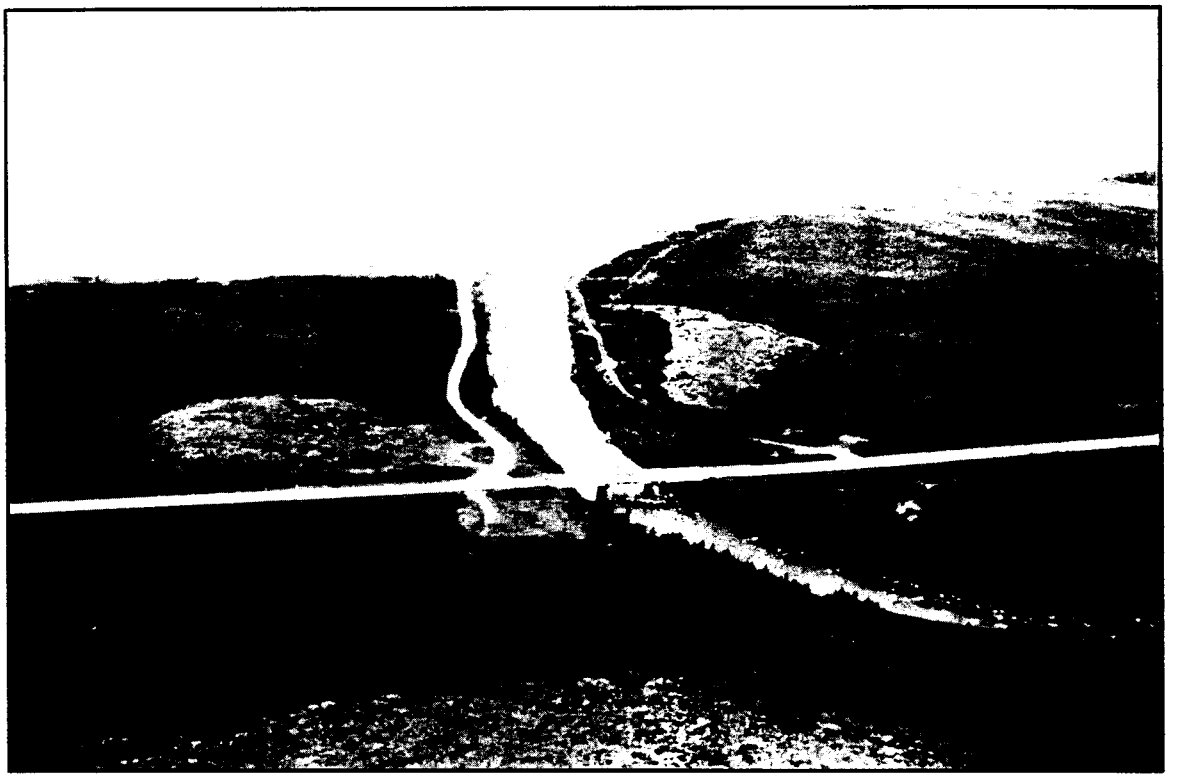

Plate 1: Baker's Brook crossing

Plate 2: Western Brook - present and proposed crossing

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Plate 3: St. Pauls Bay-1 site to right
on beach below bungalow

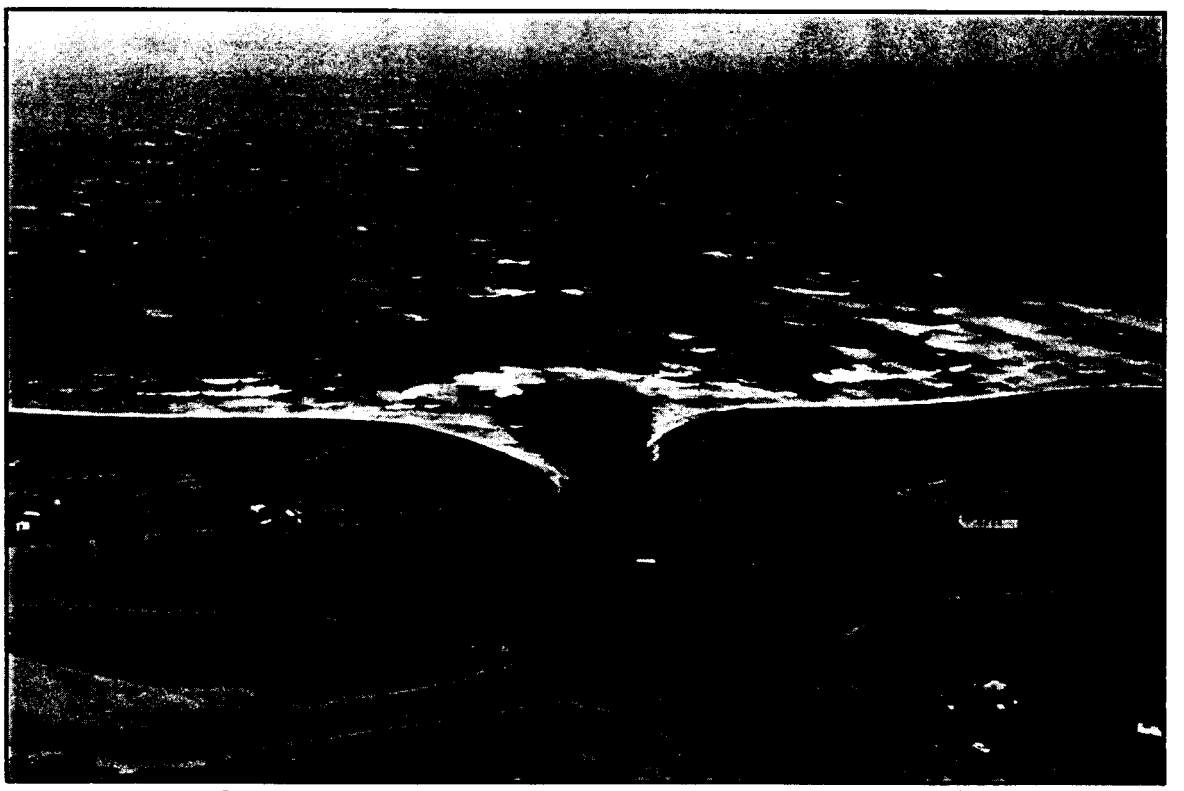

Plate 4: Parson's Pond - existing crossing

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At the existing Parson's Pond crossing (Plate 4) two H-frame structures are proximal to site EaBk-1 from which flakes and artifacts have been collected (Biggin, personal communication 1988).

A brief foot survey at Gulls Marsh, with a local informant, was made but nothing was found. Eastern Head appears, at a distance, as an area with high site potential.

EVALUATION AND DISCUSSION

The St. Pauls Bay-1 (DlBk-5) site, about 100 square meters in area, is on the south shoreline of the narrows between St. Pauls Bay and St. Pauls Inlet, west of the highway bridge. The existing and proposed line crossings are on the east side of the highway, about 200 m away. The site fronts on a shoal area and is backed by an area used as a vegetable garden. Varying between 0.5 m and 1.0 m a.s.l. the site is typified by a wide dispersion of artifacts and flakes exposed by wind eroded sand. Eight lithic tools (Plate 5), a worn canid molar, a calcified bird bone fragment and 15 chert flakes were surface collected.

Site potential within the proposed line corridor at the crossing, 200 m east of DlBk-5 (Plate 6), is high.

RECOMMENDATIONS

It is recommended that, when established, the center line of transmission line re-routes be subject to a foot survey with random test pits extending 1/2 km along the center line at St. Pauls and Portland Creek and 1 km at Parson's Pond, on both sides of the crosssings.

A prehistoric site (EaBk-1) at Parson's Pond, 74 near the existing transmission line crossing, should be monitored and its condition determined and reported.

A one-day seminar in procedures to be followed in the event of accidental unearthing of historic resources during line construction, for surveyors, construction personnel and field officials, be scheduled.

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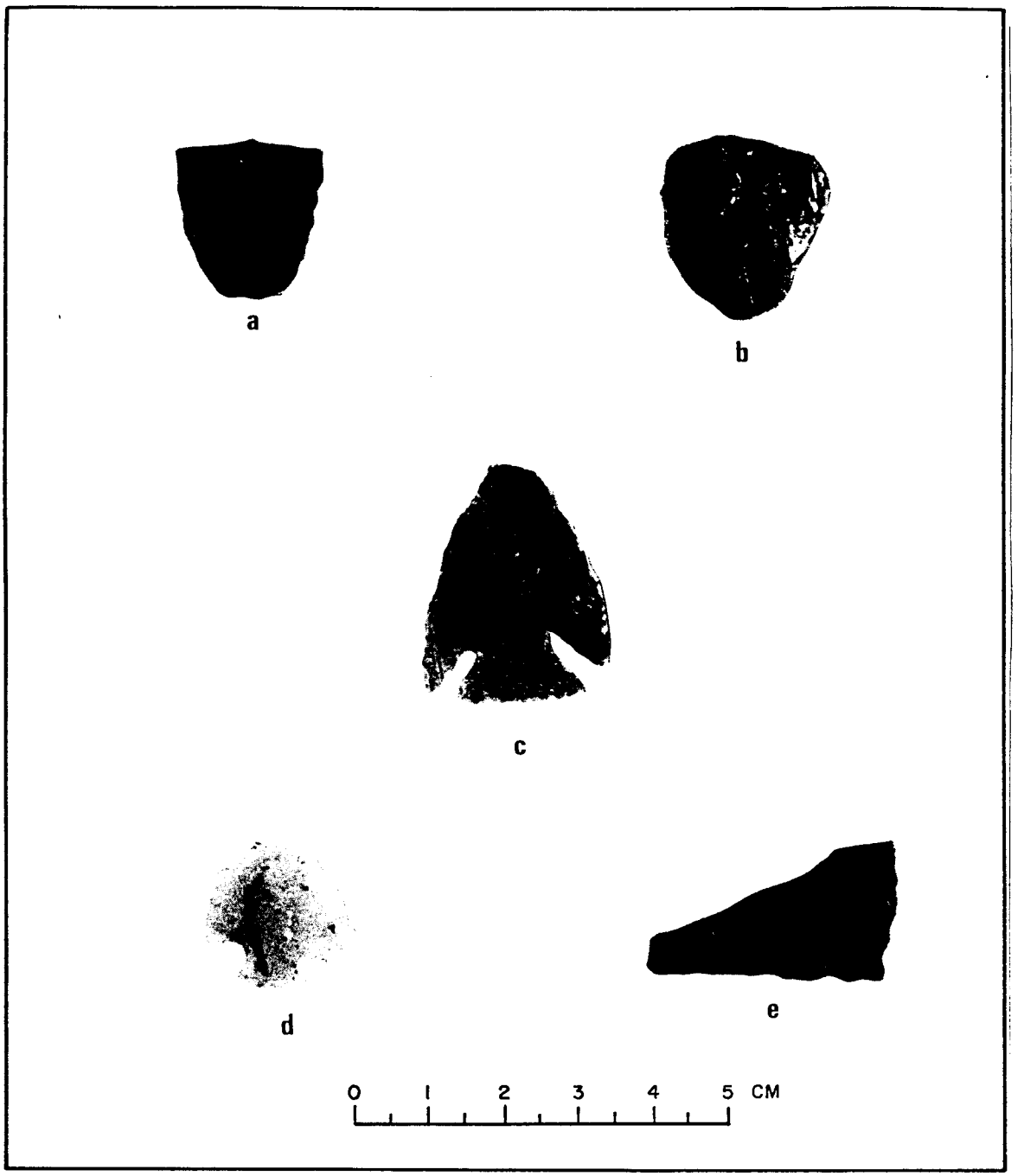

Plate 5: Recent Indian artifacts from St. Pauls Bay-1
a, e - biface bases
b - scraper
c, d - side notched projectile points

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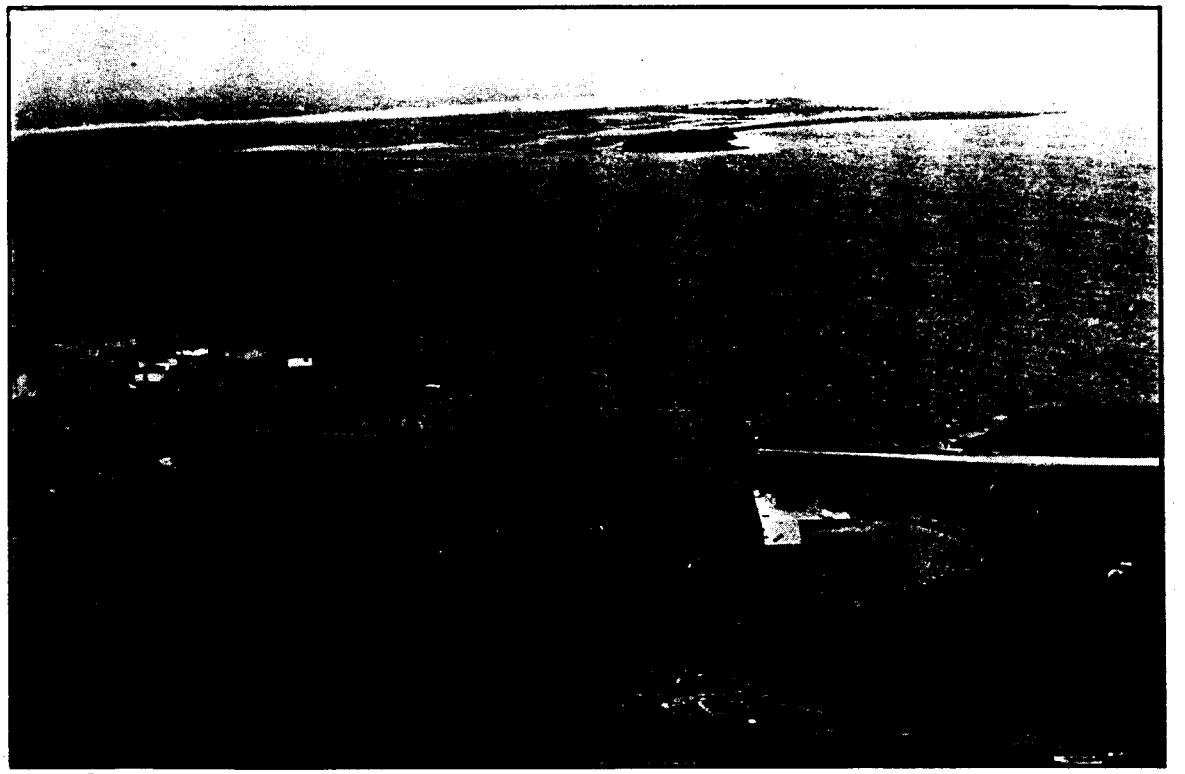

Plate 6: St. Pauls Inlet - proposed crossing foreground
see Plate 3 for DlBk-5 location

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1940 Eskimo Sites of the Dorset Culture in Newfoundland, Part II. American Antiquity, 4:309-333.

1939 Eskimo Sites of the Dorset Culture in Newfoundland. American Antiquity, 5:83-102.

LIST OF INFORMANTS

Cow Head
- Patricia Biggin
- Howard Payne

Daniel's Harbour
- Eileen Ingram
- Howard and Hepsey Biggin
- Scott Biggin
- Gerald Humber
- Rollie Crosley

Norris Point
- Lloyd and Meta Carpenter

Portland Creek
- Sterling Hynes

Parson's Pond
- Emons Payne
- Peter Verge

Rocky Harbour
Parks Canada
- Paul Caines, Chief Warden
- Gary Pittman

Sally's Cove
- Winston Hutchings
- Marilyn Roberts
- Reginald Roberts
- Fred Bennett
- Sharon Butt

St. Pauls
- Marie Bennett
- Paul Bennett

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APPENDIX - TERMS OF REFERENCE

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TERMS OF REFERENCE
HISTORIC RESOURCES OVERVIEW ASSESSMENT
OF THE PROPOSED
BERRY HILL TO DANIEL'S HARBOUR
TRANSMISSION LINE

PREPARED BY

NEWFOUNDLAND & LABRADOR HYDRO

SEPTEMBER 01, 1988

1.0 INTRODUCTION

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1.1 Background

Newfoundland and Labrador Hydro (Hydro) proposes to construct, operate and maintain a 138 kilovolt (kV) transmission line (TL 259) from Berry Hill Station to Daniel's Harbour (Figure attached). This line is required to meet the electrical power and energy requirements of the Great Northern Peninsula. In order to meet the required in-service date of December 1, 1990, it will be necessary to begin surveying and clearing the route in May and September, 1989, respectively erection of the line is scheduled to begin in April, 1990.

As this proposed transmission line traverses areas of federal and provincial jurisdiction, it has been registered under both the Environmental Assessment and Review Process and The Environmental Assessment Act.

1.2 Study Area

The proposed study area for this component study is the proposed and alternative transmission line routes (Figure 1) and station sites.

1.3 Study Objectives

The objectives of this historic resources study are:

(1) to identify and assess the historic resources potential which may be adversely affected by the proposed development;

(2) to increase our knowledge of early European and prehistoric and historic native utilization of this region; and

(3) to recommend the appropriate methodology and scope for more detailed impact assessment studies, if required.

2.0 REQUEST FOR PROPOSAL

2.1 Technical

This study will be conducted in accordance with the standards set out in the Provincial Historic Resources Overview Assessment Guidelines (1982) for a Stage 1 assessment (Appendix 1). Components will be:

(1) a documentary search of library and archival literature and other relevant sources;

(2) direct consultation with individuals and organizations with knowledge of the historic resources of the study area, prior to fieldwork;

(3) a helicopter survey of the proposed transmission line right-of-way (the consultant will use professional judgement and the results of this survey to determine the need for ground surveys and test pitting in areas of potential historic resources interest, water crossings sites shall receive special attention);

(4) a walking survey of the area to be disturbed at the existing Berry Hill Station and the proposed Daniel's Harbour Station and in the Portland Creek Pond and Parson's Pond area;

(5) conservation methods approved by the Historic Resources Division will be employed, both in the field and laboratory, to ensure the preservation of any items requiring same (financial responsibility for conservation /preservation measures will be borne by Hydro); and

(6) Surveyors and personnel with responsibility for environmental compliance monitoring will receive instruction from a professional archaeologist, approved by the Historic Resources Division and the Canadian Parks Service.

The consultant shall discuss the rationale of the proposed development and provide a description of the proposed project which is adequate for the purposes of this study.

The results of documentary research, direct consultation, and preliminary field reconnaissance shall be presented as they relate to the basic objectives of the overview assessment.

Results of background research will include:

(a) a description of past land uses, and land use patterns;

(b) a summary of informant interview results;

(c) a summary of previous historic resources surveys, investigations, or other projects within, or immediately adjacent to, the study area;

(d) a brief narrative description of the types of sites reported; and

(e) a map showing the precise or approximate location of all reported sites.

Results of the preliminary field reconnaissance will include:

(f) maps showing areas surveyed by each method (helicopter, foot);

(g) maps showing the precise location of all sites observed and recorded;

(h) a brief narrative and photographic description of all sites;

(i) locations and results of subsurface testing and surface collecting;

(j) a description of negative data (where and why sites identified by informants and documentary sources were not found: eg. covered by water, etc.); and

(k) a report on any field tests designed to determine the most suitable survey strategy for the study area in Stage 2, if appropriate.

The major findings of background research and preliminary field reconnaissance shall be evaluated for the purpose of assessing historic resources potential in the study area. This assessment will be made from local, regional, and provincial perspectives, and will be based on known sites, as well as reported and predicted sites. Based on research results, the consultant will:

(a) identify major inadequacies in existing knowledge regarding the historic resources base;

(b) state predictions about the type and number of sites to be expected;

(c) discuss and, as far as possible, interpret the nature, distribution, and potential significance of historic resources values within the study areas;

(d) discuss in general terms, or to the extent possible, potential impacts on the historic resources base, and possible options available for managing impacts, including a program of monitoring during project construction of sites unaffected by direct impacts, and an education program for field workers; and

(e) discuss attitudes among users of the region's resources toward the proposed development project, from a historic resources perspective.

Based on the above, the consultant shall:

(a) where appropriate, recommend preferred project alternative(s);

(b) identify and discuss the need for further studies in Stage 2; and

(c) discuss the appropriate scope of future studies and monitoring programs which are deemed necessary.

This discussion will include:

(d) maps showing precise areas requiring intensive field survey;

(e) justification, where appropriate, for a no-survey recommendation;

(f) a description of areas requiring special field consideration and;

(g) a recommendation indicating the intensive field survey strategy to be used in Stage 2; and

(h) a recommended monitoring program to ensure the continued safety, during project construction, of sites recorded but not affected directly by the construction and operation of the undertaking.

The consultant shall provide a comprehensive list of all literary sources cited in the overview report such as publications, documents, records, etc. The reference list shall also include the names of persons consulted and cited in the report, as well as the date on which each communication was made.

2.2 The Proposal

In the proposal, the consultant shall:

(1) describe the scope of work deemed necessary to complete the study; and

(2) provide a schedule so that the study can be completed by 1 October 1988.

2.3 Personnel

The consultant shall identify and provide curriculum vitae for personnel working on the project. The proposal shall clearly identify the responsibilities of these people and their role in the study team.

2.4 Financial

The consultant shall provide a detailed cost estimate for the study, including:

(1) the daily rate of personnel involved in the study;

(2) the relative participation, in days, of each of the people on the team;

(3) disbursements; and

(4) the relative cost of personnel versus disbursements.

2.5 Corporate Experience

The proposal shall include a list of relevant studies undertaken by the company/companies.

2.6 Joint Ventures

The proposal shall include information on any joint venture. One firm shall be identified as main contractor and the others shall be considered sub-contractors.

3.0 MISCELLANEOUS

3.1 Relation With Hydro

For the purposes of this study the main contractor shall:

(1) provide one invoice per month (using Hydro's format) which will include any work completed by sub-contractor(s);

(2) provide a monthly progress report to Hydro's project manager; and

(3) provide a summary of accruals on a monthly basis.

3.2 Holdback

Hydro will maintain a 10% holdback on fees for professional services pending satisfactory completion of the contract.

3.3 Reports

All reports submitted to government will be bound in standard Hydro covers to be provided by the consultant.

Unless otherwise specified, five copies of draft reports are to be submitted to Hydro for review.

The number of final reports to be submitted to Hydro will be as specified in the Environmental Assessment Regulations, plus 10 copies for Hydro's use and the originals.

3.4 Permits, Artifacts

The consultant shall obtain a research permit from the Canadian parks Service for work to be conducted within the boundaries of Gros Morne National Park.

The consultant shall obtain an Archaeological Research Permit from the Historic Resources Division, Department of Culture, Recreation and Youth for work conducted outside the boundaries of Gros Morne National Park.

Any artifacts found within Gros Morne National Park come under federal jurisdiction and custody.

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REPORT

STAGE 1: HISTORIC RESOURCES OVERVIEW ASSESSMENT

CROQUE CALCIUM CARBONATE PROJECT

ARCHAEOLOGICAL RESEARCH PERMIT 88-32

prepared for

AURION MINERALS LIMITED
1646 Barrington Street, Suite 403
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February 1989

CREDIT SHEET

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_____

Gerald Penney
President

MANAGEMENT SUMMARY

Historical documents confirm the antiquity of European presence in the study area. A field program of foot surveys, geographic interpretations and informant interviews failed to locate any sites. A review of siesmic and historical data by an underwater archaeologist suggests little possibility of wreck sites at the location of the proposed dock. A reporting procedure for the accidental discovery of historic resources was outlined to the client.

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for the summer fishery (Head 1976:222). Irish settlers in the late 19th century were employed to protect and prepare French properties through the winter.

The population of Croque in 1857, the first British census to include the French shore, shows 23 people. In 1869, all 25 residents were Newfoundland born; in 1874, 40 of 41 residents were from Newfoundland; and, in 1884, all 36 residents were of Newfoundland origin. The community has always been exclusively Roman Catholic.

Ginns (1988) suggests the anchorage (Plate 1) in Croque Harbour has had extensive use and the bottom may contain artifacts. Ships, wrecked or sunk in wartime, may be preserved in the bottom sediments.

Informant data

No individual interviewed at Croque knew of prehistoric sites or artifacts. The graveyard, a community focus of speculation and attention, has stones dating to the 18th century. Most informants suggest that harbours outside (especially Kearney Cove) are better locations for prehistoric sites.

Today's residents have almost all moved into the community since Confederation, many from the smaller coves in Croque Harbour and from the Atlantic shore north and south of Croque Harbour. This new arrival phase is reflected in the toponomy of natural features, with few French names used (Figure 2).

Field data

A ground survey of the storage and dock facilities area (Plate 2), as designated by Aurion Minerals in their registration document, and cutline surveyed in the field, revealed it to be rocky and rising steeply (45 degree angle) from the waters edge; no beaches or flat areas exist. No artifacts or sites of previous occupation were found.

The existing quarry area access road, an improved logging road, was walked, in to the quarry and out, with no evidence of occupation observed. The proposed access road corridor, from the Main Brook highway to the south end of Oliver's Pond, was foot surveyed; nothing was found.

The quarry area (Plate 3) was foot surveyed and exploration transects (4 m x 100 m) of the quarry area (Plate 4) were inspected. Nothing was found. The north end of the quarry was recently burned and spruce and fir forest covers the south end. There is very little overburden on the marble deposit.

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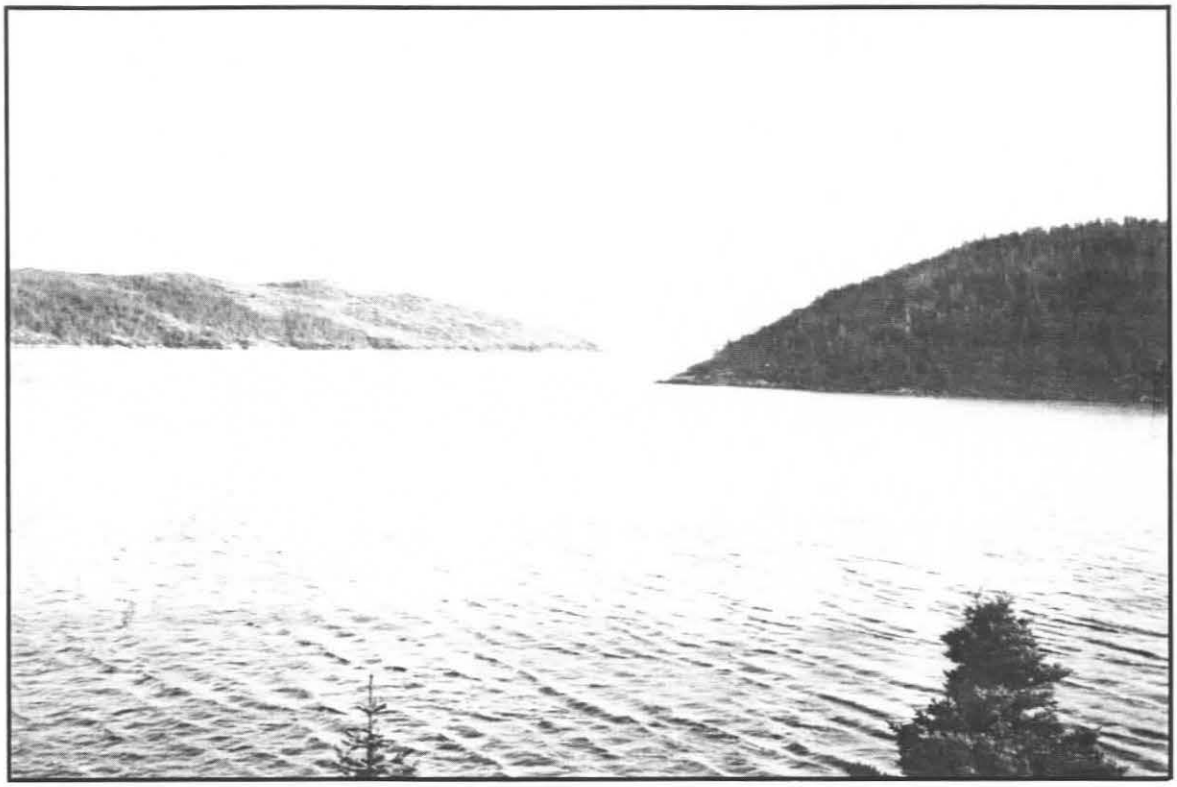

Plate 1: Anchorage (center) from proposed dock site

Plate 2: Looking north along proposed dock area

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Plate 3: Fire burned section of proposed quarry

The quarry area appears as generally unsuited to any intense prehistoric occupation as it is too far inland and inaccessible.

EVALUATION AND DISCUSSION

Coastal areas, from our present understanding of Newfoundland and Labrador prehistoric settlement patterns, have the highest potential for sites. Thus the proposed dock and storage areas seemingly have the highest potential within the study area. However, it is elevated and rugged from the water and boggy and wet on the plateau above.

Current archaeological prehistoric settlement theories are in their initial stages. Evidence abounds, at coastal locations, of near continuous occupation of sites but no comparable data is yet known from the interior. Light occupation, few resources and difficulty in site location are official causes for negative evidence. Palaeo-ecological studies, including soil and pollen analysis, may provide data on forest and bog thought to overlie a wider site distribution.

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Plate 4: Excavated, washed transect at quarry site

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RECOMMENDATIONS

Data from further underwater surveys at the docking facility and any accidental discovery of artifacts should be reported to the Resource Archaeologist, Department of Culture, Recreation and Youth, Historic Resources Division, Duckworth St., St. John's.

Plate 5: French graveyard at Croque

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Tuck, James A.
1976 Ancient People of Port aux Choix. Institute for Social and Economic Research, Memorial University of Newfoundland, St. John's.

LIST OF INFORMANTS

Croque
Wilbert Kearney
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Tony and Ivy Kearney
Dennis Kearney
Ronald and Carmel Kearney
Fred Hurley
Gerald Hurley
Ted Bromley
Bernard Gardiner

Conche
Stephen Power
Stephen Flynn
David Wiseman

Roddickton
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Archaeological Investigations in the Newfoundland Interior

EE. 1L.

Frederick A. Schwarz
Dalhousie University

February, 1992

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ACKNOWLEDGEMENTS

The research discussed here was undertaken during the course of doctoral thesis research at the University of Cambridge, aimed at understanding patterns of prehistoric human extinction and persistence across the Canadian north. This research was made possible by the help and support of many individuals at Churchill College, the Scott Polar Research Institute, and the Department of Archaeology at Cambridge. I am especially grateful to my supervisor, Dr. Geoff Bailey, whose advice and support were invaluable. I also wish to thank George Neal of Gambo, for his considerable help in the course of fieldwork in Newfoundland, Reg Auger, for encouraging me to pursue research in the interior at a time when my resolve was flagging, and Callum Thomson and Linda Jefferson at the Newfoundland Museum for their kind cooperation. Over the years, Priscilla Renouf, Jim Tuck, Ralph Pastore, and Stuart Brown have been of immeasurable help.

For financial assistance, at Cambridge, during fieldwork in Newfoundland, and most recently during my postdoctoral research at the Department of Sociology and Social Anthropology, Dalhousie University, I am mosty grateful to the Social Sciences and Humanities Research Council of Canada, the Institute for Social and Economic Research, at Memorial University of Newfoundland, the Historic Resources Division of the Government of Newfoundland and Labrador, the Smuts Memorial Fund, the Bartle Frere Exhibitions, Churchill College, the Dalhousie Killam Trust, and finally, but most importantly, the Association of Commonwealth Universities in the U.K., who were not only generous, but kind and supportive throughout.

Lastly, I wish to thank my wife, Lynne, for her able assistance in the field, and for her ongoing support and encouragement.

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ABSTRACT

Archaeological research into the prehistory of the Newfoundland interior has long been discouraged by a number of preconceptions regarding the nature of prehistoric interior remains. First, the interior has traditionally been considered difficult and expensive to survey, and second, interior sites are predicted to be small and ephemeral, owing to the simplicity and instability of Newfoundland terrestrial ecosystems, and a consequent predicted low level of prehistoric interior settlement. In fact, the instability of Newfoundland ecosystems has coloured many of our beliefs about Newfoundland prehistory, and has been cited as a central factor in determining the broad patterns of Newfoundland prehistory: this factor is considered responsible for generating a prehistoric sequence marked by repeated human extinctions, and for leaving little scope for variation in prehistoric hunter-gatherer adaptations to the island.

However, the results of recent archaeological investigations in the Newfoundland interior suggest we should rethink some of our perceptions of the relationship between Newfoundland ecosystems and Newfoundland prehistory.

Archaeological research by the author in the near-coastal hinterland of Bonavista Bay has led to the discovery of numerous findspots along Terra Nova Lake and Gambo Pond. Four sites on Gambo Pond have been sampled by excavation, revealing three Recent Indian components, one Maritime Archaic component, and two small Palaeo-Eskimo components (one Groswater, one Dorset). Limited subsistence indicators suggest that the Recent Indian components, at least, represent autumn and/or winter occupations. The results of several projects recently completed by other researchers in interior settings indicate that the remains encountered on Gambo Pond may not be atypical. Prehistoric settlement in the interior appears to have been more intensive than once assumed, at least during the Recent Indian period, and in near-coastal settings. Maritime Archaic and Palaeo-Eskimo settlement, on the other hand appears to have been markedly more limited. When new settlement data from the interior are combined with existing data from the coast, it appears that prehistoric adaptations in Newfoundland differed markedly. Evidence on settlement patterns may be used to construct an hypothetical model of differing prehistoric adaptations in Newfoundland. Within this model, the salient differences are seen to lie, surprisingly, in the winter adaptations of the various prehistoric inhabitants of the island. With regard to the documented prehistoric human extinctions, the hypothesized adaptive differences indicate that Recent Indian groups may have been more resistent, and Palaeo-Eskimo groups more vulnerable, to the intrinsic instability of Newfoundland ecosystems.

We may conclude that

1) the archaeological potential of the Newfoundland interior is higher than expected, and archaeologists should devote more effort to interior research;

2) the Newfoundland environment, though restrictive, offers greater than expected scope for cultural variation in prehistoric adaptations, and the variability of prehistoric settlement and subsistence warrants further exploration;

3) there is an important cultural dimension to prehistoric human extinctions in Newfoundland which has yet to be adequately explained.

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1

INTRODUCTION
Newfoundland and the Context of Interior Archaeology

The significance of archaeological research in the Newfoundland interior is not intrinsic, but rather, resides in the context of the broader tradition of Newfoundland prehistoric archaeology. Like any other regional archaeological tradition, Newfoundland archaeology is characterized by its own precepts and its own unique trajectory. It is instructive to consider the context of Newfoundland archaeology in some detail.

Decades of archaeological research in Newfoundland, most of it culture-historical in its aims, has built up a reasonable understanding of the sequence of its prehistoric occupations. More recently, archaeological research has also begun to document in more detail the nature of prehistoric adaptations to the island, particularly with recent excavations at Phillip's Garden (Port au Choix-2) (Renouf pers. comm.) and Boyd's Cove (Pastore 1985; Cumbaa 1984) (see Figure 1). Only very recently, though, can Newfoundland archaeology be said to have come of age, with the development by Tuck and Pastore (1985) of a culture-processual scheme to account for the patterns of Newfoundland prehistory.

THE INSTABILITY MODEL OF NEWFOUNDLAND PREHISTORY

In this landmark article, Tuck and Pastore attempt to grapple with two emerging themes in Newfoundland archaeology: the evidence for repeated human extinctions on the island, and the simplicity of Newfoundland's island ecosystems. Tuck and Pastore point out that the Newfoundland prehistoric sequence is not one of continuous occupation and development. Rather, it is one of discontinuous occupations,

beginning with the initial Maritime Archaic colonization of the island (3000-1200 BC), followed by two Palaeo-Eskimo occupations, Early, or Groswater (800-100 BC) and Late, or Dorset (AD 100-600), and finally the Recent Indian/Beothuk occupation (from before AD 800 to AD 1829). This last period is currently divided into four phases: the Cow Head Complex (AD 400-800), the Beaches Complex (AD 800-1200), the Little Passage Complex (AD 1200-1500), and the Historic Beothuk. These finer chronological subdivisions of the Recent Indian period are presently very approximate, and the precise nature and status of the Cow Head Complex is highly uncertain.

This, then, is a sequence punctuated by periodic human extinctions and abandonments. Of these extinctions, only that of the Beothuk is reasonably well-documented. This tragic process has been attributed to a number of effects of spreading European settlement along the coast of Newfoundland. This resulted in deaths through violence (but see Reynauld 1984) and the spread of disease, but perhaps more importantly, it appears to have significantly altered the nature of Beothuk adaptations to the environment. Instead of developing relations with the newcomers, the Beothuk retreated in the face of encroaching European settlement (Pastore 1987). Ultimately, this denied the Beothuk access to critical marine and/or near-coastal terrestrial resources, and forced them to rely excessively on the inadequate and unstable resources of the deep interior (Tuck 1976a; Rowley-Conwy 1990).

Earlier prehistoric extinctions are not as well documented, of course. In contrast to the Beothuk experience, competition from newcomers is an unlikely factor, since most occupations are preceded and followed by brief periods of abandonment; the only possible instance of overlap occurs during the terminal Dorset/initial Recent Indian period. Explanation therefore, has naturally shifted from historical to environmental factors. Elsewhere, archaeologists tend to invoke climatic change when explaining human extinctions, but in Newfoundland this is not a plausible option. In Newfoundland, the palaeo-climatic record indicates no major climatic changes after *ca.* 1500 BC. Instead, the late Holocene in Newfoundland appears to have been marked simply by a fluctuating, but overall gradual cooling trend down to the present day (Macpherson 1981). Thus, while the Maritime Archaic extinction might perhaps be correlated with, and explained by, climatic change, the Palaeo-Eskimo and Recent Indian extinctions occur in a period lacking

evidence for abrupt change and characterized by more-or-less constant conditions. Climatic change cannot therefore account for the broad pattern of human extinctions in Newfoundland.

Tuck and Pastore therefore suggest that the extinctions may be attributed to minor weather fluctuations, of a scale and duration undetectable in the palaeo-climatic record, and ultimately, therefore, to intrinsic characteristics of the Newfoundland environment. Tuck and Pastore point out that Newfoundland's island ecosystems are simple, low in species diversity, and unstable, and consequently highly vulnerable to minor weather fluctuations. This is particularly true of its terrestrial ecosystems, and terrestrial resources are subject to periodic marked fluctuations in abundance, a point underscored by the experience of the Beothuk. However, even the resources of the more complex marine ecosystem are prone to fluctuations in distribution at least, and may be periodically inaccessible to hunters. In Newfoundland, then the resources important to aboriginal hunter-gatherers are rich, but low in variety. In these simple ecosystems, periodic resource failure is almost inevitable, and its effects on human hunters are bound to be catastrophic.

This model may be termed the Discontinuity Model, or alternatively, the Instability Model of Newfoundland prehistory. The model may be seen to incorporate three basic themes which emerge from the recognition that Newfoundland's ecosystems, especially its terrestrial ones, are simple and unstable. In fact, these themes might be termed the central tenets of Newfoundland archaeology, since in one form or another, they have actually acted to guide archaeological research in Newfoundland for some years.

Resource Instability and Human Extinctions

The first tenet holds that simple ecosystems and resource instability lead to repeated human extinctions in Newfoundland. In its current form, this view is a relatively recent one, though the degree of continuity or discontinuity in the Newfoundland prehistoric sequence has been an issue of considerable culture-historical interest for many years. Perhaps the most important element in the recent formulation is the hypothesis that since all aboriginal occupations end in extinction, extinction is the more-or-less inevitable result of intrinsic characteristics of the Newfoundland environment. Tuck and Pastore's argument represents an interesting solution to a potentially thorny problem. Archaeologists generally assume that hunter-gatherers

adapt optimally to their environment, and do so specifically in ways that act to ensure their long-term cultural survival. The justifications for this assumption are twofold. First, anthropological applications of optimal foraging theory appear to indicate that human foragers do behave in predictable, objectively rational, optimal ways. Second, it is hypothesized that adaptations which are not viable over the long-term will not persist for any significant period of time, and will not, therefore, be archaeologically-visible (see Bailey 1981). In this context, the only way to explain archaeologically-visible human adaptive failure and extinction is to invoke abrupt environmental change, either of natural (e.g. Paulsen 1970) or anthropogenic (e.g. Sanders 1972) origin. In the absence of evidence for such change, as in Newfoundland, human extinctions emerge as intriguing and perplexing phenomena, and Tuck and Pastore's model is an ingenious response.

Resource Instability and Hunter-Gatherer Subsistence

The second tenet emerging from our perceptions of Newfoundland ecosystems holds that the simple ecosystems and low resource diversity severely limit the range of subsistence options in Newfoundland.

Of course, archaeologists often assume that regardless of the resource diversity offered by an environment, hunter-gatherers with a given level of technology will specifically select the "optimal" adaptation to that environment. In thereby reducing culture to the mechanism for operationalizing optimal solutions, this is, of course, a determinist paradigm. Any and all hunter-gatherer groups confronted with a given set of environmental conditions are predicted to select the [environmentally-determined] optimal adaptation regardless of their cultural background. As long as environmental conditions may be held constant, a given environment will always generate the same human adaptive response. In a sense, it is unnecessary to actually do archaeological research to determine prehistoric hunter-gatherer adaptations: all that is needed is a good understanding of the environmental conditions. In some instances, this perspective is justified by optimal foraging theory and other formal models derived from behavioural ecology and from economics, which predict that foragers, including humans, will adapt optimally; applications of these models to ethnographic situations appear superficially to have some predictive power. In other cases, successful ethnographically-documented adaptations are perceived as so ingenious, so supremely rational, that they must represent

optimal adaptations.: any other adaptive response is almost inconceivable. Armed with this view, it is becomes easy to extrapolate adaptations from the ethnographic present deep into the prehistoric past. In either case, the result, fairly commonplace in archaeology, is that descriptions of resources and their seasonality in the environment may stand in lieu of, and are equivalent to, inferences on subsistence and seasonal settlement in prehistoric hunter-gatherer economies.

There are elements of these perceptions in Newfoundlanbd archaeology as well, but in Newfoundland this is bolstered less by the abstract principal that animals, including humans, tend to select optimal adaptations from the range of possible options, than by the more robust assertion that Newfoundland's simple ecosystems actually offer few if any alternatives to the optimal.

In a sense, in Newfoundland we reverse the usual archaeological approach to ethnographic analogy. In Newfoundland, the ethnographically-documented post-contact aboriginal adaptation, seemingly involving intensive use of the resources of the deep interior, clearly leads ultimately to extinction. Thus, we are not tempted to project a seemingly successful ethnographic pattern into the prehistoric past: on the contrary, we tend to regard the ethnographically-documented strategy as unlikely to have ever occurred prehistorically (though since prehistoric occupations also end in extinction, this belief is perhaps unwarranted; see below).

Thus, in the Instability Model of Newfoundland prehistory, it is proposed that not only is only a single, optimal prehistoric adaptation likely, but that the restrictive character of the environment ensures that only one adaptation is possible. This is implicit in the argument that prehistoric extinctions were somehow inevitable in Newfoundland, but perhaps more evident in Tuck and Pastore's detailed discussion of resource availability in Newfoundland. Tuck and Pastore (1985) hold that Newfoundland supports a low diversity of resources, including four "principal prey species" (Harp seal, harbour seal, salmon, and caribou), each most appropriately exploitable at a particular time of year. By implication, these staggered resources allow only one adaptive cycle. Although one of these resources (caribou) virtually requires interior settlement, Tuck and Pastore recall the Beothuk experience and note that terrestrial resources are particularly few and unstable, requiring that the optimal solution is principally a maritime one. Tuck and Pastore point out that even the sole optimal strategy is weak in winter, when no "principal prey species" are available, and hunters may find

themselves torn between the meagre winter resopurces of the coast, and the even poorer opportunities in the interior. Although it is not explicitly formulated, the environment Tuck and Pastore presents clearly admits only one adaptive solution, predicated on hunting harp seal in early spring, exploiting a relatively high diversity of resources in summer, but principally harbour seal in late spring/early summer and salmon in late summer, and pursuing caribou in autumn. Winter subsistence is lean, and fraught with uncertainty, being necessarily based on stored foods supplemented by occasional meagre terrestrial or marine game (terrestrial game species, including bear and beaver, are generally low in abundance, while even coastal backup resources are scarce in winter). Of course, even this adaptation is ultimately doomed to fail. In short, the Instability Model holds that due to the extreme simplicity of Newfoundland ecosystems, only one broad adaptive strategy is viable, and it predicts that we should expect little or no variation in prehistoric adaptations to the island.

Peter Rowley-Conwy (1990) has proposed a variation on this scheme, comparable in its emphasis on predicting *the* optimal adaptive pattern, but different in detail. He concedes that the resources of the deep interior are few and unreliable, contributing to the demise of the Beothuk. However, he does point out that in the uncertain winter season, the near-coastal interior does offer access to the widest possible range of both terrestrial and marine resources, in addition to any supplies of caribou meat stored from an autumn caribou hunt. Rowley-Conwy thus proposes that the optimal solution to the Newfoundland environment must include an important interior element, specifically exploitation of the near-coastal interior in autumn, and especially, the winter. He then predicts that this optimal pattern is the most likely adaptive strategy for pre-contact hunters and gatherers on the island.

Research into prehistoric subsistence-settlement patterns has traditionally revealed little about the interior components of prehistoric adaptations, instead focusing strongly on coastal sites. However, this research has done little to contradict the impression that prehistoric adaptations to the island varied little, if at all.

To begin with, settlement pattern data indicate little difference in the distribution of Maritime Archaic, Palaeo-Eskimo and Recent Indian sites. Recognizing that no one region is adequately documented

to permit a regional study, Pastore (1986) has studied an aggregate sample of sites from all parts of the island, in order to compare prehistoric settlement patterns in insular Newfoundland. Pastore's approach is fairly straightforward: he divides prehistoric sites into two macrolocational types: those found in "outer coastal" locations and those found in the "inner coastal" zone. For the purposes of his study, Pastore defines outer coastal locations as those found on simple coastlines, exposed offshore islands and headlands (essentially, those locations offering access to offshore ice, and to the harp seal herds in spring), and inner coastal locations as those found along complex coastlines, on the landward side of islands, and in deep inlets. Pastore then compares the relative frequencies of sites in each zone for each period. He in fact concludes that prehistoric settlement patterns did differ; Palaeo-Eskimo sites in the outer coastal zone are larger and proportionally more numerous than those of the Recent Indian or Maritime Archaic periods, while sites of these latter periods are more strongly-oriented toward sheltered inner coastal locations. He suggests that Palaeo-Eskimo hunters may have been more strongly specialized on harp seal hunting than their prehistoric indian couterparts, and speculates that this relative specialization may have contributed to their demise (Pastore 1986). Unfortunately, this hypothesis is mitigated by two factors. First, Pastore is unable to suggest what this difference might actually mean: did Palaeo-Eskimo hunters spend more of the year in the outer coastal zone, or were these settlements simply larger, subject to more locational shifts, or more rarely re-occupied than Recent Indian outer coastal settlements? More importantly, the difference in settlement patterns is in any case not strongly marked, and indeed is not statistically significant (see Table 1). Thus, coastal settlement patterns appear to have differed slightly, but not significantly.

Turning to prehistoric faunal remains, these too are best-known from coastal sites, and they attest primarily to spring and summer subsistence. In addition, faunal material attesting to adaptations in the Maritime Archaic period is almost entirely lacking. Within these limitations, however, they do suggest little difference between Palaeo-Eskimo and Recent Indian adaptations. Moreover, the faunal data suggest that these adaptations conformed broadly to the predictions made by Tuck and Pastore.

The outer coastal zone offers a low diversity of resources, especially in winter, but as noted, does offer access to one extraordinarily rich resource: the harp seal herds available in the region from the end of

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December to May. Several sites have been excavated in the outer coastal zone, and these indicate that harp seal were indeed the principal attraction to settlement in this zone. This is certainly the case at Phillip's Garden in Port au Choix (Harp 1964; 1976; Renouf pers. comm.), a large Palaeo-Eskimo site noted for its large collection of substantial semi-subterranean dwellings, and also for its high yield of faunal remains, overwhelmingly dominated by harp seal (Harp 1976; Renouf pers. comm.). There are also large Recent Indian sites in outer coastal locations, most notably the large array of cobble hearth features at Cape Freels (Carignan 1977; Austin 1984). Faunal collections have not been forthcoming at these sites, but similar Recent Indian sites from southern Labrador have yielded faunal assemblages consisting primarily of seal bone (Pintal 1989). The season of occupation has not been precisely determined for these sites; the predominance of harp seal in the faunal collections indicates site occupations occurring some time between late December and May. It is generally assumed that these sites were occupied primarily in the spring, when seal herds whelp on the sea ice.

Inner coastal locations offer access to a wide range of marine and terrestrial resources, particularly in summer; these include harbour seal, caribou, bear, beaver, capelin, salmon, smelt, inshore groundfish, and shellfish. One of the best-known inner coastal sites is the Recent Indian/Beothuk site at Boyd's Cove, Notre Dame Bay, and the faunal assemblage from Boyd's Cove does indeed indicate a late spring/summer occupation aimed at exploiting the wide range of available resources (Pastore 1985; Cumbaa 1984). Palaeo-Eskimo sites in the inner coastal zone are not as well-known, but these too appear to reflect summer occupations and a wider resource base than that associated with Palaeo-Eskimo sites in the outer coastal zone (Simpson 1986).

The settlement patterns and faunal evidence thus far suggest little difference between Palaeo-Eskimo and Recent Indian adaptations to the island, and this is consistent with the view that Newfoundland's simple ecosystems offer few alternative seasonal subsistence options.

Resource Instability and Interior Prehistory

The third tenet holds that in view of the particularly low diversity and stability of terrestrial ecosystems, no aboriginal adaptation is likely to have involved a major interior component. One result of this is that the vast majority of archaeological research in Newfoundland has been conducted on the coast. In contrast to the inner and outer coastal zones, prehistoric settlement in the interior is therefore relatively poorly-understood. The existence of a coastal bias in archaeological research on the island has been recognised, but generally this has been accepted. In fact, this is perhaps the most long-standing theme of the Instability Model; for many years, now, several factors have combined to discourage more extensive research in the interior.

The first is the aforementioned perception that the Newfoundland environment, particularly its terrestrial ecosystems, are low in species diversity and stability. Few seasonal subsistence options are available, and these do appear to require a fall caribou hunt in the interior, so interior prehistoric settlement can be assumed. However, the lesson of the Beothuk extinction has been that intensive exploitation of interior resources is risky, and that any viable adaptation in Newfoundland must have been focused on marine resources, with only a minor interior component, and consequently ephemeral prehistoric remains in the interior (Renouf 1985). Second, site visibility in the forested interior is assumed to be low relative to that on the coast. This is due to a combination of dense vegetation cover, and the presumed ephemeral nature of interior remains (Renouf 1985: 295).

Finally, since *modern* settlement and transportation in Newfoundland are oriented to the coast, it is logistically more difficult to work in the Newfoundland interior. With the exception of the Exploits Basin, where European settlement has occurred, archaeological survey and excavation are likely to be more difficult and expensive in the interior than on the coast.

In short, research in the interior is perceived a likely more difficult and expensive, and less productive, than comparable research on the coast. Particularly in an area where much field research has traditionally been undertaken by graduate students, who have neither the time, nor the financial backing, to risk negative results, it is not surprising that interior research has never seemed an attractive proposition.

Moreover, it is easy to rationalize that such research is in any case unnecessary. For culture-historical research it is sufficient to concentrate on the large, easily-located sites of the coast. Reconstructing prehistoric adaptations in Newfoundland does require a consideration of the interior. The limited adaptive options appear to require an autumn caribou hunt, presumably in the interior, and indeed, autumn and winter are seasons that are presently not well-documented in coastal faunal assemblages. Nevertheless, the limited resource options mean that the nature of interior settlement can be predicted: ephemeral, transient caribou interception camps. Empirical confirmation is difficult, but here too, unnecessary.

Accordingly, investigations of prehistoric interior remains have not been extensive. Through the 1960s and 1970s, and into the 1980s, research in the interior was focused almost exclusively on the historic Beothuk settlements of the deep interior, in the Exploits Basin (Locke n.d.; Devereux 1965, 1970; LeBlanc 1973; Thomson 1983). Here, an extensive, if ill-fated, aboriginal occupation was ethnohistorically documented. The sites themselves were relatively large and visible and in many cases their locations were identified in ethnohistoric sources. In addition, modern settlement in the Exploits Basin made these locations relatviely accessible. In several instances, prehistoric remains were encountered in the course of investigations into these historic Beothuk settlements. Prehistoric remains were encountered, for instance, at Pope's Point (Devereux 1965), Wigwam Brook (LeBlanc 1973), and Aspen Island (Locke n.d.), and also at Noel Paul's Brook-3, in thc course of a brief survey of the Exploits rivercourse in 1982 (Thomson 1983). In addition, substantial prehistoric assemblages were recovered from the large Beothuk site at Indian Point (Devereux 1970). This last site is particularly interesting since a substantial proportion of the lithic material, much of it pertaining to the Beaches Complex of the Recent Indian period, appears to have been recovered from features identified as longhouses (Locke n.d.). Unfortunately, this site has been largely destroyed, and there appears to be little hope of confirming this pattern through scientific excavation.

Some surveys of deep interior regions other than the Exploits Basin were attempted, but these were either unsuccessful (Madden 1975), or yielded only stray finds, generally of Maritime Archaic tools. Examples include the finds made at Deer Lake (Harp 1963; Carignan 1976) and Main Brook on the Northern Peninsula (Carignan 1976).

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The 1980s saw some increase in the number of known interior components, with the discovery by Gerry Penney of a large deflated Palaeo-Eskimo assemblage at Long Pond, in the southwestern corner of the island (Penney 1980). This in fact constituted the first discovery of a large prehistoric tool assemblage in the interior, not to be made in the course of research into the historic Beothuk. Two years later, another Palaeo-Eskimo site was located in the course of a survey of the Gander River (Pastore and Evans 1982). However, none of these discoveries were sufficient to challenge the prevailing view of prehistoric settlement in the interior.

SELECTION OF THE STUDY AREA

In short, the Instability Model proposes that simple ecosystems doomed prehistoric hunters in Newfoundland to extinction, offered few alternative subsistence options, and mitigated against the possibility of extensive settlement in the interior. Among other things, it offer support for the long-standing assumption that little would be gained by intensive archaeological research in the Newfoundland interior. Nevertheless, I found myself intrigued by the possibility that prehistoric interior settlement might have been more extensive than is usually assumed. My own interest in prehistoric settlement in the interior was particularly aroused in 1984, while analysing variation in late Recent Indian (Little Passage Complex) projectile points (Schwarz 1984). This required a consideration of possible functional sources of variation, and this in turn required a classification of Recent Indian settlement locations. Ralph Pastore had already developed such a classification, and noted that Recent Indian settlement was strongly oriented to sheltered inner coastal locations, but I was also struck by the fact that many large Recent Indian sites in the inner coastal zone also seemed specifically located on narrow runs and inlets offering access into the interior. When this was combined with the fact that coastal work had provided little evidence for autumn or winter seasonal occupation, it seemed that for the Recent Indian period, at least, interior adaptations might be more important than previously assumed, and that perhaps the ephemeral nature of interior settlement should no

longer be taken for granted. If this were *only* true for the Recent Indian period, if the slight differences in coastal settlement-subsistence patterns were complemented or enhanced by differences in interior adaptations, then interior research could perhaps do much to clarify the nature of Palaeo-Eskimo and Recent Indian *coastal* adaptations as well. Ultimately, any clarification of the distinctions between Palaeo-Eskimo and Recent Indian adaptations might also help explain the causes of prehistoric extinctions on the island.

In 1986, I began to design a problem-oriented program of research into the prehistory of the Newfoundland interior. The project was to be a two-year program, consisting of one season of survey, and one of excavation. The investigation was focused on two lakes in the interior hinterland of Bonavista Bay: Gambo Pond and Terra Nova Lake. This region was selected for several reasons, most aimed at overcoming the expected difficulties of interior research, for I cannot deny that initially I did share some of the prevailing doubts about the extent and recoverability of prehistoric remains in the interior.

First, both lakes were known to be rich in exploitable game. Gambo Pond and the Terra Nova River system are still relatively rich in salmon and trout, while however much caribou migration routes may have varied in the past, local herds would inevitably have been channelled or intercepted by one or both river systems. These would therefore seem to be particularly attractive locations for prehistoric settlement in the interior. Second, both lakes lie close to modern settlements and are relatively accessible from the Trans-Canada Highway. This reduces many of the logistical problems and costs that might otherwise be associated with a project in the interior. In this case, though, it did mean that the research area lay relatively close to the coast, and did not lie as deep in the interior as, for instance, some areas surveyed previously in the Exploits Basin. Finally, a relatively small-scale project was designed, again so as to reduce the costs, in view of the uncertain returns.

The project was realized in 1987 and 1988. In July and August 1987, a small, two-person, canoe-based survey of Gambo Pond and Terra Nova Lake was undertaken, and this was extended to include parts of the head of Freshwater Bay. The survey was an unqualified success. Twenty sites were discovered, of

which seventeen were located on Gambo Pond (an additional site was discovered on Gambo Pond the following year). In July and August of 1988, we returned to excavate samples of five of the sites located on Gambo Pond. A summary of the results of these investigations follows.

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2

ENVIRONMENTAL SETTING
Bonavista Bay and its Interior Hinterland

THE BONAVISTA BAY REGION

Bonavista Bay and its interior hinterland (see Figure 2) lie in the northeastern portion of the island of Newfoundland, between Notre Dame Bay and Trinity Bay. The limits of the bay itself are quite clearly defined by Cape Freels at the northern end, and Cape Bonavista at the end of the Bonavista Peninsula to the south. The interior hinterland is not so easily delimited, but is broadly bounded by the Gander River system to the north, Middle Ridge to the west, and the Isthmus of Avalon and the Fortune Bay hinterland to the south. The interior hinterland of Bonavista Bay is dominated by two major river systems (actually of intermediate length, by Newfoundland standards; see Yoxall 1981): the Triton Brook/Gambo Pond drainage, and the Terra Nova River system. Owing to the steep topography, the remaining streams in the region are for the most part quite short. Of these, only Northwest River, which flows into the head of Clode Sound, is of respectable length.

Regional topography is dominated by a parallel series of steep ridges and troughs, oriented approximately northeast-southwest, which divide Bonavista Bay into a series of deep arms. The principal bays, from north to south, are Freshwater Bay, Alexander Bay, Newman Sound, and Clode Sound. Long, narrow channels, or "reaches," extend from the mouths of these bays, separated by similarly long, narrow peninsulas and islands. This topography also serves to channel and orient the principal drainage systems of the hinterland.

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Regional climate is of the "moist marine" type (Hare 1952), intermediate in character between the relatively maritime climate of the south coast of the island, and the relatively continental climate of the central lowlands of the Notre Dame Bay hinterland (Banfield 1981). Precipitation is moderate (1100-1500 mm per year), with cold, fairly snowy winters, and warm, sunny summers. One of the principal climatic controls in this region is the sea ice, which forms in winter as both landfast ice, and as fragmented floes or "pack," which move with winds and currents. On the northeast coast of Newfoundland, this is augmented by pack ice drifting south from Labrador and the arctic. The northeast coast stands as a barrier to this southward drift, so unusually thick concentrations may form along this shore. This is particularly true west of Cape Freels, which acts as a "hinge" for the ice-front (see Farmer 1981: 71, Fig. 3-6), but ice may be thick east of Cape Freels as well, in Bonavista Bay, and even in Trinity and Conception Bays, particularly when onshore winds drive the pack deep into the bays and inlets. Sea ice, which forms in December, is an important factor in ensuring cold winters on this part of the island; its persistence through April and into May also ensures that spring is late and cool in northeastern coastal regions. Perhaps the most important aspect of the sea ice, for prehistoric hunter-gatherers in Newfoundland, lies in its role as a spring whelping ground for harp seal herds. Freshwater bodies in the region generally freeze over in the middle of December. Lakes are generally ice-free by late April or May; rivers are clear a few weeks earlier.

This brief description of typical conditions masks considerable variability. Deviation from mean temperatures is highest in January and February, and lowest in summer and autumn (Banfield 1981: 99-101). Variability in precipitation is also relatively high in the late winter (January-April), though in general, autumn and winter see the highest levels of precipitation on the island (Banfield 1981: 111). It is interesting that Bonavista Bay shows the highest levels of mid- to late-winter freezing rain and freezing drizzle found on the island (and by extension, the highest levels found in North America; Banfield 1981 115-117; Fig. 4-19). This is related to the high frequency and intensity of winter storms. Thus, in terms of both weather and climate, winter - especially late winter - emerges as the season of greatest variability and uncertainty. Variability is considerably lower in summer, though the actual onset of summer may be affected by the persistence of sea-ice in spring, which is highly variable. In addition, occasional summer storms, in the form of weakening

tropical storms or hurricanes, may occur.

Vegetation in the region is of Boreal Forest type, dominated by black spruce (*Picea mariana*), balsam fir (*Abies balsamica*), white spruce (*Picea glauca*), and white birch (*Betula papyrifera*), with occasional stands of trembling aspen (*Populus tremuloides*). Bogs (with *Sphagnum* spp.) occupy poorly-drained areas, while ridgetop barrens, particularly in the interior hinterland, support Labrador Tea (*Ledum groenlandicum*), reindeer moss (*Cladonia* spp.) and other lichens.

Potential food resources available to prehistoric hunter-gatherers in the region are relatively numerous, given the simplicity of terrestrial ecosystems in Newfoundland. Perhaps one of the most attractive features of the region For prehistoric hunter-gatherers was its topography. The northeast-southwest trend in the topography not only acts to channel the movements of animals (particularly caribou), but also offers easy access for human hunters wishing to move between coast and interior. Groups equipped with boats could move fairly easily from the outermost islands, along the reaches and river systems, to the deepest reaches of the interior hinterland. Transportation would be easiest in summer (by boat) and in winter (by foot across the ice). During autumn and spring, the freeze-up and break-up of ice would temporarily reduce human mobility considerably. Ease of transport between environmental zones would effectively act to enhance the diversity of resources available in the Bonavista Bay region. These potential marine and terrestrial resource species may be summarized as follows.

The coastal environment of Bonavista Bay supports a variety of fish, including groundfish, capelin, and anadromous species such as smelt, eels, salmon, and sea trout. Capelin and the anadromous fish, of course, are especially abundant during their runs in summer, and the latter are also available in freshwater in the interior hinterland. Molluscan species include the blue mussel and soft-shell clam. Feeding on these are a variety of sea mammals, including large and small whales, and seals. Of the seals, harbour seals (*Phoca vitulina*) are sedentary, and would probably have constituted an important prey species for prehistoric hunters. Other species, including ringed seal (*Phoca hispida*) and bearded seal (*Erignathus barbatus*), may also have been available in small quantities. All of the above-mentioned species would have been most readily available in sheltered "inner coastal" (*sensu* Pastore 1986) locations in the summer months, though the

sedentary harbour seal could also be exploited at other times of the year.

By far the most abundant of the seals, at least seasonally, would have been the harp seals (*Pagophilus groenlandicus*), which whelp on the pack ice in Newfoundland waters in the spring. Harp seals are seasonal vistors to the island, arriving in Newfoundland waters from the arctic in late December or early January. Part of the herd the "Gulf" herd) moves through the Strait of Belle Isle into the Gulf of St. Lawrence. The remainder (the "Front" herd) passes south along the northeast coast of the island, trimming close to shore to feed. February is spent southeast of the island, feeding on the Grand Banks, after which the seals move north again to meet the advancing pack ice. After pupping on the ice in late February and early March, the seals return to the arctic in May and June, the adults moving first, the subadults lagging behind. Harp seals would be most readily available in exposed "outer coastal" locations, particularly in spring, when the herds are whelping on the pack ice. Indeed, harp seal are the principal prey species available from "outer coastal" locations.

To round out the marine fauna, seabirds are available in the region, though Bonavista Bay contains no exceptionally large colonies. In addition, we might add that polar bear (essentially a marine mammal) is periodically available. Though not strictly native to the island, polar bears do occasionally arrive in northeastern Newfoundland on pack ice. The recovery of the remains of at least three individuals in the faunal assemblage at the Recent Indian/Beothuk site at Boyd's Cove (Pastore 1985) indicates that this was also true, if not more so, in the prehistoric past.

Terrestrial fauna in the Bonavista Bay region, as in Newfoundland generally, is low in diversity. Only fourteen indigenous mammals are found on the island, including a number of small carnivores (lynx, red fox, otter, weasel, marten), and some very small mammals unlikely to have been of economic importance prehistorically (long-eared bat, little brown bat, meadow vole). Wolf are now extinct on the island, while arctic hare populations are low, due in part, perhaps, to competition with the introduced snowshoe hare. Black bear, muskrat and beaver were and are present in the area. All of these game species would be available year-round. Bear and beaver in particular, are relatively large mammals, which, elsewhere in the subarctic and the northeast, may be important in subsistence. They could be particularly important in winter,

when few other resources are available. Tuck and Pastore point out they would serve as poor backups, though, as they are not abundant, and thus are vulnerable to overexploitation, and because ethnographic accounts attest to the considerable effort involved in taking beaver in winter. Hibernating bears would pose similar problems. These ethnographic accounts do indicate that extracting beaver from their frozen lodges was difficult, and would be even more so with prehistoric technology, but they do indicate that this strategy could be, and was, pursued. Indeed, winter may be the best time to to hunt beaver in some respects, particularly for any group able to forage over the same range, and observe game behaviour, during the previous autumn. Though the actual extraction process might be arduous (i.e. "pursuit costs" would be high), the locations of these animals would be highly predictable ("search costs" would be low), and the retuurns virtually guaranteed. Even if beaver populations in Newfoundland are relatively low, beaver would at least be an ideal secondary resource. The same would be true for black bear.

For prehistoric hunter-gatherers, though, the most important terrestrial mammal, economically, was probably the caribou. Caribou (*Rangifer tarandus caribou*) would have been important not only because of their size and numbers, but because unlike the other terrestrial mammals of the island, they form very large aggregations seasonally. Twice a year, in autumn and spring, they form into large bands and undertake more-or-less predictable seasonal migrations. In this area, rail and road construction has so constrained movement that many bands are virtually sedentary, but a small band of caribou does undertake seasonal migrations which take them across the upper stretches of Gambo Pond, and this probably preserves a once more-widespread pattern of seasonal migrations between coastal summer ranges and interior wintering grounds. It is difficult to reconstruct prehistoric caribou migration patterns in the Bonavista Bay region with any certainty, but in view of the fact that caribou migration routes tend to follow topography, we may suggest that prehistoric caribou movements between coast and interior were oriented northeast-southwest, and were channelled along the major rivercourses of the Bonavista Bay hinterland. All of these terrestrial mammals are available along the coast, and seasonally, at least, isolated caribou may be found primarily in coastal areas. However, most, including aggregated caribou bands, would be most readily available in the interior hinterland. It should be noted that the most important terrestrial mammal species exploited by modern

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residents of the area (moose and snowshoe hare) were not available prehistorically.

Seasonally, the Bonavista Bay hinterland also offers rich aquatic resources, including eels, ouananiche, smelt, salmon, and sea trout. These are most easily acquired during their summer runs, though smelt, for example, may also be obtained through the ice in winter. Sedentary aquatic resources (principally trout) are otherwise rather poor, though at least one pond in the area (Square Pond) does support a population of land-locked arctic char.

Potentially important avian species in the hinterland include willow ptarmigan, common loon, Canada goose, and several species of ducks. A variety of berries available in the late summer and autumn, including blueberry (*Vaccinium angustifolium*), bakeapple (*Rubus chamaemorus*), and partidgeberry (*Vaccinium oxycoccus*), complete the inventory of terrestrial food resources.

Previous Archaeological Work in the Region

Previous archaeological work in Bonavista Bay has focused almost entirely on coastal areas, and this research has been oriented primarily toward resolving culture-historical problems. In southern Bonavista Bay, survey and excavationconducted within the bounds of Terra Nova National Park (Sawicki 1984, Tuck 1980) has revealed considerable evidence for prehistoric occupation, particularly for the Maritime Archaic and Palaeo-Eskimo periods. To the north, work has concentrated on two major sites: The Beaches site is located in the inner coastal zone on the shore of Bloody Reach, some 15 km from the mouth of the Terra Nova River (Devereux 1969; Carignan 1975); the large site (or site complex) at Cape Freels (Carignan 1977; Austin 1984) lies in an exposed outer coastal location at the northern edge of Bonavista Bay.

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THE INTERIOR HINTERLAND

As was noted previously, two principal drainage systems dominate the Bonavista Bay hinterland. These are the Gambo Pond/Triton Brook drainage, and the Terra Nova River system. Arhcaeological investigations in the hinterland concentrated on one lake from each drainage; Gambo Pond and Terra Nova Lake.

Gambo Pond

Gambo Pond (Figure 3) is a long, narrow lake, some 30 km by 0.5-1.3 km wide, and oriented roughly ENE-WSW. The lake lies within a long, narrow trough formed by the Dover Fault and therefore shares with larger lake basins of comparable shape and orientation, such as Grand Lake and Red Indian Lake, a tectonic origin (Yoxall 1981). The depth of Gambo Pond reaches 42m (Seabrook 1962; Yoxall 1981) in places, but much of the lake is quite shallow. This is especially true halfway along its length, where the lake is constricted into a narrow, shallow fast-flowing stream flanked by marshy flats. This area, locally termed "the strait" (Plates 1,2), effectively divides Gambo Pond into two separate lakes, the "upper pond" and the "lower pond." The active beach along the lakeshore alternates between cobble beaches and broad sandy crescentine coves. In the summers of 1987 and 1988, all beaches were unusually broad, due to dry conditions and unusually low lake levels. The principal features of the lakeshore, though, are the mouths of the four major streams which disemboque into the lake. The largest of these is Triton Brook, which has formed a broad, aggrading delta at its mouth at the western end of the lake. The sands of this delta have been colonised by dense vegetation which implies some stability, and by all accounts the present river channel has been stable for a generation or so, but the presence of relict channels flanking the river's current outlet indicates that along its lower reaches the river has shifted its course many times in the past. A smaller delta, fronted by shifting sandbars, is found at the mouth of Riverhead Brook, also at the western end of the lake. On the lower pond, two smaller rivermouths are found. Parsons Brook empties into the lake just east of the strait, while Mint Brook debouches near the eastern end of the lake. Gambo Pond itself is drained by

Gambo Brook, a shallow, rocky stream that flows some 4 km through marshy flats to the sea (Plate 3).

Of these rivers, only Triton Brook is navigable for any significant distance upriver from its mouth. Riverhead Brook and Mint Brook narrow too rapidly, while Gambo Brook and Parsons Brook are too shallow and rocky even for canoe travel. Gambo Pond itself is passable by canoe for its entire length, though the strait is shallow and its currents are tricky. The principal impediment to canoe travel on Gambo Pond is the swell, which can be quite high at times. In general, seaward travel may be quite rapid, while canoeing inland can often be slow and arduous. Use of a motorboat may overcome some of these difficulties, but poses its own problems, particularly in late summer, when water levels are at their lowest. At this time, the strait, and indeed the whole stretch of the pond from Parsons Brook to about 1/2 km west of the strait, is shallow and hazardous to motor stems and propeller blades. Passage is reportedly easier in spring, when water levels are at their highest. The major seasonal changes affecting access are as follows; the lake is passable by boat through the summer and autumn. Freeze-up occurs generally in December. During this time, passage on foot or by boat is difficult. After freeze-up, the lake offers easy access by foot, or, today, by vehicle, between the coast and interior (the ice is usually considered adequate to support ATV and truck traffic by early January). Spring break-up occurs in April. At this point, water levels are at their highest, and the lake is once more navigable. Water levels gradually fall through the summer.

Behind the lakeshore, the topography and vegetation varies considerably. In places, particularly near the strait, and along the lower pond, Gambo Pond is flanked by marshy flats. These support mosses and grasses, with some gorse and small trees at slightly higher elevations. However, along much of its length, particularly on the upper pond, the walls of the basin rise more-or-less steeply from the lakeshore and these slopes are thickly clad in fir and spruce, with stands of pine, birch and aspen. Above the southern shore of the lower pond, the forest is still recovering from the effects of a major forest fire that swept along the southern ridgetops in 1979.

Gambo Pond and its environs are marked by a remarkable diversity and abundance of game species. The pond itself is known for its runs of salmon, trout, sea trout, eels and ouananiche ("smuts"). Local people report that in many cases, these trim along the southern shore of the lake, and many preferred fishing

locations today are located along this shore. Particularly favoured locations for fishing are the strait (for salmon) and the mouth of Riverhead Brook (for sea trout). Parsons Brook too is said to have been rich in salmon at one time, but these were apparently all too easy to catch in the brook's shallow pools, for it is now said to be a poor salmon-fishing stream. In addition, Gambo Brook and Mint Brook are said to be attractive locations for eel-fishing. In winter, ice-fishing is reported to be highly productive, and in some shallow, sandy coves, large quantities of smelt can be caught through the ice. Finally, freshwater mussels are also found in the lake. These are tough and chewy, and considered inedible by local people, but cannot be discounted as a possible food resource.

Terrestrial fauna are also very much in evidence: the introduced species, such as moose and snowshoe hare, are the focus of modern hunting and trapping activities in the area, but bear and small game are also found, and there are signs of considerable beaver activity on some of the small streams that flow into the lake. A small herd of migratory caribou is known to cross the lake seasonally, particularly near the mouth of Triton Brook, at the western end of the strait, and at the slight constriction of the lake at Big Head (Plate 4). In the past, before road construction restricted the migratory behaviour of caribou in the region, the number of animals participating in this migration was probably much greater. Although precise migration routes are difficult to determine, and in any case, likely shifted periodically through time, it is possible to identify the likeliest routes. The "principles" of caribou migratory behaviour include a tendency to follow contours in hilly terrain, and a tendency to course natural features, such as lakes and rivers, before crossing. Migration routes therefore tend to funnel along or between topographic features (LeResche and Linderman 1975: 58). It is likely, then, that caribou bands migrating north to south from the coast to the interior in autumn, and back again in spring, would tend either to move along Gambo Pond itself, crossing the lake at a number of possible locations, or to enter the Gambo Pond basin through one of a limited number of low "passes" (Figure 3). Most likely crossing places (those at which the lake is constricted, and which lie between likely entry and exit points) are also limited, and include the area around the mouth of Parsons Brook the strait, Big Head, and the mouth of Triton Brook, though the tendency of animals to course the water's edge means that almost any relative narrowing of the lake might serve as a crossing point.

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in this area is the well-maintained road running west from the Trans-Canada Highway, between the north shore of Gambo Pond and Mint Brook. A sidebranch of this road descends to the shore of the upper pond near its western end, making it possible to reach the upper pond without using a boat.

Today, land-use along the pond is focused on hunting, fishing, and recreational activities. The pond sees activity more-or-less year-round, except for the periods around freeze-up and break-up. This is certainly true in summer, especially on weekends, when fishing and various social and recreational activities are pursued. The area is a popular one for hunting, primarily moose-hunting, in autumn. In winter, after freeze-up, the lake is once more a focus of activity, as people take trucks and ATVs inland on the ice for ice-fishing. The most important ongoing human impact on the landscape associated with these activities involves the construction and use of recreational cabins along the lakeshore. For the most part, the direct effects of cabin construction on archaeological remains appear to be slight. Cabin construction may expose archaeological deposits and create some disturbance, but rarely wholesale destruction. Landscaping of cabin sites would have a greater impact, but thus far this has not been a serious problem. In addition, there is little evidence as yet for the deliberate looting of archaeological sites. However, as cabin construction continues along the lake shore, we can only expect these problems to increase. This is particularly true on the lower pond, where cabins are already numerous, and where new construction and the expansion of access roads continues yearly. The upper pond is more difficult to reach by boat because of the strait, while the poor condition of the access road discourages the use of vehicles. Cabin construction above the strait is therefore far less extensive, and is proceeding far more slowly.

Terra Nova Lake

Terra Nova Lake lies at 190m a.s.l., some 22 km inland from Middle Arm (Alexander Bay) along the Terra Nova River, but only 12 km overland via Pitt's Pond from Clode Sound. The lake lies just outside the boundaries of Terra Nova National Park. The natural resources available are comparable in many respects to those of Gambo Pond. Its principal distinguishing characteristics today are related to the effects of recent and modern land-use. Unlike Gambo Pond, Terra Nova Lake is the site of a modern community.

The community of Terra Nova lies on the eastern end of the southern shore of the lake, near a railway bridge. West of Terra Nova, the southern shore of the lake is lined by a continuous string of substantial holiday homes on extensively-landscaped lots. As on Gambo Pond, ruined cribworks in the lake attest to past logging activities, but here the effects of flooding appear to have been far more extensive. Much of the lakeshore, particularly on the northern margins of the lake, is extremely unstable. Extensive sandbars are found, but these have not been colonized, consolidated and stabilized by vegetation. Elsewhere, the shoreline is marked by long stretches of high eroded banks. The most prominent of these is the long spit that extends from the northern shoreline, nearly bisecting the lake.

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3

THE SURVEY
Strategies and Results

The project began in 1987 with a month-long, two-person canoe survey of Gambo Pond, Terra Nova Lake, and the head of Freshwater Bay. Since the vast majority of the sites, and all of those subsequently excavated, were located on Gambo Pond, I shall begin by briefly reporting on discoveries on Terra Nova Lake and Freshwater Bay. The remainder of this section will be concerned exclusively with work on Gambo Pond.

TERRA NOVA LAKE

Terra Nova Lake was in fact the last area to be surveyed in 1987. It was not possible in the time remaining to survey all of the lakeshore, but some 79% of the lakeshore was surveyed, including all of the stretches deemed to show high potential for prehistoric settlement (see below, and Figure 4). The survey was conducted by canoe, with periodic stops to explore areas of high potential on foot. Only one site (DdAn-1) was found, and this was represented only by a single retouched flake, found on an active beach on the northern shore of the lake, across from the modern community of Terra Nova (Plate 5). Extensive shovel-testing behind the beach failed to reveal the source of this stray find.

The scarcity of evidence for prehistoric occupations on Terra Nova Lake may owe less to the ephemeral nature of these occupations than to the extensive recent and modern disturbance factors outlined in the previous section.

FRESHWATER BAY

Although the primary aim of the survey was to locate sites in the interior, we did spend one day exploring the western shore of Gambo Brook and the head of Freshwater Bay (Figure 5). The area covered corresponds to the shoreline fronting the contiguous communities of Gambo South, Gambo, and Middle Brook. This part of the survey was vehicle-based, and was conducted by driving through the community and making periodic stops in order to walk the shoreline. The coastline at the head of Freshwater Bay is in places low-lying and marshy, backed by steep slopes and fronted by broad, rocky foreshore flats. The result is a dearth of likely aboriginal settlement locations, exacerbated by a shortage of locations amenable to the launching or landing of boats. It is perhaps not surprising, then, that this exploration was largely unproductive. Even allowing for the potential impact of modern settlement on archaeological remains, and for the possibility of Holocene sea-level fluctuations changing the past configuration of the coastline, it is possible that archaeological remains are scarce because the area was actually unsuitable according to aboriginal settlement-location criteria.

Nevertheless, two sites were discovered, both, not surprisingly, some kilometers along the coast from the mouth of Gambo Brook, where the flats begin to tail off, and the shoreline becomes more easily accessible by boat.

One small prehistoric site, Middle Brook-1 (DeAn-6), occupies a small meadow on the southern shore of the small cove into which Middle Brook flows (Plate 6). Flakes of the blue and violet mottled rhyolites so common on sites in Bonavista Bay (Carignan 1975; 1977) and on Gambo Pond (see below) were

visible on the surface where several patches had been stripped of sod. Further shovel-testing around the cleared areas failed to uncover any additional material. We returned to test the area once again in 1988, but once more, subsurface deposits were not encountered.

The other site, Doloman's Point (DeAn-7), is located next to the Anglican cemetary at Doloman's Point, near the end of an exposed peninsula across the cove from DeAn-6. This large (*ca.* 1 ha) nineteenth-century European historic site covers an area of meadow interspersed with bedrock outcrops (Plate 7). No structural remains were visible on the surface, but the site was pitted with small holes dug by metal-detector enthusiasts. Beside each hole lay a neat pile of metal and ceramic artifacts. We were afraid in 1987 that this sort of disturbance might accelerate, but when we returned in 1988, there were no signs of recent activity. No prehistoric remains were encountered on the site, but the location is an attractive one, and I would be surprised if the site did not contain evidence for prehistoric occupation, albeit obscured by extensive historic European deposits.

GAMBO POND

Strategy and Results

In 1987, Gambo Pond (Figures 6, 7, 8) was surveyed by two methods: a considerable portion of the shoreline (*ca.* 30 km, or 46%) was explored on foot, while the rest of the survey was canoe-based. The foot-survey was concentrated primarily on the central portions of the lakeshore, around the strait (Plate 8). At this stage, we walked the shoreline, examining the beach for artifacts which may have eroded from *in situ* deposits. This procedure was facilitated, of course, by low summer lake levels. Whenever a piece was discovered in this manner, we examined the ground surface behind the beach and commenced shovel-testing. In addition, any cut-banks and all areas of dry, level ground fronting the beach were explored and shovel-tested, regardless of whether or not these locations seemed otherwise attractive for settlement. Finally, periodic forays were made into areas behind the lake; tests were dug on high ground rising out of marshland,

and along the ridgetops and break-of-slope of the hills flanking the lake. This last component of the foot survey, extending into the woods and marshland behind the lake proved difficult and arduous: more exhausting than exhaustive.

After eight days, this procedure was abandoned in favour of a canoe-based strategy. At this stage, we proceeded along the shore by canoe, landing only to examine areas of high archaeological potential. "High potential" was defined on the basis of our own experiences during the foot survey, and was similar to, but perhaps more inclusive than, those of others who have worked in similar situations (Samson 1978; Thomson 1983); locations further explored on foot included those with sandy beaches and therefore good access by boat, the mouths and outflows of streams, and also allpoints of land projecting outward into the lake. In addition, any cut banks and attractive cabin sites observed from the canoe also received closer examination.

The foot survey was originally undertaken because prehistoric native settlement-location preferences in the Newfoundland interior were poorly-understood, and it seemed premature to assume from the start that the results of work in Labrador or on historic Beothuk sites were necessarily applicable to this situation. In short, I considered that a non-judgemental foot survey could potentially reveal a greater number and diversity of sites and indeed, this strategy was abandoned not because it was unproductive but because it was time-consuming. Nevertheless, it is interesting that in fact, the areas that were surveyed on foot did not yield a significantly greater number or diversity of sites. The stretches of lakeshore surveyed on foot yielded a total of eight sites, just under 0.27 per linear kilometer, while nine sites (just under 0.26 per linear kilometer) were discovered in the canoe-based stage. Thus, both survey methods were almost equally productive. Furthermore, contrary to expectations, a majority (six out of ten) of sites represented only by stray finds were discovered in the course of the canoe survey. In fact, the only type of site the canoe-survey failed to reveal on Gambo Pond were stray finds on cobble beaches. Some sites of this type may therefore have been missed during the canoe survey, but on the whole, the areas surveyed by each method yielded remarkably comparable numbers and types of sites.

The survey was undertaken to assess the potential for further work of an area whose archaeological potential was not only unknown, but generally assumed to be low. The primary aim was therefore to acquire

a large, rather than necessarily a representative, sample of sites. Indeed, the difficulties of exploring the marshes and forested hills flanking the lake ensured that the sample was probably not a representative one. The absence of sites such as hilltop lookout/flintknapping stations in areas behind the lake likely reflects the cursory survey coverage in these areas, rather than their avoidance by native groups. However, given that the survey has yielded a sample composed entirely of lakeshore sites, the results suggest that no further bias is operating significantly within this sample.

It should be noted that the preceding discussion of survey strategy relates primarily to the planned survey in the summer of 1987. In 1988, though most time was spent excavating, some additional survey was pursued. Several footpaths and roadways cutting throught the forest from the lakeshore to the ridgetops were also explored. Several locations on the shore of Mason's Pond and North Pond in the Mint Brook drainage were also examined. No archaeological remains were encountered there. In fact, the only new site located in 1988 was discovered by accident, a few meters away from our cabin on the upper pond.

Brief descriptions of some of the sites located on Gambo Pond are given below, in sequence, from east to west. It should be noted that all find-spots, including stray finds with no identified source deposit, were assigned site numbers. Four of the larger sites yielded significant data during excavations in 1988; discussion of these latter sites is deferred to the following section.

Drover's Brook-1 (DeAn-5)

A single waterworn flake was found on a sandbar at the mouth of a small brook flowing into the far eastern end of Gambo Pond. The sandbar has been colonized by a light growth of vegetation and is backed by marsh. Intensive searching along the sandbar failed to yield any more artifactual material, and indeed it is unlikely that any intact primary cultural deposit exists here.

Flagpole Site (DeAn-4)

A single utilized flake was found on the beach of a prominent sandy point on the north shore of Gambo Pond, about 2 km southwest of the mouth of Mint Brook. It is possible that *in situ* source deposits

exist or existed on this point, though testing failed to reveal them. These may have been destroyed or obscured by erosion or cabin construction.

Schoolbus Site (DeAn-3)

The next prominent sandy point on the north shore of the lower pond west of DeAn-4 is characterized by two modern cabins and the remains of a wrecked bus half-hidden in woods on the eastern side of the point. A single waterworn flake was recovered from the beach between the two cabins. No other cultural material was seen, and the source of this stray find is uncertain. The flake was waterworn, and was found on the beach, but could still derive from a site located on the point. If this is the case, then the site may have been lost to erosion, or obscured by cabin construction, for test-pitting behind the beach failed to locate any additional material.

Sandy Beach Site (DeAn-2)

One flake was also recovered from the beach of a broad, sandy, east-facing cove on the north shore of the lower pond, west of DeAn-3 and due north of DeAn-1. No other lithic material was discovered.

Marshlands (DeAn-1)

This site is discussed in detail in the following section.

Parsons Brook-1 (DdAo-2)

This site is discussed in detail in the following section.

Parsons Brook North-1 (DeAo-1)

This site is located on a narrow eroding bank backed by marsh in a broad, shallow cove on the northern shore of the lower pond, opposite DdAo-2 and the mouth of Parsons Brook. Only three pieces were recovered, all joining-fragments from a single retouched flake. These pieces would appear to represent

primary deposition at the site, but any site located here must have been almost entirely deflated. Tests along the bank yielded nothing.

Parsons Brook West-1 (DdAo-1)

A small (25m^2 at most) surface scatter of flakes was observed around the northeastern corner of a cabin on the north shore of the lake, between the two outlets of Parsons Brook. No diagnostic artifacts were recovered, but the site clearly does contain *in situ* deposits: though the site has clearly been impacted by cabin construction and use, it has not suffered the more serious disturbance caused by erosion and rafting ice. This would appear to be a small site, but one that would warrant future testing.

Strait Site (DdAo-6)

One flake was recovered from a cobble beach on the northern shore of the upper pond, just under 1 km west of the strait. No other material was observed. The beach is backed by a narrow ridge of boulders, and then by marsh. If there ever were *in situ* deposits here, they have since been destroyed. It is interesting that this was the only piece recovered from the entire length of the strait area, from Parsons Brook West-1 to the Weir site. This is a disappointing result, and initially, at least, a surprising one. The whole strait area was considered in advance of the survey to be an area of extremely high archaeological potential. It is (by definition) a marked constriction of the lake and a potential caribou crossing, and in addition, the most popular summer salmon-fishing location on the lake today. Consequently, the whole area was surveyed carefully on foot. In this context, the scarcity of archaeological remains is perplexing. However, it is important to note that today the strait is flanked by marsh and by rocky flats with thin vegetation cover (see Plates 1, 2). This may be related to the fact that the strait was the principal barrier to floating logs during the period of intensive log-driving on the lake, and this are almost certainly bore the brunt of flooding and erosion.

Weir Site (DdAo-3)

Two flakes were located on a broad, treed sandbar on the southern shore of the upper pond, about 1.5 km southwest of the strait. Extensive shovel-testing in the woods behind the active beach failed to recover any additional cultural material, however, I expect that *in situ* archaeological deposits may yet be discovered in this area. It should be noted that this area is known locally as "Spring Point," and is said to be a crossing point used by caribou in the spring. The find-spot designated DdAo-4 may also relate to this same, as-yet-undiscovered site.

Treefall Site DdAo-4)

On a stretch of cobble beach, about 500m west of DdAo-3, a single artifact was discovered: a heavy chipped-stone biface fragment of uncertain cultural affiliation. Testing on the wooded bank behind the beach yielded nothing.

Two Cabins Site (DdAo-5)

A small (12 m^2) scatter of flakes was observed between two cabins on a prominent sandy point on the south shore of the upper pond (Plate 9), about 1 km west of DdAo-4. Testing did not reveal diagnostic artifacts, but like DdAo-1, this seems to be a small site with *in situ* cultural deposits that have survived erosional forces. It may therefore be worth future investigation.

Burnt Cabin Site (DdAo-8)

This site is discussed in detail in the following section.

Big Head-1 (DdAo-7)

In 1987, three flakes were found exposed along a meter or so of cut bank near the base of the steep headland known locally as Big Head. This site was considered a potentially interesting one, not because of the few flakes recovered during the survey, but because of the location. Big Head lies directly across Gambo

Pond from DdAo-8, and the stretch of water between the two is a known crossing point for the small herd of caribou which still displays migratory behaviour in the area. It was hoped that DdAo-7 and DdAo-8 together might form an interesting pair of sites for further investigation, and as a result DdAo-7 was slated for excavation the following year. In 1988, two half-meter tests were excavated along the bank. Several more flakes were recovered, but no other material, and after the completion of testpits in the woods behind the bank, work on the site was discontinued.

Lilly Site (DdAo-9)

One flake was found on a long sandy beach on the southern shore of the upper pond, about 1 km west of DdAo-8. Testing failed to recover any additional material.

Road's End Site (DdAp-1)

One utilized flake was recovered from the boulder beach at the end of the poorly-maintained road which runs from the logging road down to the north shore of the upper pond. The source of this piece is unknown. If *in situ* deposits ever existed here, they have surely been destroyed: the end of this road is used extensively by cabin owners for launching boats, and has been greatly disturbed by heavy-vehicle traffic. I should note that one of the local cabin owners, Mr. George Neal of Gambo, showed me an unusual, heavily waterworn projectile point which had been found many years ago on the beach somewhere west of DdAp-1. The piece was a large, crude, side-notched point, possibly pertaining to the Beaches Complex. Unfortunately, careful exploration of this stretch of lakeshore on foot failed to reveal any additional material, either on or behind the beach.

Triton Brook-1 (DdAp-2)

This site is discussed in detail in the following section.

Dave's Rock Site (DdAp-3)

This site was actually discovered in 1988 (the only new site discovered that year). A single retouched flake was accidentally discovered along an eroding bank a few meters west of the cabin we were using that summer. Testing failed to reveal the presence of *in situ* deposits.

To summarize, eighteen find-spots have been located along Gambo Pond. The majority of these are represented only by isolated stray finds on active beaches. Seven sites, however (DeAn-1, DdAo-2, DdAo-5, DdAo-7, DdAo-8, and DdAp-2), appeared to contain *in situ* deposits, while DdAo-3 and DdAo-4 may relate to a single as-yet-undiscovered site. Five of these sites were selected for more detailed investigation the following year. Tests at DdAo-7 proved disappointing, but excavations at the other four sites did yield significant results. These are discussed in the following section.

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THE EXCAVATIONS
Four Prehistoric Sites on Gambo Pond

Excavations in the summer of 1988 focused on sampling four of the largest sites located in 1987. These excavations were undertaken in order to test each of the four principal sites sufficiently to establish the period(s) of occupation, and to recover lithic and non-lithic evidence attesting to site function and seasonality. Work was also begun at a fifth site, DdAo-7, but was abandoned when it became clear that lithic material was too scarce to warrant further efforts.

At all sites, excavation was by 1 meter square units. All excavation was by trowel, brush and digging stick. Shovels were not employed. Units were excavated by natural levels, and each level was mapped. Artifact provenience was measured to the nearest centimeter, and for each artifact, provenience recorded by level, depth below surface, horizontal location, and associated feature(s) if applicable. Flakes and calcined bone were bagged according to level and unit quadrant. Flakes were also classified by size, those less than 8 cm on their longest dimension being considered *small*, those 9-25 cm *medium*, and those over 25 cm *large*. Each site was also mapped with 30m tapes and compass, and local informants were interviewed about seasonal resource availability and any short-term local environmental changes they had witnessed. Surprisingly, few local cabin owners were aware of the existance of any archaeological resources along the lake, or knew of any instances in which artifacts had been discovered in previous years; this in spite of the fact that all of the larger sites were characterized by visible, exposed surface scatters of artifacts. The results of excavations at the major sites are summarized below.

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MARSHLANDS SITE (DeAn-1)

This site (Figure 9; Plates 10, 11) is located on a small, exposed, sandy point of land backed by marsh. Apparently the site was forested before the 1979 fire, but currently it is barren and exposed, and spruce are just beginning to recolonize the area. The point is also said to have been more prominent in the past, before the end of logging established the present pattern of seasonally-fluctuating water levels. However, if the point has been eroded, it does not appear to have seriously affected the archaeological deposits; no artifacts were detected in the face of the bank behind the beach, and only a few flakes were recovered from the beach itself.

This point is said to be a good location for fishing in summer, as fish tend to trim close to the southern shore of the lake. However, it offers equally good fishing in winter: the cove directly across the lake (the site of the stray find at DeAn-2) is one of the best-known locations for ice-fishing for smelt in winter. Two cabins stand on the point today, and when the site was discovered in 1987, lithic artifacts and debris were found exposed on the surface around one corner of the easternmost cabin, and along the sandy path leading to the other cabin. These included the basal portion of a large projectile point, intermediate in form between Beaches and Little Passage Complex styles (Plate 12).

The size of the site was originally thought to be as great as 400m^2. Work conducted at the site in 1988 revised this estimate downward, and suggested that the extent of the *in situ* deposit on the site is rather more restricted than the surface remains would suggest. Recent human activities around the two cabins have either deflated portions of the site, or extended the area of surface scatter, or both. It now appears that the deposits occupy no more than 80m^2, of which 60m^2 at most are undisturbed. The northwest corner of the eastern cabin was established as a datum point, and a baseline shot west from there.

Not counting shoveltests conducted to establish the size of the site, 5.5m^2 were excavated at DeAn-1, roughly 9% of the estimated subsurface deposits. The two eastern units revealed disturbed deposits, but in the units to the west the stratigraphy (Figure 10) was fairly clear and simple, if shallow. Three principal strata were identified. First, a dry, crumbly, sod and peat moss layer some 2-4 cm thick, interspersed with

occasional thin lenses of windblown sand (Level 1). This upper level did yield some flakes and artifacts. Beneath this lay a cultural layer some 2-6 cm thick (Level 2). This consisted of a coarse, pebbly sand, deep gray in colour due to organic enrichment, with flecks of charcoal and some firecracked rock. This level produced the majority of the flakes and artifacts. In addition, this level contained small lenses of buried peat and sod, and it seems likely that at the time of occupation, the site was situated on a partly-consolidated sandbar, with an as-yet poorly-developed peat layer. This cultural layer was itself underlain by a pale, whitish-yellow sand (Level 3), devoid of flakes and artifacts, and lacking any organic admixture, though again marked by occasional small lenses of buried sod. No bone was preserved, and no features or structural patterns could be discerned in the scatter of stones and firecracked rock in the small area excavated.

Including the pieces collected in 1987, 35 artifacts were recovered (Table 2); these constitute a fairly neat, representative sample of diagnostic Little Passage Complex artifacts (Plate 13). Four complete and fragmentary projectile points were found, including two fine triangular flake point fragments (stems missing), one irregular stemmed flake point of patinated chert, and the larger, narrow-bladed bifacial point base recovered in 1987 (Plates 12, 13a-c). The first three appear to date to the latter portion of the Little Passage stylistic continuum, the last appears almost a transitional Beaches/Little Passage form. Other bifaces include a small classic triangular biface, and an unusual, slightly waisted ovate biface of patinated chert, as well as a thick chopping tool, seemingly formed from an exhausted flake core. More common were flake scrapers, fashioned from fine, vitreous, green, brown, black and white cherts, generally triangular, or near triangular in outline. In addition, a large, heavy sidescraper was found on the surface, one meter south of the excavated area. As is often the case on Recent Indian sites, linear, or "bladelike" flakes were also common. Three abrader fragments and three iron pyrite nodules were also recovered.

In the flake collection (n=1445), small sizes predominate (n=873), with medium-sized pieces less common (n=568) and large flakes quite rare (n=4). The dominant raw material is a mottled blue and gray rhyolite. This closely resembles materials common at the Beaches Site (Carignan 1975: 43-44), and may originate at the vast quarry site recently discovered at Bloody Bay Cove (MacLean 1990). Patinated specimens, possibly of the same material, are also common. Less common are flakes of fine, vitreous cherts.

One large flake of Ramah chalcedony was identified, this coming from the surface near the western cabin.

Raw material distribution is similar for the artifacts, most being patinated, or fashioned from mottled rhyolite. Interestingly, the scrapers differ, being manufactured mostly from fine, vitreous cherts in a variety of colours. Though the sample is small, there appears to have been a clear preference for these finer materials for scraper manufacture, though the vitreous sheen of some of the pieces may have been enhanced by heat treatment.

The lack of structural remains makes this seem a transitional campsite, and this may be the case. However, even in the small sample of projectile points, the range of stylistic variation is high, ranging from the large bifacial specimen, through the well-made triangular flake points, to the crude, irregular stemmed flakepoint. This suggests a series of occupations, spanning at least the latter (Little Passage) portion of the Recent Indian period (Schwarz 1984).

PARSONS BROOK-1 SITE (DdAo-2)

This site lies on the western edge of the mouth of Parsons Brook, which flows into Gambo Pond halfway along its southern shore. From Parsons Brook west to the strait, a distance of some 2 km, cribworks abandoned after the cessation of logging operations lurk just beneath the surface of the lake, and for anyone travelling up the pond today, it is here that boating starts to become hazardous.

In this area, stretches of open bog run along both shores of the lake. From the site itself, a large sandbar extends out into the lake, forming the most obvious constriction of the lake east of the strait (Plate 14). This area is therefore a potentially strong candidate for a caribou crossing point. Caribou are not known to use it today, but if their migratory behaviour was more extensive in the past, this would have been a prime location from which to intercept herds crossing the lake. Parsons Brook itself drains Parsons Pond, a small pond lying only 2 km south of Gambo Pond (though about 75m above it). For the first kilometer or so, Parsons Brook descends rapidly in a series of cascades and rocky pools, then at its lower reaches, meanders

across the bog to debouch into Gambo Pond. Parsons Brook was apparently extremely rich in salmon until quite recently, and these were easy to catch in the rocky pools. Now, however, poaching has reduced the stocks considerably. The Parsons Brook area would therefore have offered both rich aquatic resources, and potentially, access to caribou during the migration phase.

The site itself (Figure 11) occupies two discrete areas on the western shore of the mouth of the brook. These yielded very different remains, and were designated Area A and Area B.

Area A:

Area A (Plate 15) consists of a stretch of cobble beach and seasonally-exposed riverbed *ca.* 24 x 4 meters, lying a short distance upstream from the mouth of the brook. For obvious reasons, this area was not excavated, but a surface collection of 27 artifacts was recovered in 1987 and 1988 (Table 2, Plates 16-18). Most consist of large ovate or lanceolate biface fragments, large bladelike flakes, and retouched flakes. These were fashioned from a variety of mottled cherts of various colours. Many are tan, yellow, or brown in colour, but some of this may be discoloration resulting from their post-depositional history (lying on an active riverbed). Many, though not all, show signs of waterwear. Though most are not exactly diagnostic, and could pertain to the heavy tool industries of any or all of the phases of Newfoundland prehistory, some of the bifaces, and the large blades in particular, most closely resemble Maritime Archaic pieces reported by Carignan (1975) and Austin (1984) from sites in Bonavista Bay. The source of these pieces is uncertain. The uniformly large size of the artifacts argues for some measure of erosional sorting, but their size and concentration in a limited area mitigates against any distant source for these cultural materials. In any case, a brief sortie along Parsons Brook, and testing on the sandbar behind the beach, failed to locate any source for the pieces. This would appear to be a completely deflated Maritime Archaic component, probably located on, or very near, the site of primary deposition, but with all of the deposit matrix, and smaller lithic pieces, if any, removed by river action or rafting ice.

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Area B:

Area B lies to the north of Area A, near the tip of the point on the western side of the mouth of Parsons Brook (Plates 19, 20). Here, the sandbar at the mouth of the brook has been colonized by shrubs, bushes and trees. The sandbar has therefore been consolidated somewhat, and is presently capped in many places by sod. This point of land was also touched by the great forest fire that swept along the southern shore of the pond in 1979. Although some trees survived, and are still standing, the fire did destroy a DFO cabin which once stood on the site. It was this vegetated, consolidated portion of the sandbar which was designated Area B and excavated in 1988.

In all, 4.5m^2 were completely excavated at the site. Another half-meter unit was opened up, but not completely excavated due to time constraints. The first two units excavated. 5 m apart, on the eastern and western edges of the excavated area, presented complex, disturbed stratigraphy, consisting of many irregular sand and sod lenses, along with clearly mixed layers. These contained some lithic artifacts and flakes, and a great deal of melted glass, wire nails, and bottlecaps, some of these latter found at considerable depth. These units appear to have been extensively-disturbed by the use and eventual destruction of the DFO cabin, which appears to have stood squarely on the area designated Area B. The central units, however, had escaped disturbance (it is not certain why; perhaps this area lay betwen the cabin's foundation piles). These units preserved a natural stratigraphy (Figure 12) in which sand and sod lenses (Level 1) overlay a fairly continuous blanket of buried sod (Level 2). Beneath this lay a dark gray, organically-enriched sand (Level 3), up to 10 cm thick in places, though usually no more than 5-6 cm thick. In one unit, this overlay a lens of very fine white sand with flakes (Level 4). This in turn overlay a pale whitish-gray clay and gravel layer (Level 5). Flakes and artifacts were most common in the dark gray cultural layer, but were also recovered from the overlying sand and sod lenses, and even from the upper few centimeters of the basal leached clay/gravel.

The stratigraphy suggests that from its initial human occupation, the site may have consisted of a partly-consolidated sandbar. This very occupation, though, and its associated organic enrichment of the soil, may have accelerated the process of consolidation, for the enriched cultural layer is capped by a buried sod

layer. Once colonized and consolidated by vegetation, soil build-up was accelerated, partly due to the decay of organic growth, and partly, perhaps, as the vegetation attracted and trapped sediments of alluvial and aeolian origin, resulting in the sequence of sod and sand lenses overlying the buried sod.

Clearly, this is an extensively-disturbed site, and no comprehensible features were identified. It is worth noting that the experience of Parsons Brook suggests that the impact of cabin construction on interior archaeological sites may vary. Most cabin construction and use does disturb archaeological deposits if activities occur directly on top of these deposits. However, the disturbance caused by private cabins may be fairly minimal, as long as the foundations are insubstantial, and landscaping limited. Cabin construction for government use, however, such as that which occurred at Parsons Brook, may be uniformly destructive, as these structures, though small, often appear to be more permanent, and to have more substantial foundations. Government cabins in particular may be expected to have a severe impact on archaeological deposits.

While features and structural remains were lacking at Parsons Brook-1 (Area B), the artifact assemblage was distinctive and interesting in itself. The 19 artifacts recovered (Table 2, Plate 21) include two low-sidenotched biface bases, one with a single grinding facet (Plate 21b). These might represent endblade bases, but they more closely resemble BLT or bifacial knife bases from Groswater sites in Newfoundland (Auger 1985) and Labrador (Loring and Cox 1986: Figs. 11, 13). Also recovered was the distal portion of a chipped and ground burin-like-tool, and a leaf-shaped uniface that may have served as a large inset sideblade. Several scrapers were recovered, most being very small, asymmetric triangular thumbnail scrapers, and two unifacially-retouched pieces which may be proximal scraper fragments (Plate 21j, k). Of the three microblades found, two were single-arris specimens of patinated chert, and one a double-arris quartz crystal microblade. A motley collection of bifaces rounds out the collection; these include an unusual shallow-notched example of patinated chert, a crude serrated biface with plano-convex longitudinal cross-section which may have been a biface preform, and the base of a broad, thin, concave-based biface. While these last

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two were fashioned of light gray rhyolite, the remainder were primarily made on a variety of fine tan, brown and gray cherts. Both the artifacts, and the raw materials used, point to a Groswater (Early Palaeo-Eskimo) affiliation for this assemblage.

BURNT CABIN SITE (DdAo-8)

This site is located in a grove of aspen and birch, on a small, boulder-fronted point of land backed by steep, forested slopes. The point itself, known locally as "Apsy Point", projects from the southern shore of the pond; though the point itself is rocky, it is flanked by two small sandy coves ideal for landing boats (Plates 22-23). Apsy Point lies due south of, and directly across the pond from, the conspicuous rocky promontory known locally as "Big Head" (Plate 24). Interestingly, a small (*ca.* 50 animals) band of caribou is said to use the stretch of water between the two points as a crossing point in the autumn. Most caribou in the region are fairly sedentary, but this may be a result of road and rail construction, and the small migratory band may preserve a migratory pattern once involving many more animals.

The site itself (Figure 13) occupies the center of the point, in the lee of an overgrown rocky hummock. It lies at about 3m above lake level, making it the highest site located on the lake (the others all lie less than a meter above the high water mark). The point contains the remains of two cabins: one a rectangular area of scorched debris, discolored soil, and a few *in situ* beams, with quantities of metal, glass, and ceramic debris. The other cabin still stands, but is dilapidated and clearly abandoned. When the site was first discovered in 1987, lithic cultural material was observed in a pair of treefalls near the hummock, and also in the debris of the burnt cabin some 15 meters to the south. This suggested a site of some considerable size, and accordingly our attention in 1988 was directed at both areas. A datum point was established 5.25m due north of the center of the ruined cabin, and a baseline run to the north. One unit excavated in the burnt cabin area was sufficient to establish that this area was extensively disturbed, with no stratified deposits. Although iron nails, glass, and recent ceramics were encountered, there were few flakes, and *in situ*

subsurface deposits therefore seemed to be restricted to the area around the treefalls. Shovel-testing in the area around, and to the north of, the burnt cabin confirmed this, and subsequent excavation concentrated on the area near the treefalls. 1m^2 was excavated north of the treefalls, and the remaining 7.5m^2 excavated formed a single continuous area immediately south of the treefalls and east of the hummock.

Stratigraphy in the burnt cabin unit was complicated by signs of extensive disturbance, but in the remaining units, stratigraphy (Figure 14) was fairly straightforward. Below 4-5 cm of leaf litter and humus (Level 1), a dense charcoal layer was encountered in most units (Level 2). This layer was continuous in some units, patchy in others, and varied between 0.5 cm and 1.5 cm thick. A few flakes were intermixed with the charcoal, but is assumed that this dense charcoal layer reflects a forest fire event, rather than cultural activity *per se*, as it is comparable in density and texture to natural burn layers noted in treefall sections elsewhere along the lake. Though the humus and charcoal were largely devoid of lithic artifacts, they did yield some historic artifacts, including several fragments of a nineteenth-century clay pipe bowl. This may relate to the beginning of commercial logging operations on the lake in the 1880s. Beneath the charcoal layer lay a dark gray organic-enriched sand (Level 3) some 3-6 cm thick, with firecracked rock, flecks of charcoal, and black organic stains. This layer also yielded the majority of the lithic artifacts and flakes. This was underlain in places by bedrock, and elsewhere by a pale, whitish-gray leached horizon (Level 4), pebbly in consistency and lacking any organic admixture. This level was largely sterile, except in one small area, where a small black organic lens 35x55 cm, containing flakes, was found well within the sterile layer, 18 cm below the surface.

The artifact density was fairly low at this site, with only 27 lithic artifacts recovered from the area excavated (Table 2, Plate 25). As at the Marshlands Site, though, these form a neatly diagnostic assemblage of Little Passage Complex tools. The one complete projectile point is a small, well-made, bifacially-retouched specimen with straight shoulders and stem, suggesting the middle of the Little Passage chronological-stylistic continuum (Schwarz 1984). Other bifaces include two small tip fragments, one probably from a projectile point (Plate 25b), and a portion of a classic triangular biface. A basal portion of a heavy chopping tool or biface preform rounds out the biface series. As at the Marshlands Site, scrapers are fairly common. Most are small, irregular flake scraper fragments. Triangular forms are absent, but two are fairly large and well-

formed (Plate 25f, g): one of these (Plate 25g) is a shaped ovate turtleback form. Linear flakes were common in the assemblage, and retouched and utilized flakes were recovered, as well as one abrader fragment. As at the Marshlands site, lithic debris consisted primarily of small (n=500) and medium-sized (n=476) flakes, with large pieces relatively rare (n=10). Mottled rhyolites predominate, with many patinated, some of finer cherts, and one small flake of Ramah chalcedony. The same rhyolite dominates the artifact assemblage. In the case of the scrapers, while the larger pieces were of gray rhyolite (Plate 25f) and black basalt (Plate 25g), the smaller flake scrapers were primarily of fine-grained cherts.

Although no substantial structural remains were encountered, the site did yield several interesting features, in, and in one case below, the cultural layer.

Feature 1

This was a diffuse cluster of rock and firecracked rock with patches of charcoal in a shallow depression (Figure 15; Plate 26). Although it is a loose scatter, it is distinct because it is surrounded by a relatively clear area with few flakes or firecracked rock fragments. The charcoal deemed likely to be associated with Feature 1 was that found within, rather than above, the cultural layer. These patches are almost certainly contaminated with charcoal from the overlying burn layer, but in all cases, at least a thin layer of gray cultural deposit intervened between the burn layer and the charcoal lenses shown in Figure 15, enabling them to be distinguished as predating the burn layer. Feature 1 is interpreted as a hearth feature which has suffered some post-depositional dispersal.

Feature 2

This is a thin (1.0-1.5 cm thick), elongated lens of fine, rich, organic-stained soil with flecks of charcoal and small fragments of calcined bone. The soil in this lens is both finer and darker than that found in the surrounding cultural layer (Figure 15). The width of this lens approaches 50-75 cm. Its length is more difficult to determine, since part of the lens appears to have been disturbed by one of the treefalls. Certainly, 1.5m of Feature 2 was exposed in the main excavated block. Excavation of a single unit 2m north of Feature

2 revealed deposits partially disturbed by the treefalls, but also a small black lens in the southwest corner of the unit. This lens was of comparable character to Feature 2, and lay at approximately the same depth (11-12 cm below the surface). The intervening treefall disturbance makes it impossible to determine if the two lenses were once connected, but if they were, then Feature 2 would be approximately 3.5m long. Feature 2 is interpreted as a thin midden deposit.

Feature 3

This is a small, triangular lens of fine, rich, black soil similar to Feature 2 and possibly related to it (the two lie at the same depth, and only about 50 cm apart).

Feature 4

This is a small (35x55cm) lens of fine, rich, black soil, with flakes, located beneath the southern end of Feature 2. Feature 4 lay several centimeters below Feature 2, well within the otherwise sterile pale gray podsol. In addition to flakes, Feature 4 produced one biface midsection, probably from a projectile point. It is unfortunate that this piece was small and non-diagnostic, as the precise dating of the early Feature 4, and its relationship with the later remains found in the overlying cultural layer therefore remains a mystery.

Figure 15 shows the distribution of features in the continuous excavated area. Not shown is the unit excavated 2m to the north on the other side of the treefalls, which revealed the possible northern edge of Feature 2. Also not shown is Feature 4, which lay beneath the southern end of Feature 2. It is worth noting that the distribution of flakes across this area is not random. Few flakes were recovered from the four western units, while the majority of the debitage came from the eastern units, particularly the southeasternmost unit excavated (Figure 16).

Although no obvious structural features, such as mounded walls, postmoulds, or a tent-ring were encountered during excavation, the distribution of remains suggests that a dwelling structure did stand on the site, in the lee of the rocky hummock to the west. This is indicated by the small hearth, surrounded by a

cleared area sparse in rocks and flaking debitage. Beyond this area, to the east, lies a concentration of rocks, with domestic and stoneworking debris which presumably lay outside the structure. If the hearth and midden lenses are related, the presence of bounded midden deposits in addition to the diffuse organic enrichment characterized by the cultural layer, suggests that however ephemeral the structure itself may have been, refuse deposition was structured, and the occupation was perhaps a prolonged one (we would not expect a temporary overnight camp to produce designated refuse areas). The artifact assemblage contains a fairly representative sample of the Little Passage toolkit, with most functional types represented. This is consistent with the diversity of activities we would expect for a prolonged residential occupation. Thus, though the artifact density is low, we might suggest that the site represents one or a few fairly intensive occupations, rather than a number of transitory ones. I would suggest this is true for most of the site, represented by the features and artifacts found in the cultural layer. Feature 4, of course, must represent an earlier occupation of unknown extent. The small biface midsection from Feature 4 appears to be of Recent Indian manufacture, but nothing more can be said about this. In sum, I would suggest that the bulk of the material from DdAo-8 reflects one, or a very few, occupations occurring probably sometime in the middle of the Little Passage period. The occupation(s) probably involved a light structure of some sort, with a central hearth and cleared sleeping areas, and the duration of settlement was sufficient to lead to spatially-defined refuse deposits.

TRITON BROOK-1 SITE (DdAp-2)

This site appears to be the largest of the prehistoric sites on Gambo Pond, and it is also the furthest from the sea. It lies near the western end of the pond, about 30 km from the coast, on a sandy point of land at the northern edge of the Triton Brook delta (Plate 27). This location is a potential caribou crossing. In addition, it lies between the mouths of the two principal brooks feeding into the upper pond, Triton Brook and Riverhead Brook. Today, Triton Brook is casually fished for trout, but is not regarded as a major fishing stream; this situation may or may not have obtained aboriginally. Riverhead Brook, however, is known for its

runs of sea trout in the summer. On the northern shore of the pond, about half a kilometer from the mouth of Riverhead Brook, a small stream cascades down steep, wooded slopes to debouch into Gambo Pond. This stream is today prized as the best source of drinking water along the pond. Whether this stream was utilized prehistorically is uncertain; Gambo Pond itself is an abundant freshwater source, and no site along the pond is far from drinking water, however, today few people drink pondwater if they can avoid it, as it has a mildly unpleasant taste, even when used to brew tea.

The Triton Brook-1 site itself (Figure 17) lies on and near the site of one of the oldest cabins on the lake. Cultural materials are sparsely distributed on the beach around the point, along the cove to the west and the sandy shore to the south but testing indicated that subsurface remains were restricted to the area around, and south of, the cabin itself, with *in situ* deposits limited to the latter area.

Tom Curran, the cabin owner, stated that wigwams once stood on the site, though it is uncertain whether these were Micmac structures or older, and in any case, no signs are visible today. Younger relatives report that their parents occasionally found arrowheads around the point. What is almost certain is that the extent of deposits today does not reflect the full extent of archaeological remains once existing on the site. Tom Curran notes that the point has eroded considerably over the last thirty years or so. Where once his cabin lay sheltered in woods well within the point, now only a thin screen of trees stands between the cabin and the lakeshore to the east, and the cabin itself is often flooded in spring.

It is worth noting too that the site lies on the edge of an active delta. Near its mouth, Triton Brook changes course once every generation or so, and indeed the low-lying ground behind the point appears to represent a relict river channel. At any one time, the delta offers a number of suitable campsites. It may be that however extensive the deposits around the point may once have been, even these are only the surviving margins of a whole series of shifting rivermouth camps scattered around the delta but periodically buried in alluvium or washed away by the shifting rivercourse.

When this site was first discovered in 1987, flakes were observed on the northern beach, some 100m west of Tom Curran's cabin. Testing behind the beach here failed to locate any *in situ* deposits. Exploration around the point led us to the area south of Tom Curran's cabin, where stood a new outhouse. Near the old

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outhouse, a garbage pit had been dug to a depth of over one meter, and the backdirt from the pit produced a single patinated Little Passage point. In 1988, it was discovered that the western area, where flakes had first been found, was now the site of a new cabin, still under construction. Work had exposed one flake on the surface, but testing still failed to locate *in situ* deposits. As a result, we decided to concentrate our efforts further east. One unit was excavated near the garbage pit seen in 1987. This unit yielded only a few flakes, and had clearly been disturbed. One half-meter unit was also excavated north and east of Tom Curran's cabin. This yielded some flakes and a Little Passage point base, but soil deposits were unstratified and probably disturbed, so no further units were excavated here. Otherwise, excavation concentrated on the area in front of the old outhouse (Figure 17, Plate 28). $5m^2$ were excavated in this area.

General stratigraphy (Figure 18, Plate 29) in these units was fairly simple. Beneath the sod and humus (Level 1), a coarse deposit of fresh-looking beach sand and gravel (Level 2) yielded some flakes and artifacts, a few showing signs of water wear. Beneath this, a thin (1 cm) but dense layer of moist, flaky compacted buried sod (Level 3) was sterile. Underlying this was a dark gray organically-enriched pebbly deposit (Level 4), which yielded the vast majority of the flakes and artifacts. This cultural layer was relatively thick (often reaching 10 cm). This was underlain by a pale gray clay (level 5) which was largely sterile, but which did yield a few artifacts in the upper few centimeters, as well as some flat slabs of schist. It would appear that extensive human occupation of the site led to considerable soil enrichment and colonization by vegetation. After the occupation(s) ended, this stabilized surface saw a period of peat formation, after which, and possibly fairly recently, a secondary deposit of beach sand and gravel, containing some artifacts eroded from the original deposits, was dumped over the whole area. Finally, recolonization by vegetation led to the formation of the modern sod and humus layer.

However, in places a few additional features do complicate the stratigraphy somewhat (Figure 19).

Feature 1:

Feature 1 consists of a rich, black, organically-enriched deposit rich in flakes and in small flecks of calcined bone. This lens is only 4-5 cm thick in most places, but it rests upon a raised hummock of gray clay

(Level 5), so it projects through the cultural layer (Level 4) and buried peat (Level 3) into the sand and gravel layer (Level 2). Well-preserved fragments of beaver bone, along with a small cartridge case were recovered from the top of Feature 1, and these are presumed to be of recent vintage, but the base of the feature rests on sterile gray clay, and Feature 1 therefore appears to be broadly contemporary with Level 4. The character of the deposit, with its wealth of calcined bone and paucity of charcoal and large firecracked rocks, all suggest that this lens is a midden feature.

Feature 2:

This deposit of fine black organic soil (Figures 18, 19, Plate 29) lacks charcoal or bone fragments, but is rich in flakes , as well as rock and firecracked rock fragments. Feature 2 immediately underlies the cultural layer and therefore predates it, but likely relates to the same broad component. Feature 2 occupies a depression 15 cm deep in the underlying gray clay, and appears to be a small midden deposit in a shallow depression or pit.

Feature 3:

Feature 3 is a fine black organically-enriched deposit similar in texture to Feature 1. It too overlies the gray clay and extends into the cultural layer. It occupies a small crook in a root-disturbed area, and doubtless has itself been disturbed by root action.

These various features attest to structured settlement activities of some sort at the Triton Brook-1 site. The precise nature of these activities is uncertain, as to some extent are the cultural affiliations.

It is likely that few if any features attest to the small Palaeo-Eskimo component (see below) at the site. The few small schist slabs encountered in the gray clay evoke Palaoe-Eskimo paved structures like that at Stock Cove, Trinity Bay (Robbins 1982), but at Triton Brook-1, these are not present in any great number or any discernable pattern. The more conspicuous irregularities in the surface of the sterile gray clay (the mound beneath Feature 1 and the pit occupied by Feature 2) might relate to the Palaeo-Eskimo occupation;

of course, they could be natural features as well, though since each is associated with a feature of clearly cultural origin, this is perhaps unlikely.

The midden features (1, 2 and 3) predate the occupation of Level 4, but I would argue that these relate to the same broad Recent Indian cultural component. The artifacts and lithic debris recovered from these features are comparable with those from Level 4, and the quantity of calcined bone fragments from features 1 and 3 are more suggestive of Recent Indian than Palaeo-Eskimo midden features. By extension, it is likely that the above-mentioned irregularities in the surface of the gray clay also relate to the beginning of the Recent Indian occupation, rather than to the earlier Palaeo-Eskimo component.

The mound, pit, and midden features are all suggestive of substantial structural remains, but the small extent of the area excavated does not allow us to identify or describe structural remains with any certainty. On this part of the site, erosion to the east and modern construction (the privy) to the west mean that we are unlikely to recover any clearer picture of the distribution and nature of features, but the potential for excavating large contiguous areas does exist elsewhere on the site.

Triton Brook-1 yielded, without question, the highest artifact density found on any Gambo Pond site. Although only 6.5m^2 were excavated, a total of 95 lithic artifacts (Table 2, Plates 30-33) were recovered. The vast majority came from the area in front of the old outhouse, with the following exceptions: one slightly waterworn triangular biface (Plate 30l) came from the beach west of Tom Curran's cabin, one large waterworn utilized flake from the beach near the tip of the sandy point (Plate 32r), one waterworn triangular endblade from the beach east of the old outhouse (Plate 30g), and one chert microblade, not worn, from the beach east of Tom Curran's cabin (Plate 32f). In addition, one Little Passage point was found in the garbage pit backdirt in 1987, and another in the half-meter unit excavated northwest of Tom Curran's cabin. Virtually all of the remaining artifacts were recovered from the main excavated area; most come from the Level 4, and appear to pertain to the Recent Indian period (Table 2).

Bifaces include seven Little Passage points, including thick, bifacially-retouched examples, one thin finely-made specimen with drooping shoulders, one narrow corner-notched type and one thin, unifacially-retouched basally-notched point. Also recovered were triangular bifaces of classic type, a number of more

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elongated (almost lanceolate) triangular bifaces, assorted tip and base fragments, two heavy choppers or preforms, and two bifaces of uncertain function: one rectangular in form, the other irregular. Three bifaces were of undetermined cultural affiliation: one thin, waisted base (Plate 30h), one thin biface midsection of fine gray chert (Plate 30i), and finally, a basal corner fragment of an unusual waisted biface of heat-treated Ramah chalcedony (Plate 30j).

In addition, there are three possible projectile point preforms. One (Plate 32k) is simply a tiny, thin, unnotched flake fashioned into a pointed triangle with edge retouch. A second is similar, but sports a single notch (Plate 32j). The third is a large, thin flake, apparently broken longitudinally, with edge retouch along the blade edge and a formed shoulder or shallow notch (Plate 32l). While the first two examples are well on their way to becoming crude flake points of the type associated with the end of the Little Passage Complex, the last appears to be a preform fragment for a projectile point of Beaches Complex type. Various retouched, utilized, and bladelike flakes are also encountered in the assemblage. The wide variation evident in the projectile points and projectile point preforms suggests a series of occupations at the site which spans the period of the Little Passage Complex, and which may commence in the period of the preceding Beaches Complex.

By far the most common artifacts, though, are the scrapers. These take a variety of forms, including very thin flake scrapers (e.g. Plate 31a-f), and thick trapezoidal or triangular forms (e.g. Plate 31n-s). One double-ended specimen has steep lateral retouch on the ventral surface at one end, and on the dorsal surface at the other (Plate 31bb). Also found were heavier forms, some quite well-made, including one ovate turtleback type (Plate 31z).

While most of the artifacts probably or definitely pertain to the Recent Indian period, five Dorset (Late Palaeo-Eskimo) artifacts were also recovered. These include one triangular endblade from the beach (Plate 30g), one microblade, also from the beach, and two patinated microblades (Plate 32d, e) and a scraper (Plate 31w) from the top few centimeters of the otherwise sterile gray clay. The microblades are definitely Palaeo-Eskimo. The scraper, though not diagnostic, is assigned to the small Palaeo-Eskimo component at the

site because of its distinctive raw material (fine white chert), and because of its provenience in the same level as the microblades.

For the Recent Indian component, raw materials found at the site include the mottled rhyolites found on Recent Indian sites elsewhere on the lake. Rhyolite or patinated materials constitute the primary material used for the manufacture of bifaces, blanks/preforms, linear flakes, retouched flakes, and utilized flakes. Materials used to fashion projectile points are more diverse, and also include fine green and brown cherts, and basalt. Once again, it is the scrapers that are most divergent. While some of the larger forms are of mottled rhyolite (e.g. Plate 31x, y, aa, cc) and basalt (Plate 31z), the remainder, including all of the thin flake scrapers, arc of diferent materials: principally fine, vitreous green and blue cherts, and one of a grainy, bright red material, sometimes referred to as jasper (Plate 31t). This last material shows up in small quantities as debitage in coastal Recent Indian sites like Boyd's Cove, and is quite common in the Newfoundland Museum's collection of artifacts recovered by Don Locke from the Indian Point site on Red Indian Lake.

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DISCUSSION
Interior Settlement and Newfoundland Prehistory

GAMBO POND CULTURE HISTORY

To summarize, of the eighteen find-spots located during the survey of Gambo Pond, four were sampled more extensively by excavation. These excavations yielded evidence for six different components, indicating that Gambo Pond was occupied during all four of the major phases of Newfoundland prehistory. The Maritime Archaic period is represented by the deflated component at Parsons Brook-1 (Area A), and Groswater by the buried component at Parsons Brook-1 (Area B). Dorset is represented by a very small component at Triton Brook-1, and finally, the Recent Indian period is well-represented by components at three different sites: the small assemblage at the Burnt Cabin Site, the larger Marshlands Site assemblage, and the large component at Triton Brook-1. Most of this Recent Indian material pertains to the Little Passage Complex; while the Burnt Cabin Site yielded only one complete Little Passage point, the assemblages from Marshlands and Triton Brook-1 include several each. The range of stylistic variation in the points recovered from these latter two sites suggests that each was occupied repeatedly through the Little Passage period. Moreover, there is evidence too that Gambo Pond was occupied during the preceding Beaches Complex of the Recent Indian period. This evidence is limited, and consists in the crude, Beaches-like projectile point discovered by George Neal on the lakeshore north of Triton Brook-1 and the possible Beaches point preform recovered from Triton Brook-1 itself. Historic Beothuk remains were not encountered at all on Gambo Pond.

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Thus, Gambo Pond was occupied throughout Newfoundland prehistory, but most intensively during the Recent Indian period, and in particular during the late prehistoric (Little Passage) phase of that period. For this period at least, it may be argued that the evidence for repeated occupation indicates that settlement on Gambo Pond was not a sporadic occurrence, but rather, was firmly-integrated into a marine-terrestrial subsistence-settlement system. It will be argued below that in this respect, the archaeological remains recovered on Gambo Pond may prove typical of prehistoric remains on near-coastal lakes and rivers in Newfoundland.

SETTLEMENT AND SUBSISTENCE ON GAMBO POND

Obviously, in the absence of meaningful faunal assemblages, it is difficult to draw precise inferences regarding site function, seasonality, and subsistence. For this, we are required to draw on more general, less precise indicators: in this case, settlement patterns and artifact assemblages.

Settlement Patterns

It is possible, and sometimes profitable, to distinguish *macrolocational* attributes (site locations relative to broad regional resource zones and boundaries) and *microlocational* attributes (the immediate topographic and environmental setting of archaeological sites) when considering archaeological settlement patterns. The sample of Gambo Pond sites of known cultural affiliation numbers only four, a rather small sample for tracing either microlocational or macrolocational patterns. Nevertheless, we may at least note the locational attributes of components for each period.

Considering macrolocational attributes first, all four sites may be considered to lie within the same zone: the near-coastal interior. All sites lie along a narrow, near-coastal lake. All lie more than 10 km from the sea, and therefore seem located primarily to offer immediate access to terrestrial and/or aquatic resources. Because Gambo Pond offers excellent access between the coast and the deep interior, these sites

also offer indirect access to the resources of both the coast and the deep interior. In particular, since none of the sites lie more than 30 km from the sea, all four would offer indirect access, by means of satellite camps, to the marine resources of the inner coastal zone of Freshwater Bay. In other words, the Gambo Pond sites lie along a transportation corridor, near the Boreal Forest/marine ecotone, in settings offering immediate access to terrestrial and aquatic resources, but overnight hunting expeditions would also bring marine resources within reach.

Turning to microlocational attributes, the Maritime Archaic component at Parsons Brook-1 (Area A) is located near a prime summer fishing stream, and also near a conspicuous point of land with high potential as a spring or autumn caribou crossing. This applies equally to the Groswater component at Parsons Brook-1 (Area B). The Dorset component at Triton Brook-1 (DdAp-2) also lies near important summer fishing areas, and also lies on a point of land with potential as a location for intercepting caribou. For the Recent Indian Period, Marshlands (DeAn-1) lies on a point of land that may have served as a caribou crossing, and is located near a prime winter fishing area. Burnt Cabin (DdAo-8) is not located in a noted fishing location but does lie at a known caribou crossing. Finally, Triton Brook-1 offered Recent Indian inhabitants, as well as its earlier Dorset occupants, good opportunities for both summer fishing and spring or autumn caribou hunting.

It should be noted that all of these sites lie on the southern shore of the pond. This means, first, that all sites offer some access to fish in summer, as these are said to trim along the southern shore of the pond, and second, that if the sites were oriented toward caribou hunting, they are more appropriate for intercepting the herds in autumn than in the spring. South shore locations offer good views of the northern shore, where animals moving inland from the northeast in autumn would appear. In addition, southward-moving animals would be less likely to be deflected or deterred by human presence on the southern shore. Apart from fish and caribou, the principal likely prey species for hunter-gatherers stationed along the lake would be various terrestrial mammals, such as small game, beaver and bear. These would be available in all seasons, but since they would be dispersed across the landscape, rather than predictably aggregated seasonally, these would be less likely to influence settlement location.

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In summary, site location is an ambiguous indicator of site function and seasonality. All sites offer some access to fish in summer or winter, caribou in spring and (most likely) autumn, and other terrestrial game all year-round. The only significant difference we might note between phases is that both Palaeo-Eskimo sites are located near good summer fishing grounds, whereas only one of the Recent Indian sites is found in such a location. Thus, while Palaeo-Eskimo settlement may be oriented toward either summer fishing or autumn caribou hunting, or both, we may tentatively suggest that summer fishing was not an important attraction for Recent Indian settlement in the area.

Artifact Assemblages

With regard to the Maritime Archaic component at Parsons Brook-1 (Area A), the artifact assemblage does not really allow us to draw any significant inferences. The absence of projectile points and scrapers suggests that fishing, rather than hunting, may have been the principal subsistence activity at the site. Certainly, some of the broad, flat bifaces may have been effective for cleaning fish. However, it is important to stress that projectile points and scrapers are often rare on Maritime Archaic sites in Newfoundland. Moreover, the assemblage has almost certainly been subjected to some erosional sorting, with the smaller pieces removed by alluvial action. This alone might account for the lack of projectile points and scrapers in the assemblage. If so, it should not be surprising that the remaining assemblage - large retouched flakes and bifaces - seems a functionally rather generic one.

The Groswater component at this site produced only a small sample of artifacts. The assemblage differs from coastal Groswater components (e.g. Factory Cove: Auger 1985) in its lack of high-sidenotched endblades, and also in lacking large, well-formed, trapezoidal, flared, or triangular endscrapers (those from Parsons Brook-1 Area B being primarily small, asymmetric triangular flake scrapers). These may reflect functional differences associated with interior site location, or may simply reflect the small sample size recovered. As for the Dorset period, the sample of five pieces from Triton Brook-1 is simply too small to permit any meaningful interpretation whatsoever.

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The Recent Indian period, in contrast, is represented by three components, one of which produced a lithic assemblage of repectable size. These components do present us with meaningful patterning potentially reflective of site seasonality and function. First, we may note in a general way that all three components yielded a fairly representative range of artifacts from the Recent Indian toolkit. All major lithic artifact types are represented, including projectile points, triangular bifaces, scrapers, linear flakes, retouched flakes, and utilized flakes, preforms, blanks and abraders. These artifacts reflect the full range of domestic subsistence-related, tool-manufacturing, and food-processing activities we would expect of dwelling sites, and indeed, the range of tool types duplicates in full that found on coastal dwelling sites of the Recent Indian period, such as Boyd's Cove (Pastore 1985). I would suggest that all three represent residential sites rather than functionally more-specific activity areas, such as kill-sites or look-outs. The distributional evidence for a campsite at Burnt Cabin, and the hints of structural remains at Triton Brook-1 appear to bear this out.

Beyond this, the principal distinguishing characteristic of the Recent Indian artifact assemblages from Gambo Pond (Table 3) is the high frequency of scrapers in all assemblages (>30% of the totals), in comparison with the frequencies normally found at coastal Recent Indian sites (<10%). This is accompanied by fairly low projectile point frequencies as well. A comparison of scraper/projectile point ratios at Recent Indian sites from the coast and from Gambo Pond highlights this contrast.

Although the contrast itself seems clear, its interpretation requires a consideration of two aspects of lithic technology and use: the actual use-functions of lithic functional types, and the degree of expediency or curation for each element in the specific toolkit.

Any attempt to infer on-site activities and subsistence strategies from data on artifact frequencies must be predicated on the assumption that different artifact types have different functions, relating to different activities, and that the relative frequencies of these functional types will vary, reflecting the relative importance of these activities. If archaeological sites attest to logistically-structured seasonal subsistence strategies, as we would expect in higher latitudes (Binford 1980), then we would expect to discern distinct site types characterized by different relative frequencies of artifact types. If these site types correlate with micro- or macro-locational variables, the likelihood that sites represent seasonal or functional types is enhanced.

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The assumption that the relative frequencies of artifact types in archaeological assemblages will vary according to site function, and that the relative frequencies of artifact types will directly reflect the activities performed on-site is not uncontroversial, and requires some justification. The principal critique of this sort of functional interpretation of artifact frequencies has emerged out of Binford's ethnoarchaeological research among the Nunamiut of interior Alaska (Binford 1976; 1978). Binford's study of patterns of activity and discard during the course of modern Nunamiut hunting expeditions revealed that very few tools were left in the field, and that virtually none were discarded, broken, or spent in the locational context of their use. Binford proposes that this presents the archaeologist with a "grim picture," in the sense that he or she cannot expect to find butchering tools at butchering locations, or woodcutting tools at woodcutting locations (Binford 1976: 335-339). He argues that this is principally due to the high level of curation, maintenance and recycling of tools among the Nunamiut. Tools, when broken or exhausted, are not discarded, but rather are returned to base camps for recycling and repair (Binford 1976: 334-340). Binford concludes that archaeologists analysing the relative frequencies of artifacts in archaeological assemblages must take account of the use-life and degree of curation in the technology under investigation. He proposes that under conditions of *expedient* manufacture and use of tools, we can expect that inter-site variability in relative tool frequencies will be high, and that this variability will directly reflect seasonal and other differences in tha activities performed on sites. Among *curated* technologies, however, intersite variability will be low, and will owe more to the relative use-life of different tools than to variability in the actual tasks performed at different sites (Binford 1976: 346-347).

In some cases it might be possible to characterize entire material-culture complexes as "more expedient" or "more curated" but we would generally expect that any one toolkit would include a range of both curated and expedient items. Expedient items would reflect activities performed on the spot, whether at special-purpose locations or at residential camps. Curated items will be found principally in assemblages reflecting residential camps, since most will be returned from expeditions for re-use, repair, or, if these are unsuccessful, discard, at base camps. Among curated items, those which are used particularly intensively at certain seasons and which have a relatively short use-life will be broken, exhausted, and discarded in greater

frequencies at base camps occupied during those seasons. Such tools might be termed "semi-expedient," while tools used equally throughout the year, or those with variable or very long use-lives (exceeding one seasonal round) will be highly curated, and there may be little or no functional patterning in their discard. It is this last condition which Binford finds among the Nunamiut.

Naturally, Binford's findings have been the subject of some debate. Some have questioned whether proposals based on the "machine-age" Nunamiut are at all applicable to prehistoric lithic technology, while Binford asserts that regardless of the specific patterns observed among the Nunamiut, his general propositions on the relationship between expedient technology, curation, and rates of discard remain sound. Of course, both arguments are correct. Binford's proposals are indeed plausible, but there is nevertheless good reason to believe that Nunamiut technology is far more extensively curated than any prehistoric lithic technology, including that observed in Newfoundland. Thus, while Binford's hypotheses may be valid, the picture these paint for prehistoric archaeology, in terms of identifying activities from artifact frequency patterns, may not be as grim as Binford suggests.

First, though the Nunamiut are capable of repairing and maintaining their machine age technology, they are themselves incapable of manufacturing much of it; replacement costs for much of this technology will be high compared to the costs of repair. By contrast, with most lithic technologies, we would expect that though replacement costs may vary according to the availability of the lithic raw material employed, replacement costs should, by and large, be much lower relative to the costs of repair than is the case for most elements of modern Nunamiut technology. Second, it should be stressed that in many cases, a lithic "tool" is in fact only the "business end" of a composite implement. Even in a highly curated technology, the lithic component is likely to be the most stressed, and therefore the most expedient (that most subject to breakage, discard, and replacement; cf. Gallagher 1977).

Thus, before we can hope to interpret the meaning of the high scraper frequencies and low projectile point frequencies characteristic of the Gambo Pond Recent Indian sites, we must pause to consider the likely functions, and the degree of curation, for projectile points and scrapers in Newfoundland prehistoric lithic assemblages.

Projectile points may include lance and arrowheads, and harpoon endblades, all of which exhibit a triangular or lanceolate form, with a marked point at one end and generally extensive hafting modification (notching, bevelling or lateral blunting) at the other. Here, the class of Recent Indian tools commonly referred to as "triangular bifaces" are not counted as projectile points. This assumption regarding the function of these tools may or may not be justified, but as long as we disregard such tools in both coastal and interior sites, any error is at least held constant. Projectile points are generally interpreted as functioning directly in the kill of animal prey. Indeed, it is generally assumed that they were employed specifically in hunting large animals. However, they may in fact reflect a variety of hunting activities, and indeed could be used in fishing as well. Here, high frequencies of projectile points are interpreted to reflect a high emphasis on the acquisition of prey, with the deposition of large numbers of projectile points occurring either during the preparation of hunting tools at base camps prior to the kill, or during the extraction, loss, and failed repair of hunting tools immediately after the kill. However, it is important to note that projectile points are the most extensively-finished tool type found; we would expect their replacement cost, and therefore, their level of curation, to be higher than for any other type.

Scrapers include lithic tools (presumably hafted in many cases) with steeply-retouched convex edges. These are assumed here to have functioned primarily in animal hide processing, though this category may also include some tools used for other scraping activities. This inference is based on ethnographic and ethnohistoric evidence for the use of comparable tools as hide-scrapers among Athapaskan Indian groups, and by Inuit, Navajo and Ethiopian hideworkers (see Asch 1981; Honigmann 1946; Mason 1891; Gallagher 1977), and on use-wear analyses of tools from archaeological assemblages which indicate the same functions for similar tools in the prehistoric past (Keeley 1977). The extrapolation to scrapers from Newfoundland assemblages is aided by their similarity in form; indeed, tools described as scrapers in ethnographic collections from around the world, and in archaeological assemblages from widely disparate regions and time periods share a remarkably uniform morphology; this has been attributed to uniform and tight functional constraints on form for this class of tools (Meltzer 1981).

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With regard to the degree of curation we can expect for this tool type, it is probably most appropriate to characterize scrapers as at least semi-expedient tools, discarded in the spatial context of use. This is based on widespread ethnographic evidence that although the hafts may be curated, the lithic scraping head itself tends to be mounted, used continuously, constantly retouched, then eventually exhausted and discarded, all within one scraping session, which may last as little as one hour (see Mason 1891; Gallagher 1977). Indeed, observations of modern Ethiopian hideworkers indicates that several lithic scraping heads may be exhausted in the course of scraping a single hide (Gallagher 1977). Scrapers may thus be considered at least semi-expedient tools in the sense that although considerable effort may be expended in their manufacture, and in ongoing retouch, they will be used and exhausted fairly rapidly and deposited at the site of use, rather than curated and removed from their use-context.

In short, I would argue that "scrapers" from Newfoundland Recent Indian lithic assemblages were used primarily for hidescraping, and that they were discarded to a large extent in the same location as that in which they were used. The fact that scraper frequency variation correlates with the macrolocational attributes of the sites in question (coastal vs. interior) further supports the notion that such variation is functionally meaningful. I propose, then, that the extraordinarily high scraper frequencies noted for the Gambo Pond sites are meaningful, and reflect extensive hideworking activities performed on these sites. Although hideworking may be conducted at any time of year, high scraper frequencies are judged to have two likely seasonal/functional correlates in this region: first, the processing of caribou hides, specifically in autumn, since it is in autumn that the hides are in prime condition, and second, the preparation of pelts and hides in winter, when the skins of most other terrestrial mammals, including various small game animals, beaver, and bear, are in prime condition.

Thus, the high scraper frequencies noted on Gambo Pond Recent Indian sites may be taken to imply settlement in autumn, or winter, or both. This is at least consistent with the microlocational data suggesting that Recent Indian site locations are less strongly oriented toward summer fishing areas than to potential caribou crossing sites, and specifically to north-facing locations appropriate for intercepting southward-moving animals in the autumn.

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Before concluding this discussion of scraper frequencies, it is worth discussing briefly the other distinctive attribute of Recent Indian scrapers on Gambo Pond: the raw materials from which thay are made. In terms of lithic debris, very few large flakes of any material were encountered. Rather, virtually all are of small or medium size. It appears unlikely that any of this lithic material originated in this immediate area, but rather, these materials were brought to the Gambo Pond sites from more distant sources. On all three sites, most of the lithic debitage consists of mottled rhyolites possibly derived from the Bloody Bay Cove source. Flakes of the fine, vitreous cherts are rare. As for the artifacts, many, including most of the retouched, utilized and linear flakes, bifaces, cores, and preforms, were manufactured from the rhyolite so common in the debitage, while projectile points display a fairly wide range of variation in raw material, and scrapers are generally made of fine, vitreous cherts not found in any great quantity among the debitage. This would appear to confirm our expectations concerning the relative expediency of the various tool types. Most on-site tool manufacture seems to have involved rhyolite. Thus, many of the rhyolite implements were probably both manufactured (presumably from cores and preforms like those found) and used on site. This suggests that many of the rhyolite implements were manufactured and used on site. These may be considered fully expedient tools: made, used, and deposited in one location. Projectile points, on the other hand, appear to have been manufactured elsewhere, perhaps in a variety of locations, and brought to the sites as finished artifacts. The variety of raw materials suggests a variable, but relatively long use-life, and a high degree of curation, as we would expect for these highly-finished tools; tools with variable but long use-lives will generally be deposited in a location other than that in which they were made, and might not be expected to show any consistency in raw material at any one site. These may thus be considered highly curated tools: made and used at many locations, and deposited whenever and wherever they reached the end of their use-life. Finally, scrapers too seem to have been brought onto the Gambo Pond sites from elsewhere as finished tools, though there is much greater uniformity in the raw material employed. Scraper heads, at least on these sites, may be considered semi-expedient tools: made in one location, then used and deposited at another.

The raw material patterns are not absolute, and there are exceptions. There are several bifacial knives of vitreous cherts, projectile points (including flakepoint preforms) of rhyolite, and some of the

largest, most finished scrapers, as well as some of the most expedient, are also of mottled rhyolite or basalt. However, it would appear that as a rule, the Recent Indian inhabitants of these sites brought to Gambo Pond three main categories of lithic equipment:

1) rhyolite blanks and cores for manufacturing expedient tools,

2) finished projectiles of variable but generally long use-life, fashioned from a variety of materials, perhaps at a variety of locations, and

3) a collection of prepared scraper heads intended specifically for use on these interior sites.

The uniformity of the raw materials used in scraper manufacture is particularly interesting. Though the colour of the fine chert scrapers varies, most are green or tan, and one at least (PLATE 31o) is of a green *and* tan chert. Many of the scrapers, then, may be made of material derived from a single source. The raw materials employed in scraper manufacture may reflect functional preferences for fine cherts for these tools, but even if this is so, it is possible that many of these implements were prepared at once, in advance, at unknown but presumably coastal site locations, in a binge of scraper-making prior to the move into the interior. This would imply that Recent Indian groups who moved to site locations on Gambo Pond planned in advance to perform a great deal of hideworking, and arrived already equipped for this particular activity.

To summarize the evidence on prehistoric subsistence and seasonality on Gambo Pond, clear patterns are evident only for the Recent Indian period, represented by three components. These display site locational preferences most appropriate for autumn caribou hunting, and artifact frequencies suggest that hide-processing, either in autumn or winter or both, was an important activity performed at these sites. We may hypothesize that these were oriented primarily toward autumn caribou hunting, though winter settlement, based on ice-fishing, and the pursuit of various terrestrial mammals, is also a possibility. Occupation of the area in spring and summer cannot be ruled out, but is considered less likely.

For the Maritime Archaic and Palaeo-Eskimo components, little can be said. All are located in good summer fishing locations, but this may or may not be significant. Indeed, the principal attribute of Maritime Archaic and Palaeo-Eskimo components on the lake is that in comparison with extensive Recent Indian components, these are few and relatively small. At present, it appears that whatever the seasonality and function of these sites, settlement along Gambo Pond in these periods was less extensive than in the Recent Indian period.

GAMBO POND AND INTERIOR ARCHAEOLOGY IN NEWFOUNDLAND

It has already been noted that for much of the period of intensive archaeological research in Newfoundland, little attention has been paid to the prehistory of the interior. Surveys in deep interior regions other than the Exploits River system yielded either nothing, or little of interest. However, the results from Gambo Pond, the first interior region outside the Exploits to be intensively and successfully surveyed for prehistoric remains as part of a planned research design, indicate that prehistoric remains can be found in the interior, and in some quantity, if we search in the right places and in the right ways.

Gambo Pond is certainly the most intensively-surveyed interior region to date, and it has yielded evidence of an hitherto unsuspected density of prehistoric remains in the interior. However, it would be misleading on my part to imply that encouraging results are limited to the Gambo Pond Archaeological Project.

As noted earlier, the Exploits Basin has not been intensively and scientifically surveyed for prehistoric remains, and such an endeavour has been regarded as likely difficult and unproductive. Nevertheless, research into the historic Beothuk occupation of the Exploits Basin has led to the discovery of several prehistoric components, and some of these are substantial. Most notable in this regard is the large lithic component at Indian Point, investigated by both Don Locke (n.d.) and Helen Devereux (1970). This includes Recent Indian material pertaining to both the Little Passage and Beaches complexes. Some of the

former may date to the early historic period, but the remainder must be prehistoric. This site yielded not only lithic, but also structural remains, including sub-circular Beothuk-style housepits, and also possible "longhouses" (Locke n.d.). None of the housepits excavated by Devereux are clearly associated with pure prehistoric remains, but Locke has suggested that his "longhouses" yielded primarily lithic, especially Beaches Complex, material. This might imply that the prehistoric occupation of the site was even more intensive than the Beothuk occupation; unfortunately, the very existence of these latter structures, let alone the strength of their artifactual associations, has yet to be confirmed. Worse, the present condition of the site means that it is unlikely that such confirmation is feasible at the Indian Point site. We will likely have to look elsewhere for evidence on the nature of prehistoric Recent Indian dwellings in the interior. Other prehistoric components identified in the Exploits Basin include the Dorset component at Pope's Point (Devereux 1965) and the small Maritime Archaic component discovered at Wigwam Brook (Leblanc 1973).

In addition, Palaeo-Eskimo components were recovered at Long Pond (Penney 1980) in the southwest corner of the island, and at Gander River-1 (Pastore and Evans 1982) on the Gander River, during surveys conducted in the early 1980s. These confirmed the existence of prehistoric remains outside the Exploits Basin, but did little to alter the conviction that interior research was difficult and unproductive.

However, surveys conducted by other researchers at approximately the same time as our investigations on Gambo Pond have begun to achieve similarly encouraging results. Many of these projects are associated with environmental impact studies, and the results may be related to the fact that such studies have forced us to survey areas outside the familiar deep-interior locations in which we have assumed interior prehistoric remains, if any, must be found.

During a remote cottage area survey in 1986, prehistoric remains were found at several loci on Portland Creek Pond and Parsons Pond, two near-coastal interior ponds on the west coast of the Northern Peninsula. On Parsons Pond, scattered lithics were observed at four loci along the beach (DlBj-1). These were manufactured of Cow Head cherts, and could pertain to either Recent Indian or Groswater periods, but no definite cultural affiliation could be determined. At Portland Creek Pond, similar remains were encountered in similar circumstances from Ebj-4. These included two possible Dorset artifacts, and one ovate

biface attributed to the Cow Head Complex of the Recent Indian period (Thomson 1987).

In that same year, Gerry Penney conducted a survey of King George IV Lake, in the southwestern corner of Newfoundland, near the headwaters of the Lloyd's River system. Two sites located several years earlier on the Lloyd's River delta (Penney 1985) were tested, and one (DbBl-1) yielded prehistoric material pertaining to the Recent Indian period (Penney 1987).

The following year, Penney conducted a major survey of western Notre Dame Bay, in the course of which he tested locations on several near-coastal lakes. On one of the these, West Pond, a small near-coastal lake near Hall's Bay (DiBb-1), Recent Indian material was recovered (Penney 1988).

In addition, Bill Gilbert and Ken Reynolds conducted a survey of Dildo Pond, a small near-coastal lake in the hinterland of Trinity Bay, in an attempt to locate the Beothuk settlement visited by John Guy in 1612. Recent Indian lithic material was discovered at one location, Russell's Point, on the western shore of the pond (Gilbert and Reynolds 1989). This may indeed be the location described by Guy.

With the possible exception of the Dildo Pond survey, none of these surveys may be termed intensive; all focused on examining specific locational types (river inlets/outlets, sandy beaches) rather than surveying entire shorelines. Nevertheless, all did recover prehistoric remains, and in combination create the encouraging impression that interior prehistoric components are now being located at a relatively high rate.

When these recently-discovered sites are added to the list of sites and stray finds encountered in previous years (Table 4; Figure 20), it can be seen that we now have some twenty interior sites of known cultural affiliation. These are widely distributed across the island, and come from a variety of environmental zones and topographic settings.

This is not perhaps a representative sample in many respects. First, it is small. Interior research is still in its infancy, and the present sample likely does not reflect the actual importance of interior settlement in Newfoundland prehistory. Second, in spite of recent discoveries elsewhere, the deep interior, specifically the Exploits Basin, has received the most attention, and deep interior sites are probably still over-represented. Third, sites from each phase are not equally likely to be represented in this sample. Palaeo-Eskimo toolkits contain a large number of diagnostic tools, and Palaeo-Eskimo sites are as a consequence

more likely to be identified. In contrast, fewer Recent Indian tools are diagnostic. Recent Indian sites located in survey are more likely to be of indeterminate cultural affiliation, and are probably under-represented in the sample of sites of known cultural affiliation. Nevertheless, with these limitations in mind, we may make some preliminary generalizations concerning the nature of interior settlement in Newfoundland prehistory.

First, the level of prehistoric settlement in the Newfoundland interior is greater than we would have expected. Coastal sites still outnumber interior sites by a wide margin, but then far more survey and excavation has been conducted on the coast.

Second, the high level of interior settlement is most marked in the Recent Indian period. This is certainly reflected in the list of interior components. Recent Indian components account for over half of the interior sites identified. Perhaps more striking though, is the fact that Recent Indian interior sites account for nearly a third of all Recent Indian sites identified to date (Table 5). This is astounding in view of the low level of interior research undertaken. As the quantity of survey and excavation work approaches that found on the coast, we can only expect this proportion to grow, and it may be that in a representative sample, interior sites would account for nearly half of Recent Indian sites on the island. We may also note that for the Recent Indian period at least, many of the interior sites are found in near-coastal rather than deep interior regions. Again, we can expect this proportion to grow as the level of interior survey effort directed in such areas approaches that already conducted in the deep interior.

For the Recent Indian period, except for Gambo Pond, subsistence indicators are limited to sites from the Exploits Basin, where some sites are known by excavated, as well as survey data. Indicators from these deep interior settings might not be expected to be comparable to those from near-coastal locations such as Gambo Pond, but the results do appear to be similar. First, the very high scraper frequencies noted on the Gambo Pond Recent Indian sites are also found in Recent Indian assemblages from the Exploits. Some years ago, Don Locke (1972) noted that in his collections from two sites on the Exploits, scrapers constituted 63% and 70% of the assemblages, while at one coastal site, they constituted only 9% of the artifacts recovered. This contrast is far more extreme than that noted on Gambo Pond, probably because Locke's collection methods are not exactly comparable to those employed on Gambo Pond. Nevertheless, the

pattern he describes is probably at least broadly valid, and his conclusion that interior sites saw a great deal of hideworking, probably associated with the autumn caribou migration, accords with my own. More detailed indicators were recovered by Devereux (1970; Stewart 1971) and LeBlanc (1973; Stewart 1973) during excavations at the Indian Point site on Red Indian Lake, and Wigwam Brook, near Grand Falls, respectively. Faunal material from Wigwam Brook, and probably most of the material from Indian Point as well, relates specifically to the historic Beothuk period, rather than the prehistoric Recent Indian period, and as noted, came from deep-interior rather than near-coastal settings, but indicators of autumn-winter settlement oriented toward caribou hunting (cf. Rowley-Conwy 1990) may broadly reflect prehistoric site function and seasonality in the near-coastal interior as well.

In contrast, the levels of Maritime Archaic and, especially, Palaeo-Eskimo, interior settlement are much lower. Components from these phases combined account for less than half of the known interior sites. In addition, less than 15% of Maritime Archaic sites found to date, and less than 6% of Palaeo-Eskimo sites, are found in the interior. These percentages will likely grow, but the level of interior settlement in these periods nevertheless séems low compared to that found in the Recent Indian period (especially considering how recognizable Palaeo-Eskimo sites should be). Subsistence indicators from these sites are lacking.

In short, it appears that the results from Gambo Pond, a near-coastal lake yielding a high density of prehistoric material dominated by Recent Indian remains, may in many ways typify the prehistoric remains to be found in the Newfoundland interior.

PALAEO-ESKIMO AND RECENT INDIAN ADAPTATIONS IN NEWFOUNDLAND

Settlement patterns, artifact frequencies, and limited faunal evidence indicate that Recent Indian settlement in the interior was extensive, and probably related to the autumn and/or winter component of the seasonal round. Groswater, Dorset and Maritime Archaic interior settlement clearly differed, in that it was far less extensive, though we presently lack detailed evidence on the nature of this difference. However, the

nature of these adaptations, and of the differences between them, may become more apparent when we integrate these new archaeological data from the interior with the evidence we already have on coastal subsistence and settlement.

It will be recalled that Pastore's study found no statistically-significant differences between Maritime Archaic, Palaeo-Eskimo and Recent Indian settlement patterns on the coast. However, when we add the known interior components and distinguish the interior as a separate settlement zone, highly significant differences do emerge, in both interior and coastal settlement (Table 5). Maritime Archaic sites are quite strongly oriented toward the inner-coastal zone, with significant outer coastal settlement and a moderate level of interior settlement. Palaeo-Eskimo sites are found in greater than expected frequencies in the outer coastal zone and lower than expected frequencies in the interior. Interestingly, in terms of settlement frequencies, Early and Late Palaeo-Eskimo distributions appear almost identical. In contrast, Recent Indian settlement is more evenly-spread across the three zones and includes a major interior element.

Thus, the settlement pattern data alone indicate at the very least that Maritime Archaic, Recent Indian and Palaeo-Eskimo subsistence-settlement patterns must have differed significantly. Identifying the various subsistence strategies associated with those settlement patterns is more problematic.

Our present understanding is especially poor for the Maritime Archaic period. Faunal remains and artwork from the cemetery at Port-au-Choix (Tuck 1976b) give some impression of the range of sea mammals, birds, fish and terrestrial game exploited (and the range is broad), but we have few data on the seasonality of exploitation, and the relative importance of the various game species. The settlement pattern, with its relatively strong emphasis on inner coastal settlement, might be taken to imply a subsistence strategy involving base camps for exploiting the diversity of resources available in the inner coastal zone, with seasonal special-purpose satellite camps in outer coastal zones and the interior. Subsistence strategies emphasizing access to resource diversity would be consistent with the limited faunal data available. However, we lack good data on Maritime Archaic site sizes, let alone functions; in fact, no structural remains suggestive of prolonged habitation have yet been recovered from Maritime Archaic contexts anywhere on the island. The very existence, let alone the location, of Maritime Archaic "base-camps" remains to be

established. Problems in inferring subsistence on the basis of site frequencies alone are exacerbated by the fact that the Maritime Archaic occupation lies within, and indeed, corresponds closely to, a mid-Holocene climatic regime markedly warmer than that found in subsequent periods. This may in part explain the distinctive Maritime Archaic settlement pattern, but of course, it is more difficult to reconstruct adaptations to an environmental setting unlike that of the present-day. Additionally, uncertainties regarding sea levels and coastal landforms during this initial period of human occupation in Newfoundland mean that even the inner-coastal, outer-coastal, or interior placement of some sites may be a matter of some dispute.

For the Palaeo-Eskimo and Recent Indian occupations, we stand on firmer ground. The palaeo-climatic sequences indicate no major changes after the end of the Maritime Archaic period. From *ca.* 1500 BC down to the present, temperatures fluctuate but trace a gradual cooling trend. For these periods, climatic conditions may be considered broadly constant (or more appropriately, constantly-fluctuating). Climatic conditions do not differ markedly from those of the present, and any variations in prehistoric adaptations are more readily explainable by reference to cultural than to climatic variation.

Settlement patterns for both Palaeo-Eskimo periods seem strikingly similar, sharing a high frequency of outer coastal settlements (and these settlements are relatively large), and a low level of interior settlement. This Palaeo-Eskimo settlement pattern differs markedly from the more even distribution of Recent Indian settlement, in which interior sites are relatively frequent (and in some cases, relatively large). Fully documenting and explaining these differences requires further research. We still have a very incomplete understanding of how prehistoric subsistence strategies varied between interior and inner and outer coastal zones, and also of how these strategies may have varied across the island between, for instance, the west, south, and northeast coasts.

Nevertheless, the salient differences between Recent Indian and Palaeo-Eskimo adaptations (at least for the better-documented western and northeastern portions of the island) may tentatively be characterized as follows. As we have seen, evidence from coastal sites indicates that both seem to have pursued similar strategies in the spring, exploiting harp seal herds from the outer coastal zone. Both too seem to have exploited a variety of inner-coastal resources in the summer. I propose it is in the previously poorly-

documented autumn and, especially, winter, adaptations, that the significant differences between them must lie. Specifically, I suggest that while both Recent Indian and Palaeo-Eskimo hunters may have pursued an autumn caribou hunt in the interior, the greater frequency of Recent Indian interior sites reflects prolonged interior settlement, involving many satellite camps, and perhaps regularly-shifting base-camps as well, extending through both autumn and winter. In this context, the apparent near-coastal focus of Recent Indian interior settlement is not surprising; the near-coastal interior offers no particularly abundant winter resource, but it does offer access to the greatest possible diversity of both terrestrial and maritime winter resources, including access to any caches of caribou meat stored after the autumn hunt. As Rowley-Conwy recently observed (1990: 25-26), these factors combine to make the near-coastal interior probably the "optimal" location for winter settlement on the island. In effect, the results of interior research thus far appear at this stage to confirm Rowley-Conwy's hypothesis that, prior to European settlement in Newfoundland, aboriginal settlement conformed to just such an optimal patterns.

In contrast, I would suggest the low level of Palaeo-Eskimo interior settlement reflects a relatively brief interior occupation, involving perhaps late summer fishing and an autumn caribou hunt, soon followed by an early departure for the outer coast. While few sites are known from the interior, the greater number and size of sites on the outer coast is consistent with prolonged settlement in this latter zone, not only through spring, but beginning earlier in the winter; similarly, the more substantial habitation structures, most clearly evident at Phillip's Garden, are consistent with prolonged cold-season occupation. Moreover, winter subsistence in the outer coastal zone is feasible, at least from late December. Archaeologists have generally assumed that prehistorically, as in the recent past, harp seals must have been exploited primarily in March-Early May, when the herds are found whelping on the ice (e.g. Tuck 1976a: 26); this, of course, was the season of the commercial vessel-based European seal fishery in the nineteenth and twentieth centuries. However, the seals actually first arrive in Newfoundland waters in late December, when they trim close to shore en route to feeding grounds in the south before returning again in March to whelp. Harps are thus available in Newfoundland waters twice a year: once in winter, and again in spring, separated by a gap in February (Ronald and Healey 1981). Indeed, just such a land-based winter hunt was pursued from

nineteenth-century European settlements in northeastern Newfoundland (Sanger 1977; and this helped contribute to a marked emphasis on outer coastal settlement comparable to that observed in the Palaeo-Eskimo period). Nineteenth-century landsman sealing was accomplished with the aid of nets. Aboriginal use of nets for this purpose is a possibility, but remains to be demonstrated. Tuck and Pastore (1985: 74) point out that the alternative, open-water sealing, is less efficient than hunting on the ice, but it would be unwise to dismiss this option. The important question may not be whether open-water sealing is less efficient than sealing in another season, but whether it is less efficient than other options available at the same time. In any case, winter is a lean, uncertain time of year, when hunters may be less concerned with relative efficiency and productivity than with achieving absolute levels of production to satisfy needs.

It may be important that migration-phase harp-sealing is well-documented at Palaeo-Eskimo sites in northern Labrador (Spiess 1978; Cox and Spiess 1980). Indeed, initially at least, any Palaeo-Eskimo colonists arriving in the island from Labrador would be more accustomed to hunting migrating adults than to whelping-patch hunting. Of course, this strategy would presumably require the accumulation of sufficient stores to cover a February resource gap.

This adaptation would not be an "optimal" one, not if the adaptive goal is to minimize risk and ensure long-term cultural survival. Like the Recent Indian strategy, it would be predicated on the intensive exploitation of a single resource and probably the storage of a surplus for winter. But unlike the Recent Indian adaptation with its specialization on caribou in autumn and generalized near-coastal hunting in winter, Palaeo-Eskimo specialized hunting would occur *during* the winter (the season of greatest weather fluctuations), and would be pursued from outer coastal locations offering few back-up resources in winter.

The two hypothesized subsistence-settlement patterns for the Recent Indian and Palaeo-Eskimo periods are summarized in Figure 21. Essentially, I propose that Recent Indian and Palaeo-Eskimo adaptations differed, and that these differences cannot be accounted for by climatic or environmental differences. More specifically, I would argue, the observed differences in Recent Indian and Palaeo-Eskimo settlement patterns reflect different prehistoric culturally-defined responses to low and uncertain winter

resource availability. The Recent Indian response, arguably the optimal one (Rowley-Conwy 1990) emphasised access to the relatively high resource diversity of the near-coastal interior. The Palaeo-Eskimo response, possibly sub-optimal but feasible nonetheless, involved specialization on a single extraordinarily rich resource, perhaps with the storage of an accumulated surplus.

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6

SUMMARY AND CONCLUSIONS
The Future of the Past in the Newfoundland Interior

Archaeological investigations on Gambo Pond, a near-coastal lake in the interior hinterland of Bonavista Bay, have revealed that prehistoric remains can be easily located in forested interior settings at relatively low cost. Eighteen find-spots were located on Gambo Pond, and excavations were conducted at four of these sites. Although relatively small proportions of each site were sampled, excavation revealed stratified deposits at all sites, with moderate artifact frequencies and recognizeable features. Although organic preservation was uniformly poor, calcined bone fragments were recovered; the existence of discrete midden deposits bodes well for the eventual discovery of microenvironments offering good organic preservation in prehistoric interior contexts. The bulk of the artifactual material recovered pertains to the Recent Indian period, and specifically to the Little Passage Complex. A single Maritime Archaic component, a small Groswater component, and a very small Dorset component round out the culture-historical inventory of the region.

Elsewhere on the island, survey and limited testing have begun to recover additional evidence bearing on prehistoric occupations in the Newfoundland interior. These data indicate the existence of sites in several regions and a variety of topographic settings, but indicate that the results from Gambo Pond may in some respects typify the nature of interior settlement in the Newfoundland interior: specifically, interior settlement on the island as a whole, as on Gambo Pond, appears to have occurred at higher levels than hitherto suspected, particularly in the Recent Indian period, and is concentrated along near-coastal interior lakes. Circumstantial evidence indicates that the Recent Indian sites, at least, represent autumn and/or winter camps, and indeed it

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has been suggested that the near-coastal interior is the "optimal" zone for autumn and winter hunter-gatherer settlement on the island (Rowley-Conwy 1990). Detailed subsistence indicators are entirely lacking for the Palaeo-Eskimo and Maritime Archaic periods, but the low level of interior settlement evident in these periods is enough to suggest that the role of the interior in Palaeo-Eskimo and Maritime Archaic seasonal rounds differed markedly from that of the Recent Indian period. Settlement pattern data allow us to construct a model of prehistoric Indian and Palaeo-Eskimo adaptations which accounts for the observed differences.

Interior archaeology in Newfoundland may still be considered to be at an early stage of development. Nevertheless, recent results from Gambo Pond and from elsewhere on the island already appear to have broad implications for our understanding of Newfoundland prehistory, To a large extent, our preconceptions regarding the archaeology and prehistory of the island have been coloured by our perceptions of the Newfoundland environment. It will be recalled that the demonstrable simplicity of the Newfoundland terrestrial ecosystem has given rise to three powerful tenets which have acted to guide archaeological research on the island. At this stage, it would be worth reviewing these tenets once more, noting how the results of interior archaeology may bear on them.

RESOURCE INSTABILITY AND INTERIOR SETTLEMENT

The extinction of the Beothuk, and their inability to survive on the resources available in their final deep-interior refuge along the Exploits River, has long served as a powerful lesson on the instability of terrestrial resources on the island, and served to indicate that, given the choice, pre-contact aboriginal hunter-gatherers on the island are unlikely to have made extensive use of the interior. For years, work conducted in the Exploits Basin revealed little in the way of prehistoric material, at least in comparison with the quantity of post-contact Beothuk remains. The few surveys of other deep interior regions, along the Lloyd's River system, and the Deer Lake-Humber drainage, similarly recovered little or no prehistoric material, appearing to confirm the assumption that prehistoric settlement in the interior must have been a relatively ephemeral component in a series of

otherwise clearly marine-oriented hunter-gatherer adaptations. Sites were considered likely to be few, small, and relatively uninteresting. This, combined with perceptions that interior research is likely to be plagued by low archaeological visibility and high transportation and logistical costs, has acted to discourage any extensive research.

Results from Gambo Pond and elsewhere, however, indicate that even at this early stage of interior research, we can safely argue that interior settlement was far more extensive than previously assumed. This is particularly true for the Recent Indian period, in which interior settlement already appears to be *at least* equivalent in scale to that found in inner or outer coastal zones; indeed, as levels of research in the interior approach those of the coast, it may emerge that in this period at least, the interior actually contains the greatest frequency of sites. Levels of interior settlement for preceding periods appear, presently, at least, to be rather lower. In addition, it appears that the greatest concentration of interior sites is likely to be found in the near-coastal zone, on lakes and rivers 30 km or less from the sea. Sites are also known from other settings, including the major river systems of the deep interior (Exploits, Humber, Gander), and the interior uplands of the southwest. Perhaps most importantly, it is apparent that sites may be located at relatively low cost, in the course of both problem-oriented research (as on Gambo Pond), and environmental impact studies: these sites are sufficiently visible during survey, and contain deposits which may warrant further investigation by excavation.

This has important implications for the way we conduct archaeological research in the interior. Interior settings have traditionally been regarded as low in archaeological potential and difficult to survey, and it has been considered sufficient to survey such areas in a cursory manner, often by remote means (e.g. helicopter fly-over), if at all, or to test only pre-selected locations deemed to be of "high archaeological potential," thus leaving archaeologists free to concentrate their research efforts on the coast. Now, however, it appears that in many regions, interior sites exist in sufficient numbers, and are sufficiently visible and extensive, to warrant greater attention. It is becoming clear that whether the goals are problem-oriented or mitigative, any research aimed at recovering a representative regional sample of archaeological remains must include a program of interior survey and testing. Moreover, research activities of this sort should be no less intensive than those conducted in coastal areas. On the contrary, when we consider how little research has still been undertaken in most interior regions

relative to that on corresponding coastlines, research and mitigative archaeology should perhaps concentrate more on interior than on coastal coverage. In short, the interior can no longer be considered an area of low archaeological potential. The near-coastal interior, in fact, should be considered a zone of particularly high archaeological potential, especially along lakes and rivercourses.

It would be a mistake, though, to focus exclusively on the near-coastal zone as an area of high archaeological potential. Sites exist, and have been discovered, in other settings as well, and at this stage, though a concentration of settlement in the near-coastal hinterland seems likely, the true extent of settlement in the uplands and major river systems of the deep interior remains to be established.

I propose that broad interior zones deserve greater research coverage, but it is worth noting as well that the microlocational attributes of interior archaeological sites require some consideration. All of the interior sites located thus far have been situated along the shores of lakes and rivers, and many lie at prominent constrictions in waterways, and/or drainage junctions. The results from Gambo Pond suggest that these may indeed be among the typical microlocational attributes of prehistoric sites in the Newfoundland interior. However, not all sites are found in such locations. On Gambo Pond, sites were discovered in a variety of lakeshore settings. Many of the findspots, including two of the larger excavated sites (DeAn-1 and DdAo-8) are situated on small points of land that do not constitute prominent constrictions, and do not lie at stream mouths or outflows.I would argue emphatically, that at this stage at least, we should not limit lake and river surveys to testing certain pre-selected locations of presumed high archaeological potential.

Perhaps more difficult is the problem of sites not located along waterways. Thus far, no such sites have been discovered on the island, but then no one has looked. Even on Gambo Pond, relatively little survey effort was expended on slopes and ridgetops. The problem is that although some sites, including lookouts, kill-sites, and perhaps base camps as well, undoubtedly exist in such locations, it is difficult to find them. Wooded slopes and ridges behind lakes and rivers conform most closely to the preconceptions once held about the interior in general: that archaeological sites are low in visibility and extremely hard to get to. The only solutions to this

problem would appear to be 1) conducting at least one probabilistic survey aimed at recovering sites in such conditions, and/or 2) Experimental judgemental survey of selected elevated areas focusing, perhaps, on moraines, or on slopes and ridges denuded by logging and therefore easy to traverse and to survey. The first method would be expensive, the second would probably recover little *in situ* material. However, both methods might aid in at least formulating some hypotheses on the nature of interior settlement away from lakes and rivers.

LIMITED RESOURCES AND HUNTER-GATHERER SUBSISTENCE

The second tenet holds that Newfoundland's simple ecosystem and low resource diversity severely limit the range of subsistence options feasible in Newfoundland, such that we can expect little variation in prehistoric adaptations to the island. This is based not only on a theoretical assumption that hunters "optimize" in objectively-rational predictable ways, but on the proposition that the environment is so restrictive that only a single optimal adaptation is even feasible.

As we have seen, recent investigations in the Newfoundland interior have not recovered detailed subsistence indicators from interior sites, though we can reasonably expect that more detailed data will come in time. The majority of the sites, and the best-documented, pertain to the Recent Indian period. These appear at this stage to represent autumn and/or winter occupations, and appear fairly strongly-oriented toward near-coastal interior locations. We may tentatively propose that Peter Rowley-Conwy's hypothesis is supported by these new data: the prehistoric ancestors of the Beothuk do seem to have pursued a strategy similar to the optimal one he has proposed.

Perhaps more interesting, though, is the fact that the other prehistoric inhabitants of the island do not appear to have pursued such a strategy. Subsistence indicators are lacking for interior Maritime Archaic and Palaeo-Eskimo sites, and the sites themselves are few and small, but this itself is suggestive. Gross differences in settlement patterns indicate at least three different adaptations to the island: Maritime Archaic, Palaeo-Eskimo (Groswater/Dorset), and Recent Indian. In the case of the Maritime Archaic period, further inferences are

difficult at this point, but it is possible to generate hypotheses concerning Palaeo-Eskimo and Recent Indian adaptive responses to late Holocene Newfoundland. I have suggested that since spring and summer coastal adaptations appear broadly similar, the marked differences in settlement patterns most likely reflect differences in autumn, and especially, winter, subsistence. Specifically, I have argued that they reflect different responses to the uncertainties of winter resources in Newfoundland: the Recent Indian generalized response emphasized access to the relatively wide diversity of resources available from the near-coastal interior, in the manner proposed by Rowley-Conwy, while the Palaeo-Eskimo response was more specialized, emphasizing access to a single rich resource, the newly-arrived harp seals, which could be exploited relatively intensively.

Some years ago, Ralph Pastore (1986) suggested that Palaeo-Eskimo hunters in Newfoundland may have been inordinately specialized on harp seal hunting, though the Palaeo-Eskimo emphasis on outer coastal settlement locations offering access to the harp seal herds was merely suggestive, not statistically-significant. Incorporating interior sites into the study of settlement patterns indicates that Pastore's original suggestion has considerable merit. Here, I have hypothesized that the large size and number of Palaeo-Eskimo sites in the outer coastal zone specifically reflects a prolonged season of outer coastal settlement (beginning in late December, rather than March).

The specifics of this model remain to be tested, but even the evidence of gross settlement patterns indicates that we must re-assess our perceptions, both of the role of the Newfoundland interior in prehistoric hunter-gatherer subsistence, and of the restrictive character of the Newfoundland environment.

First, it now looks as though the interior is not such a dismal place to hunt and gather after all. Rowley-Conwy has argued that, far from being the most unreliable component in an unreliable environment, the interior - at least the near-coastal interior - may offer the most diverse array of available resources in winter. The settlement pattern data appear to support the notionthat the near-coastal interior was attractive to prehistoric hunter-gatherers, at least in the Recent Indian period.

Second, we must consider that Newfoundland as a whole is not as restrictive an environment as once thought. Evidence for major differences in prehistoric interior and interior-coastal settlement patterns indicate that different adaptive strategies are feasible, and indeed, were realized. In the case of Recent Indian and Palaeo-

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Eskimo adaptations, these differences cannot be attributed to markedly different climatic regimes. Rather, we must conclude that the different prehistoric occupants of the island responded to a common late Holocene environment in markedly different ways. Certainly, Newfoundland's ecosystems, particularly its terrestrial ecosystems, are simple and resource diversity is relatively low; to some extent, Tuck and Pastore's identification of "principal prey species" and of their seasons of exploitation are probably broadly correct. However, evidence for differing adaptive responses indicates that even within these constraints, there was room for alternative adaptations.

Third, on a broader theoretical level, we may regard Newfoundland as an ideal test for the hypothesis that human foragers will adapt in optimal, predictable, objectively-rational ways to their environment. In Newfoundland, we can compare the adaptive responses of different cultural groups to common late Holocene conditions. As we have seen, adaptations appear to have varied culturally. Even in this relatively restricted, simple island ecosystem, different cultural groups have managed to formulate different adaptive responses. This calls into question the basic premises of objective rationality underlying the applications of optimal foraging theory, formal economic models, and predictive modelling in archaeology. In particular, we must question the predictability of prehistoric hunter-gatherer adaptations. Clearly, hunter-gatherers either do not forage optimally at all, or do not optimally pursue the same adaptive goals. In Newfoundland, for instance, Recent Indian winter adaptations appear to conform to a predicted strategy aimed at minimizing risk by ensuring access to diverse resources (Rowley-Conwy 1990). Palaeo-Eskimo adaptations do not conform to these predictions. If Palaeo-Eskimo hunters foraged optimally, then they must have been pursuing other goals. If the model proposed here is broadly correct, a Palaeo-Eskimo specialized harp-sealing strategy may have been aimed at maximizing absolute levels of winter food production or productivity, rather than obtaining fixed levels of prey with minimal risk.

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REPEATED EXTINCTIONS IN NEWFOUNDLAND PREHISTORY

The final tenet concerns the repeated human extinctions now evident in the Newfoundland prehistoric sequence. This is currently explained as the inevitable result of the instability and simplicity of Newfoundland ecosystems. Simple ecosystems in Newfoundland confronted hunter-gatherers with a number of unstable, unreliable resources, and consequent periodic resource failures; in addition, simple ecosystems offered few back-up resources in times of stress, and few if any options for adaptive responses which might mitigate the effects of these resource failures. Thus, even the "optimal" hunter-gatherer response was ultimately doomed to failure. Unlike regional human extinctions elsewhere in the Canadian north, human extinctions in Newfoundland are seen to result not from detectable changes in the environment, but from the intrinsic characteristics of that environment.

The failure of hunter-gatherer adaptations is a difficult phenomenon for archaeologists to deal with. It is often assumed that hunter-gatherer adaptations necessarily aim to achieve long-term cultural survival. This assumption, for instance, underlies Rowley-Conwy's recent article: He defines the prehistoric settlement pattern considered most likely to have ensured long-term cultural survival, and predicts that this was the prehistoric pattern. The rationale underlying this view seems to be that hunter-gatherer adaptations which do not aim to achieve long-term cultural survival will fail, and will therefore not be visible archaeologically. Only those adaptations which do achieve long-term cultural survival will be visible on archaeological timescales (Bailey 1981). The tautology has a familiar functionalist ring: adaptations are archaeologically visible because they are optimal, and they must be optimal, since they are archaeologically-visible.

In Newfoundland, the assumption that hunter-gatherer adaptations are necessarily viable over the long-run would seem especially inappropriate, since extinctions are conspicuous elements in the prehistoric sequence. Moreover, it appears that prehistoric adaptations differed markedly. Clearly they cannot all be "optimal" or equally adaptive in the sense of ensuring long-term cultural survival. The Recent Indian settlement pattern in Newfoundland, for instance, approaches the "optimal" pattern predicted by Rowley-Conwy: the emphasis on near-coastal settlement suggests a strategy which responds to winter resource uncertainty by offering access to the

greatest possible diversity of resources. The Palaeo-Eskimo pattern, on the other hand, may emphasize prolonged access to a simple, unusually rich resource. This adaptation would be far less stable over the long run. In this regard, it is interesting that although all prehistoric human occupations of the island end in extinction, not all prehistoric occupations are equally vulnerable to extinction: neither Palaeo-Eskimo occupation persists for more than *ca.* 600 years, while the Maritime Archaic and Recent Indian occupations persist for over 1800 and 1200 years, respectively. Paradoxically, adaptations which include a stronger focus on the highly unstable resources of the interior seem to offer greater long-term stability than those oriented more exclusively to marine resources.

Archaeological investigations in the Newfoundland interior do not refute the notion that extinction is a prominent feature of Newfoundland prehistory, or even that such extinctions may be inevitable given the intrinsic characteristics of the Newfoundland environment. However, they do suggest that environmental factors alone cannot fully explain the pattern of prehistoric extinctions in Newfoundland. Evidence that subsistence-settlement patterns, and vulnerability to extinction, both varied culturally indicates that there is an important cultural dimension to human extinctions in Newfoundland which remains to be explored.

It is worth noting that, as in Newfoundland, many Palaeo-Eskimo extinctions elsewhere in the Canadian north appear to have been brief, and to have ended in extinction. In at least one area, the Barren Grounds region west of Hudson Bay, Palaeo-Eskimo and prehistoric Indian occupations may be compared, and, as in Newfoundland, Palaeo-Eskimo occupations appear to have been markedly less persistent than prehistoric Indian occupations; these also appear to have been characterized by a higher degree of winter specialization (Schwarz 1990). A "maladaptive" level of specialization may be an integral element of Palaeo-Eskimo "adaptations." Whatever the adaptive goals of Palaeo-Eskimo hunters, long-term cultural survival does not appear to have been one of them. Once again, we are forced to question the utility of the assumption that hunter-gatherer adaptations necessarily aim to achieve long-term cultural survival. Clearly, maladaptations can occur, and can persist long enough to be detectable in the archaeological record. It is therefore perhaps more appropriate to regard long-term survival as, at best, a side-effect, and at worst, an unrealized result, of adaptive choices made to achieve more immediate goals within social contexts. The challenge for archaeologists working along the coastlines and

interior waterways of Newfoundland, indeed, the challenge facing all archaeologists working in the Canadian north, is to reconstruct the immediate social contexts within which successful and unsuccessful choices were made.

DIRECTIONS FOR FURTHER RESEARCH

The results of research in the Newfoundland interior may have broad implications for the way archaeologists treat prehistoric hunter-gatherer adaptations, but these results also suggest more immediate goals for archaeological research in Newfoundland, and it would be appropriate to conclude by briefly noting these here. Some lines of inquiry would enable us to test the model of Palaeo-Eskimo and Recent Indian subsistence-settlement patterns proposed herein, others to expand, and perhaps alter yet again, our perceptions of the human ecology of the island of Newfoundland.

First, surprisingly enough, the results of interior research suggest we should redouble our efforts to learn more about *coastal* subsistence. The model proposed here hypothesizes that the size, number, and substantial structural remains associated with outer-coastal Palaeo-Eskimo sites are best explained by reference to prolonged winter-spring Palaeo-Eskimo outer coastal harp-sealing adaptations. Artifactual evidence for winter sealing does not appear to be forthcoming, but perhaps we should look closer at the vast collections of harp seal bone recovered from sites like Phillip's Garden and make a serious effort to distinguish spring and winter kills. The analysis of seal dental annuli (Hiseler 1991) may offer some evidence in this regard. In addition, a pattern of harp seal exploitation that includes a significant winter sealing component should accumulate a greater proportion of adult animals than one involving spring sealing alone. Perhaps comparing the age-structure of Palaeo-Eskimo and Recent Indian harp seal bone assemblages would provide a test of the model proposed here.

I should underscore that the settlement model proposed here, like that presented by Pastore in 1986, is very broad, being based on an aggregation of prehistoric sites from all parts of the island, and as such, doubtless masks much regional variation. Prehistoric hunters based on the south and east coasts of the island

are unlikely to have relied to any degree on harp seal hunting, while even on the west and northeast coasts, hunters may have exploited the Gulf and Front herds, respectively, in very different ways. Even the sites we know well are widely dispersed; we are collecting - or have collected - good data on Palaeo-Eskimo outer coastal subsistence on the west coast at Phillip's Garden, on Recent Indian inner coastal subsistence at Boyd's Cove in Notre Dame Bay, and on interior settlement on Gambo Pond, in the Bonavista Bay hinterland; we can, as here, attempt to piece these together into a composite picture of aboriginal settlement and subsistence on the island. However, no one region is well-known. Palaeo-Eskimo outer coastal sites on the northeast and south coasts are not well-known, and Recent Indian sites are not well-documented on the west coast. Moreover, some components of aboriginal economies are not well-documented anywhere on the island: only hints attest to the nature of Recent Indian outer coastal subsistence, and Palaeo-Eskimo inner-coastal subsistence in Newfoundland. More than ever, I would suggest we need to augment our site-centered research with broad regional research strategies. Of all the Atlantic provinces, Newfoundland offers the best opportunities for pursuing such strategies.

Lacunae therefore exist, even in our understanding of coastal adaptations in Newfoundland, and it would be profitable to address these further. Nevertheless,interior settlement is even less well understood, and I would argue that this is still the gap most urgently in need of redress.

Turning then to the potential for further research in the interior, the principal gaps in our understanding of interior prehistory presently relate to the Palaeo-Eskimo and Maritime Archaic periods. We should make an effort to locate more, and larger, sites pertaining to these periods, in order to clarify the role of the interior in the subsistence economies of these earlier occupations. In addition, for all periods we lack good faunal assemblages and structural remains that might allow us to test or augment the model of prehistoric interior subsistence and settlement proposed here. In addition, we need more interior survey work, first to locate sites that might meet the above criteria, and second to accumulate a representative sample of interior sites that would allow us to test the patterns of interior settlement presently apparent. Certainly, this should include more survey on near-coastal lakes and rivers, to test the proposition that these were the focus of Recent Indian interior settlement on the island.

In addition, we should not forget that sites have been located in other zones as well, particularly the interior uplands and the Exploits Basin At present, we have a poor understanding of the function and seasonality of deep interior settlement on the island. Where once it seemed that the Exploits in particular was the only likely focus of interior settlement, it now appears that this zone is unlikely to have served a major role prehistorically. In this context, the documented prehistoric occupations along the Exploits are now something of a mystery. Do prehistoric sites in the deep interior merely represent satellites of near-coastal base-camps? do they reflect the final refuge of prehistoric hunters faced with competition by newcomers, as was the case with the Beothuk? or did prehistoric hunters in fact develop and realize relatively stable seasonal adaptations to the deep interior as well? Only further research will tell, but I believe that increased archaeological research in the interior is essential. I hope that if nothing else, the results reported here will serve to highlight the interior as an area with important prehistoric remains bearing on questions of critical importance in Newfoundland archaeology: questions ranging from the immediate problems of reconstructing diverse adaptations to the Newfoundland environment, to the ultimate processual issues surrounding the cause of the repeated human extinctions on the island.

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Table 1. **Newfoundland Coastal Site Locations (after Pastore 1986: Table 2). The Results of a Chi-Square Test of these Data are also Indicated.**

CULTURAL AFFILIATION	SITE LOCATIONS INNER	OUTER
Maritime Archaic	13 (54%)	11 (46%)
Groswater	6 (37.5%)	10 (62.5%)
Dorset	25 (34%)	49 (66%)
Recent Indian	11 (44%)	14 (56%)

DF = 3 $\chi^2 = 3.417$ Significant at $\alpha = 0.5$

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	RECENT INDIAN COMPONENTS			PALAEO-ESKIMO COMPONENTS		MARITIME ARCHAIC COMPONENT
	DeAn-1	DdDao-8	DdAp-2	DdAp-2	DdAo-2 Area B	DdAo-2 Area A
Projectile point	4	2	7	-	-	-
Endblade	-	-	-	1	-	-
Uniface, possible sideblade	-	-	-	-	1	-
Burin-like-tool	-	-	-	-	1	-
Endscraper	10	9	31	1	7	-
Sidescraper	1	-	-	-	-	-
Retouched flake scraper	-	-	3	-	-	2
Spokeshava	-	2	4	-	1	-
Microblade	-	-	-	3	2	-
Microblade, quartz crystal	-	-	-	-	1	-
Macroblade	-	-	-	-	-	5
Triangular biface	1	1	4	-	-	-
Lanceolate biface	-	-	6	-	-	1
Ovate biface	1	-	-	-	-	3
Misc./fragmentary biface	5	2	10	-	6	6
Biface preform	-	1	3	-	-	-
Flakepoint preform	-	-	2	-	-	-
Beaches point preform	-	-	1	-	-	-
Linear flake	4	6	3	-	-	-
Retouched/utilized flake	2	3	15	-	-	9
Core fragment	-	-	1	-	-	-
Retouched core fragment	1	-	-	-	-	1
Abrader	3	1	-	-	-	-
Iron pyrites	3	-	-	-	-	-
n =	35	27	90	5	19	27

Table 2. Total Lithic Artifacts Recovered in 1987 and 1988 from the Four Excavated Sites on Gambo Pond.

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Table 3. **The Relative Frequencies, Expressed as Percentages, of Artifact Types in Three Recent Indian Components from Gambo Pond and Three Coastal Recent Indian Sites from Northeastern Newfoundland. Data from Pastore (pers. comm.), Evans (pers. comm.), Schwarz (1984; 1989).**

		Proj. Point	Scraper	Knife	Misc.	Scraper/ Projectile Point Ratio	n=
Gambo Pond Sites	DeAn-1	11.4	31.4	14.3	42.9	2.750	35
	DdAo-8	7.4	33.3	7.4	51.9	4.500	27
	DdAp-2	7.8	34.4	21.1	36.7	4.429	90
Coastal Sites	Boyd's Cove	20.8	9.3	12.9	57.0	0.447	201
	Inspector Island	16.1	4.8	14.4	64.7	0.298	62
	Frenchman's Island	18.0	7.2	19.1	55.7	0.400	183

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Table 4. Newfoundland Interior Site Components of Known Cultural Affiliation.

SITE	COMPONENT(S)[a]	LOCATION[b]	REFERENCE
Deer Lake	MA	Deep Interior	Carignan 1976; Harp 1963
Main Brook	MA	Near Coastal	Carignan 1976
Wigwam Brook	MA	Deep Interior	LeBlanc 1973
Parson's Brook-1	MA, EPE	Near Coastal	Schwarz 1989
Long Pond	LPE	Deep Interior	Penney 1980
Gander River-1	LPE	Deep Interior	Pastore 1986
Triton Brook-1	LPE, RI	Near Coastal	Schwarz 1989
Pope's Point	LPE, RI	Deep Interior	Devereux 1965
Indian Point	RI	Deep Interior	Devereux 1970
West Pond	RI	Near Coastal	Penney 1988
Dildo Pond	RI	Near Coastal	Gilbert and Reynolds 1989
Portland Creek Pond	RI	Near Coastal	Thomson 1987
King George IV Lake	RI	Deep Interior	Penney 1987
Marshlands	RI	Near Coastal	Schwarz 1989
Burnt Cabin	RI	Near Coastal	Schwarz 1989
Noel Paul's Brook-3	RI	Deep Interior	Thomson 1983
Aspen Island	RI	Deep Interior	Locke n.d.

[a] MA = Maritime Archaic; EPE = Early Palaeo-Eskimo (Groswater); LPE = Late Palaeo-Eskimo (Dorset); RI = Recent Indian.

[b] Here, "Deep Interior" sites are those located more than 30 km from the coast, "Near Coastal" sites are those that lie 30 km or less from the sea.

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Table 5. **Newfoundland Coastal and Interior Site Locations. Data from Table 1 (above), incorporating interior sites located to date (including stray finds) as a separate locational category. The results of a chi-square test of these data are also indicated.**

CULTURAL AFFILIATION	SITE LOCATIONS		
	INTERIOR	INNER COAST	OUTER COAST
Maritime Archaic	4 (14.8%)	12 (44.4%)	11 (40.8%)
Groswater	1 (5.9%)	6 (33.3%)	10 (58.8%)
Dorset	4 (5.3%)	22 (29.3%)	49 (69.4%)
Recent Indian	11 (31.4%)	10 (28.6%)	14 (40.0%)

DF = 6 $\chi^2 = 18.865$ Significant at $\alpha = 0.005$

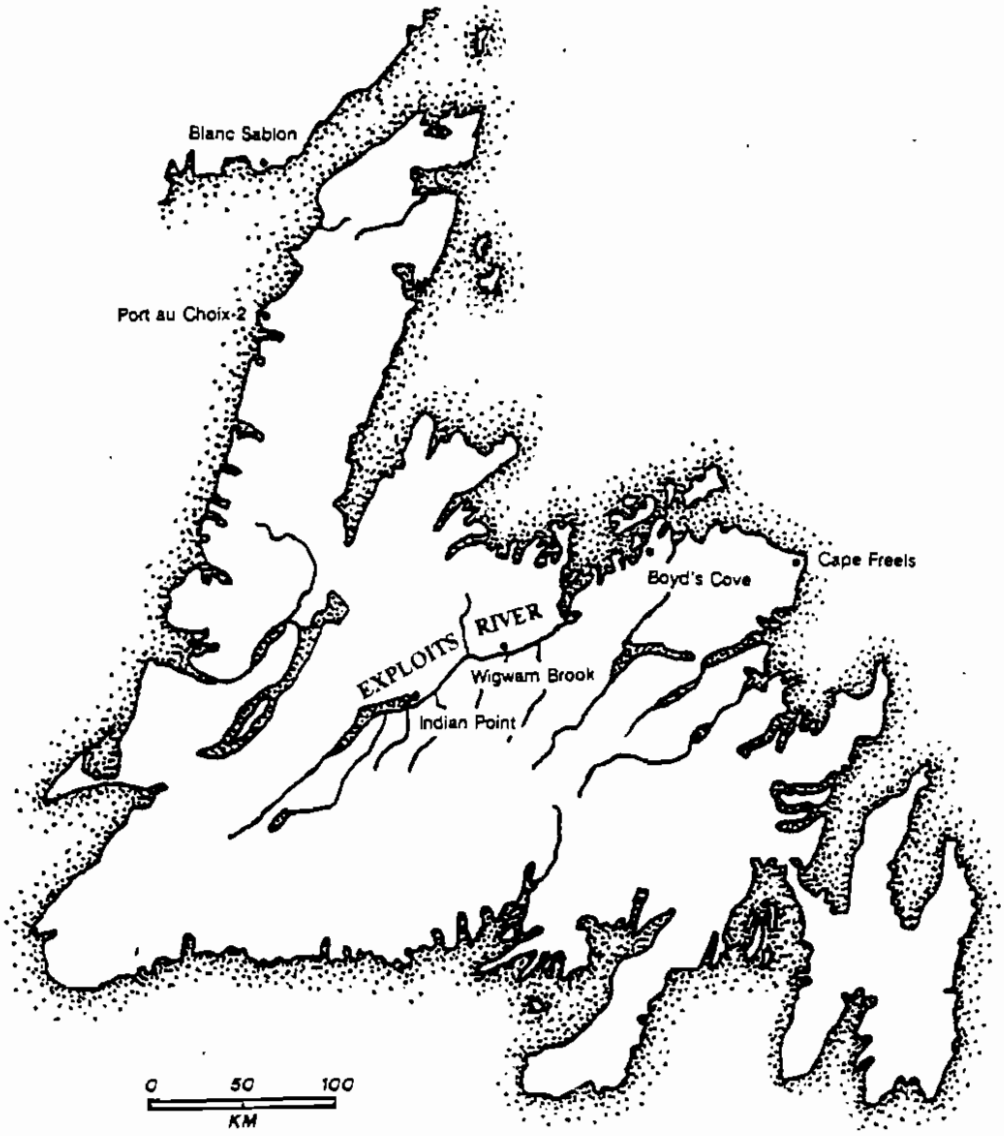

Figure 1. Map of Newfoundland, Indicating the Principal Sites Referred to in Section 1.

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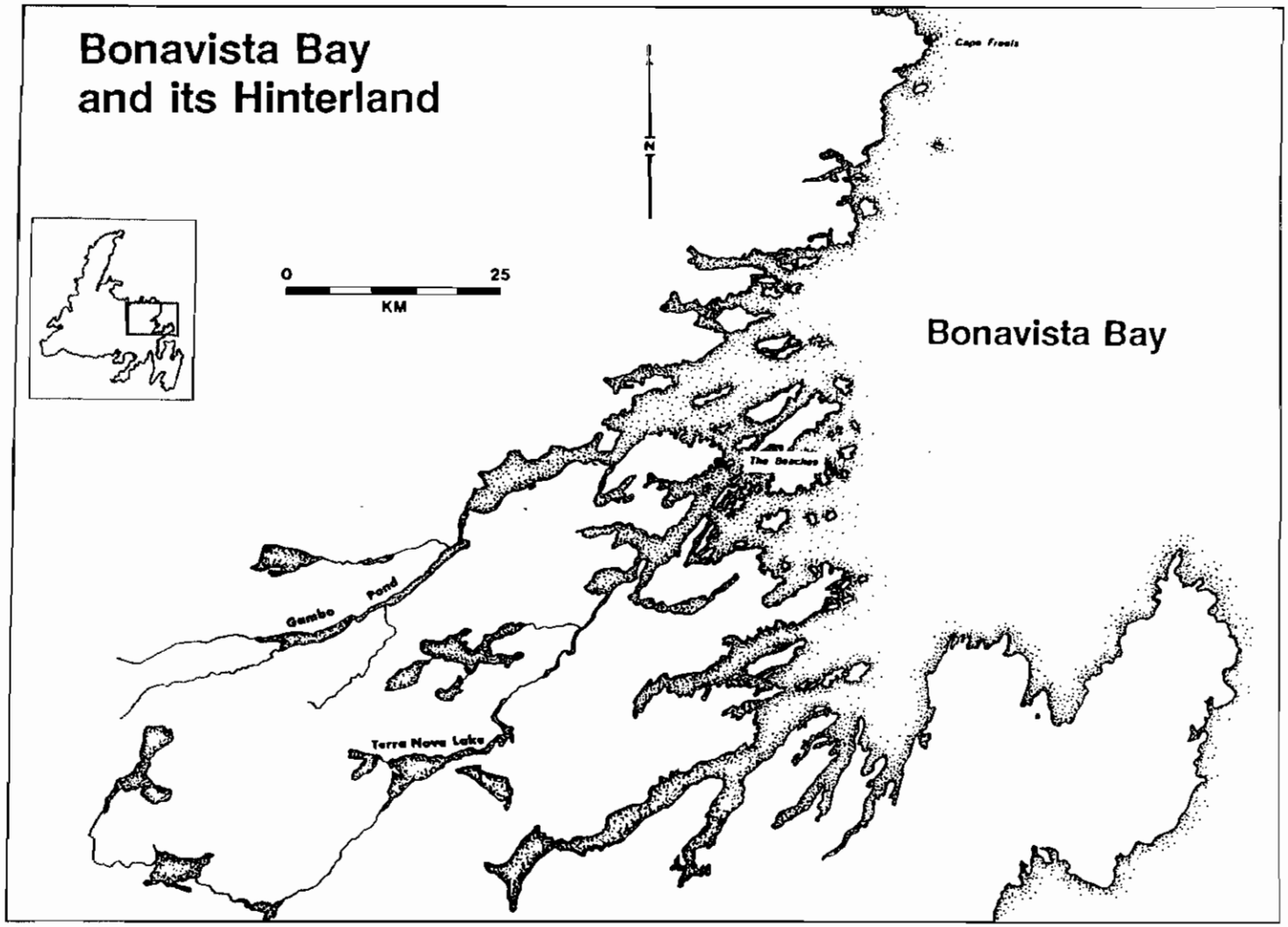

Figure 2. Map of Bonavista Bay and its Interior Hinterland, Indicating Major Sites in the Northern Portion of the Bay.

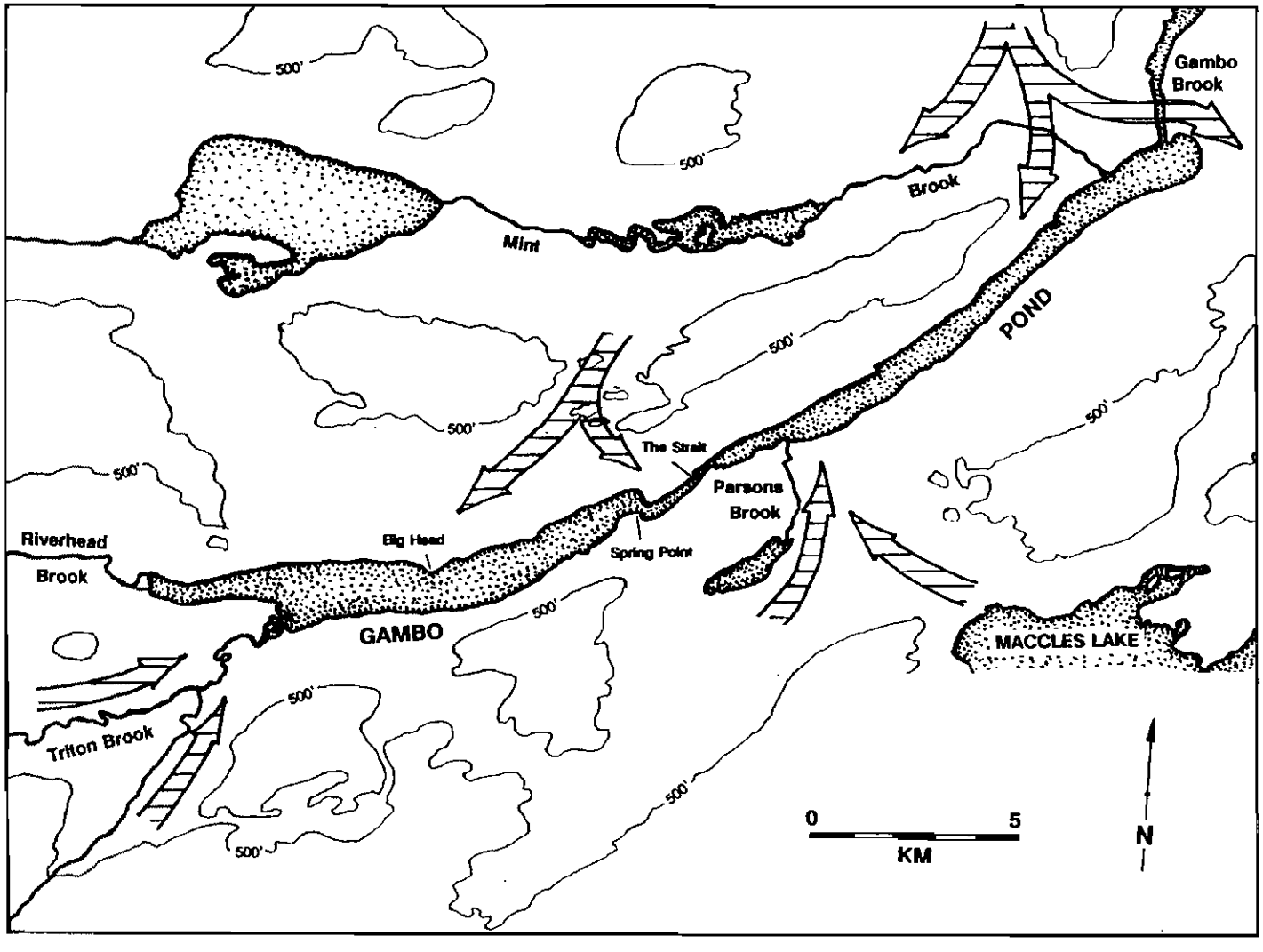

Figure 3. The Major Geographical Features of Gambo Pond. Arrows indicate likely entry routes for caribou bands migrating through the region.

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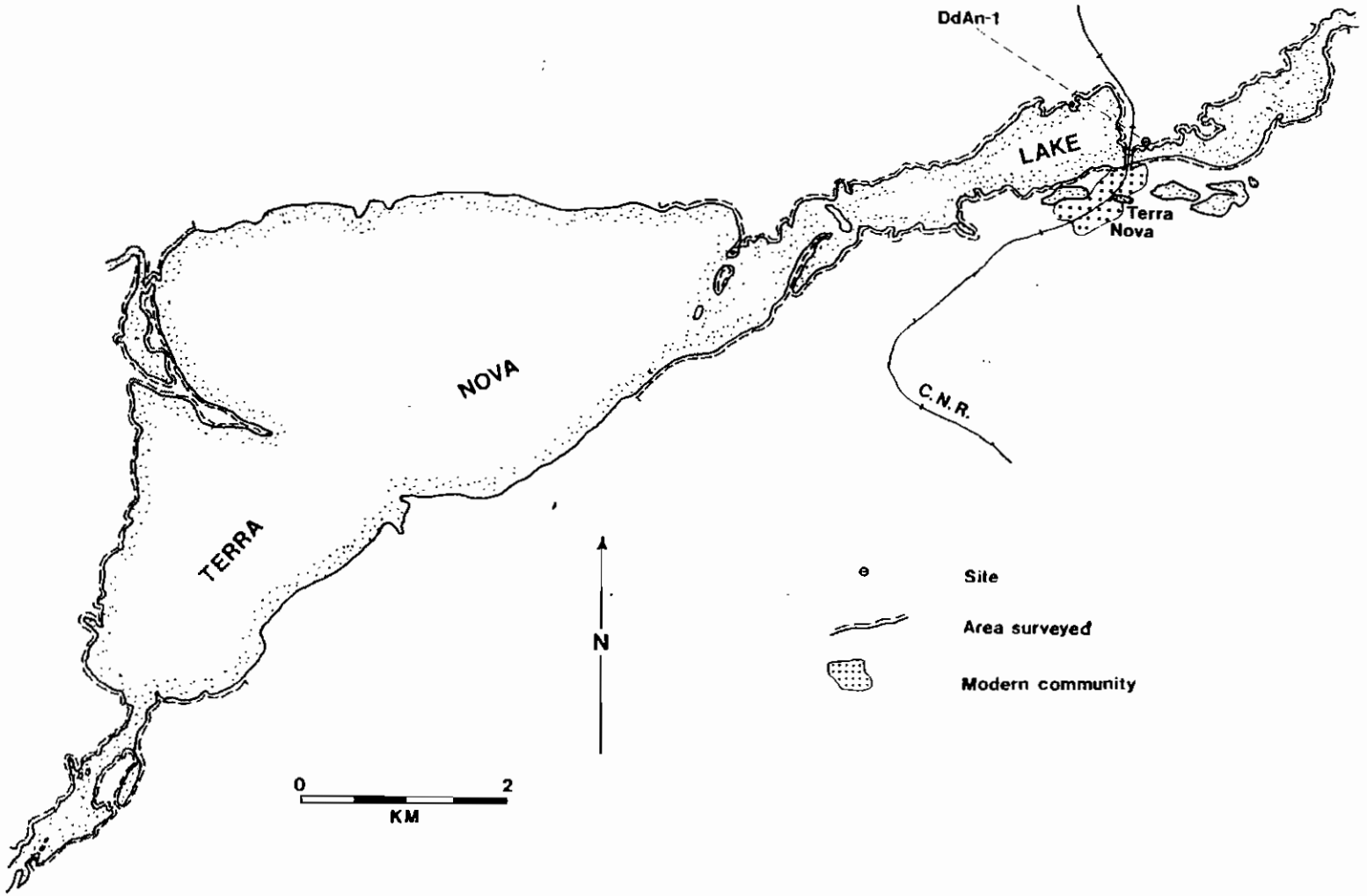

Figure 4. Map of Terra Nova Lake.

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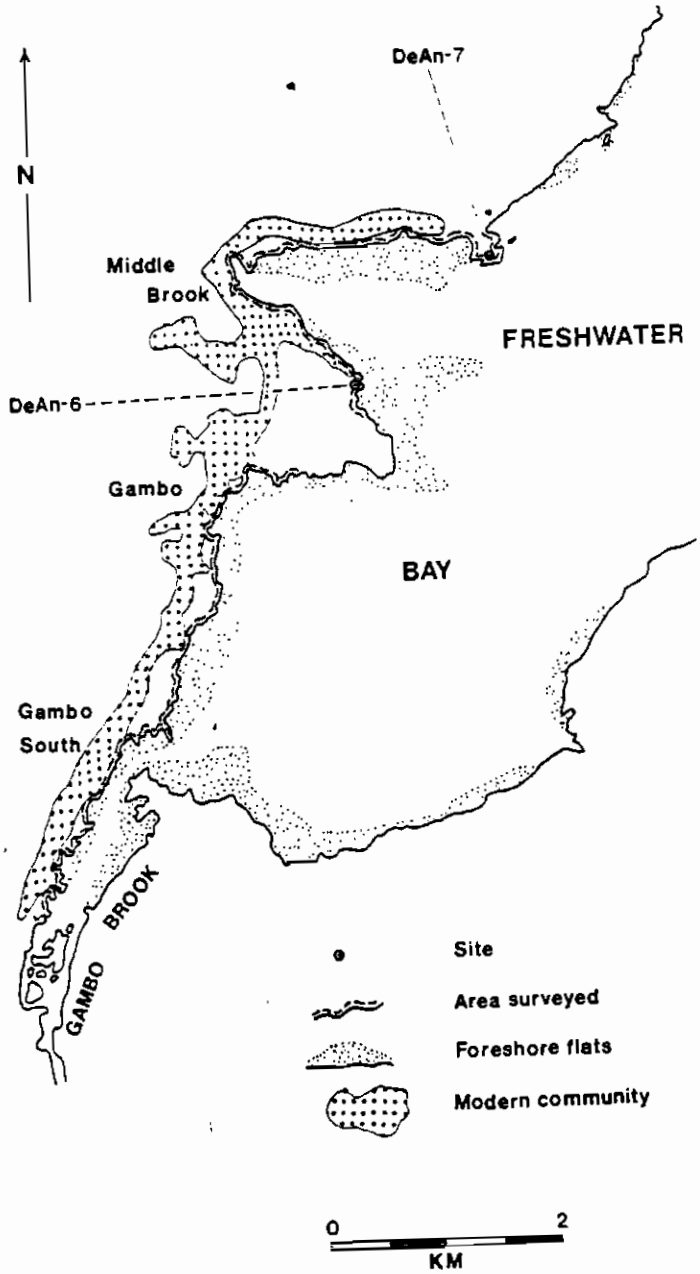

Figure 5. The Head of Freshwater Bay.

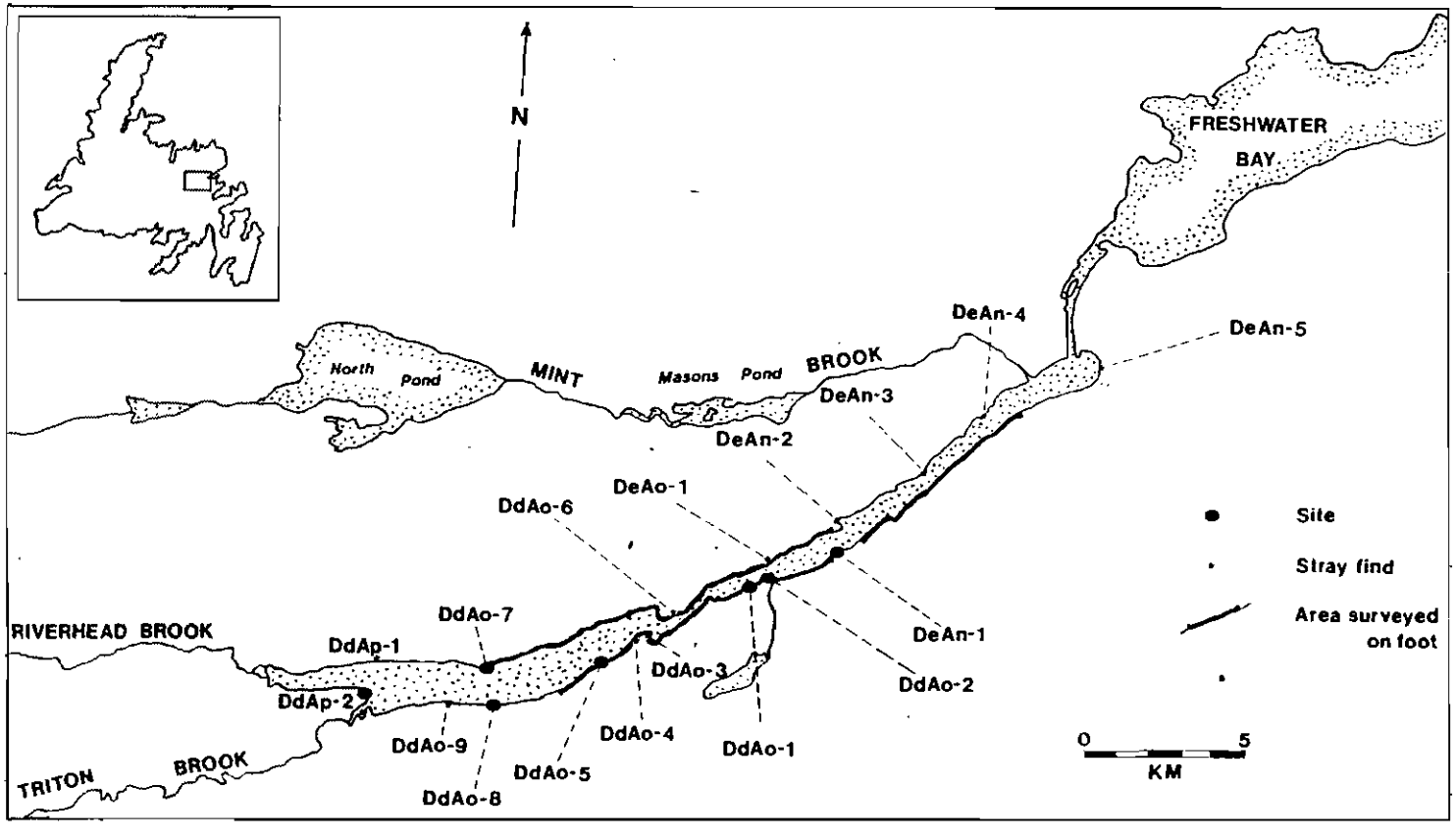

Figure 6. Archaeological Sites and Findspots along Gambo Pond.

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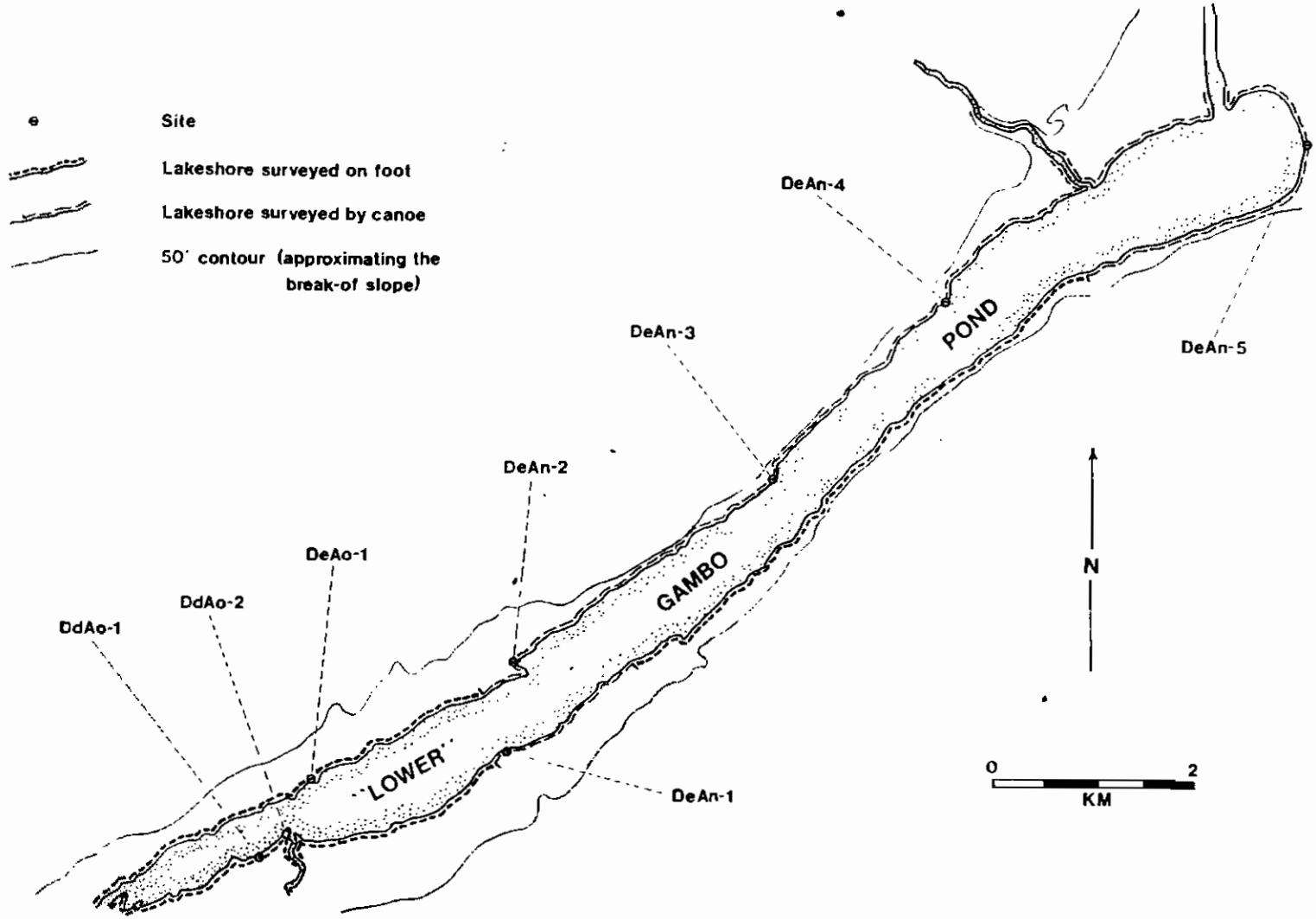

Figure 7. Archaeological Sites and Findspots on "Lower" Gambo Pond. The 50m contour approximates the break-of-slope.

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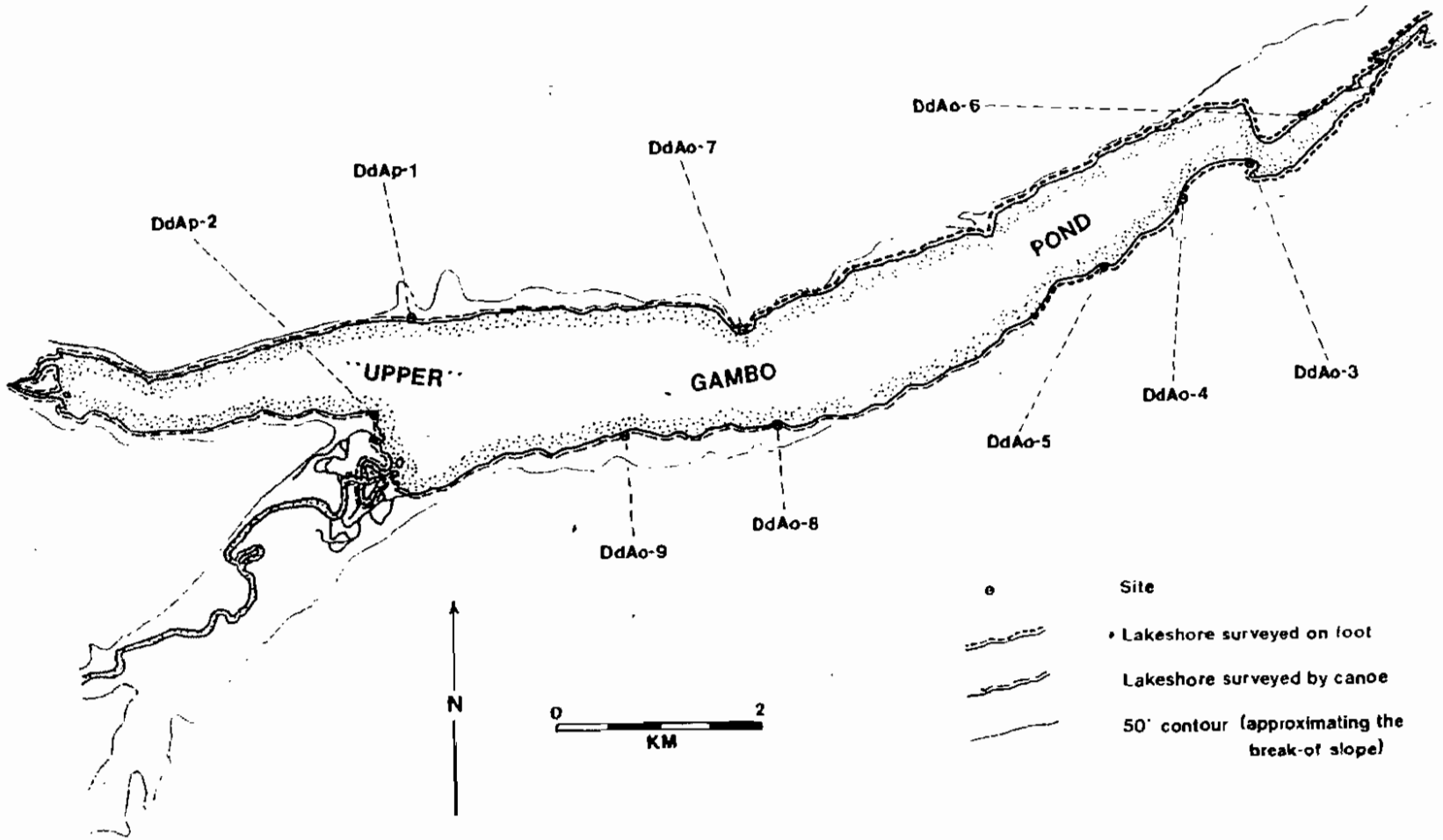

Figure 8. Archaeological Sites and Findspots on "Upper" Gambo Pond. The 50m contour approximates the break-of-slope.

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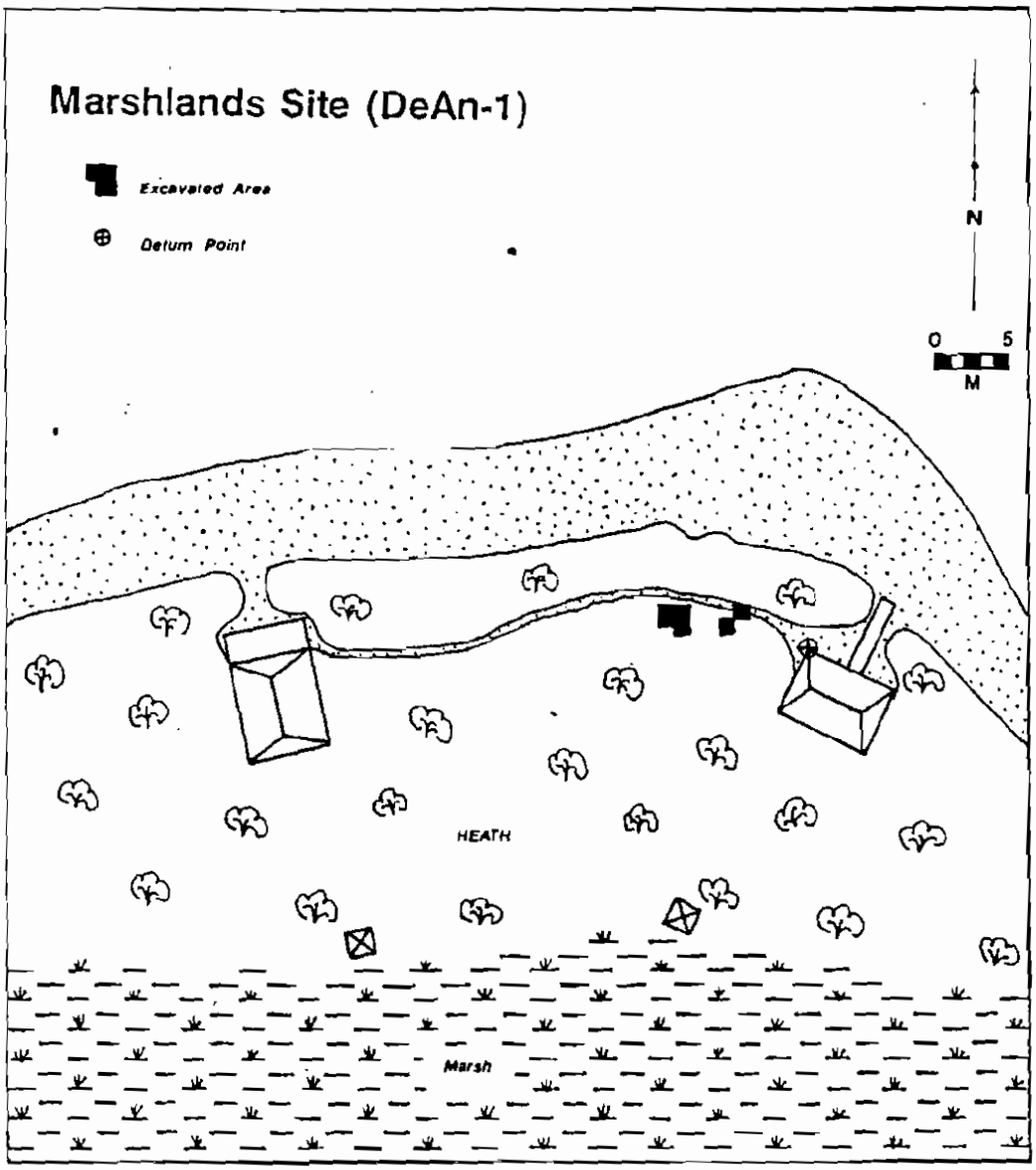

Figure 9. The Marshlands Site (DeAn-1).

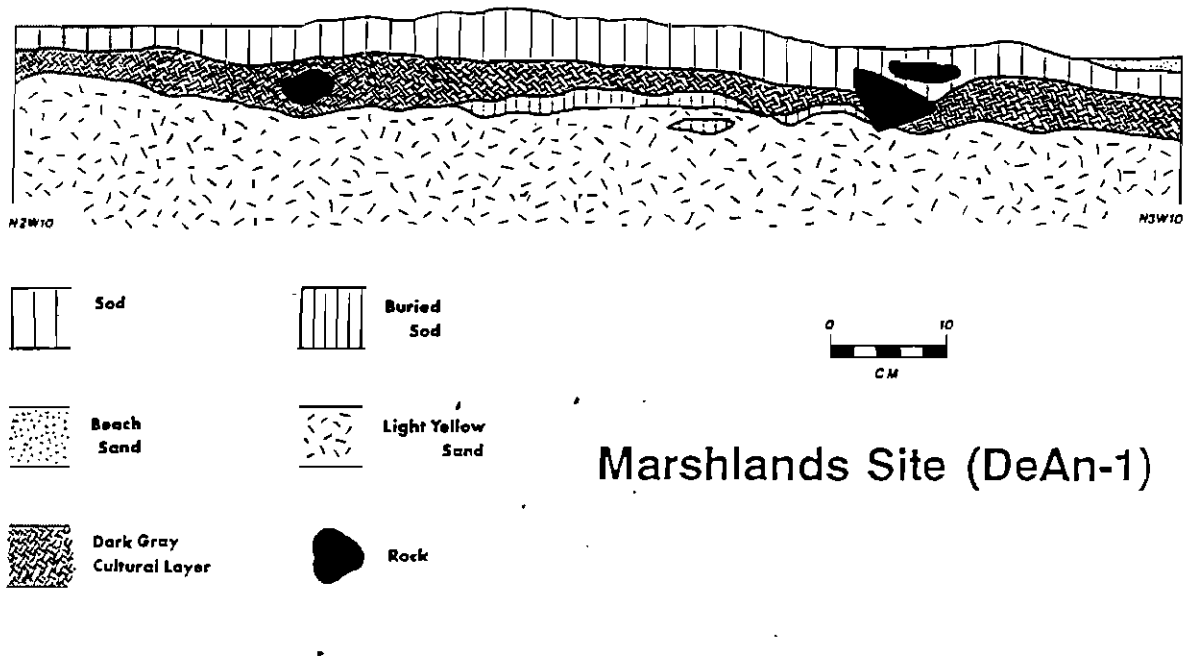

Figure 10. Marshlands Site Profile.

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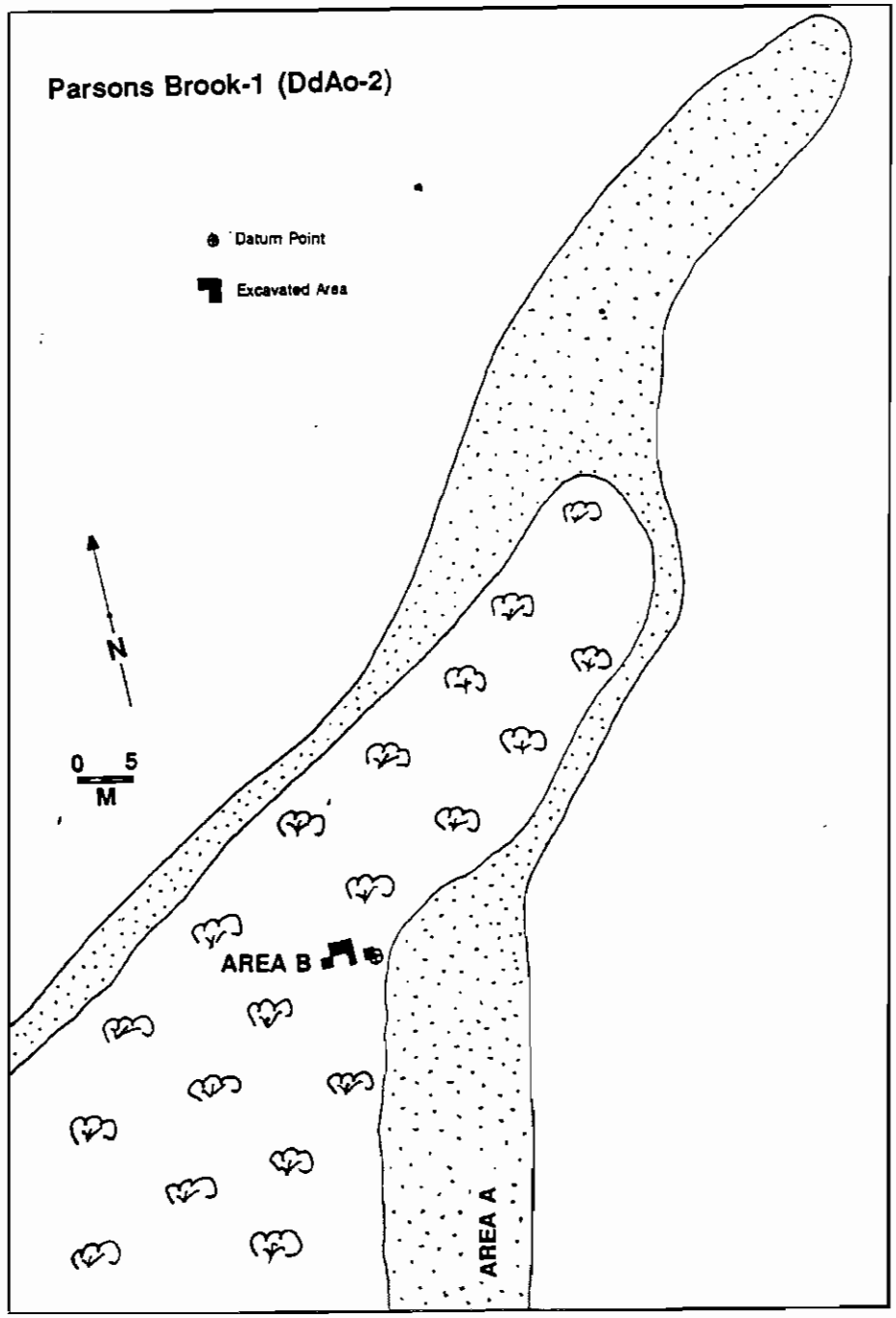

Figure 11. The Parsons Brook-1 Site (DdAo-2).

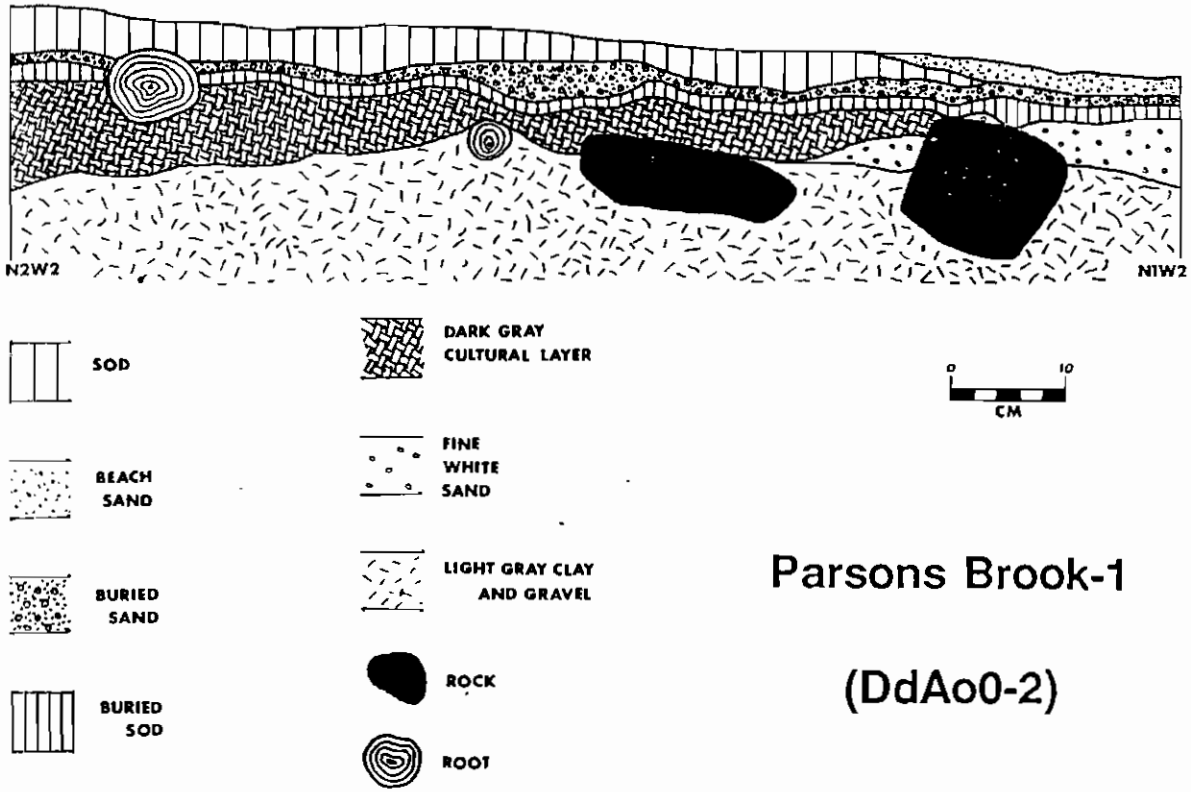

Figure 12. Parsons Brook-1 (Area B) Profile.

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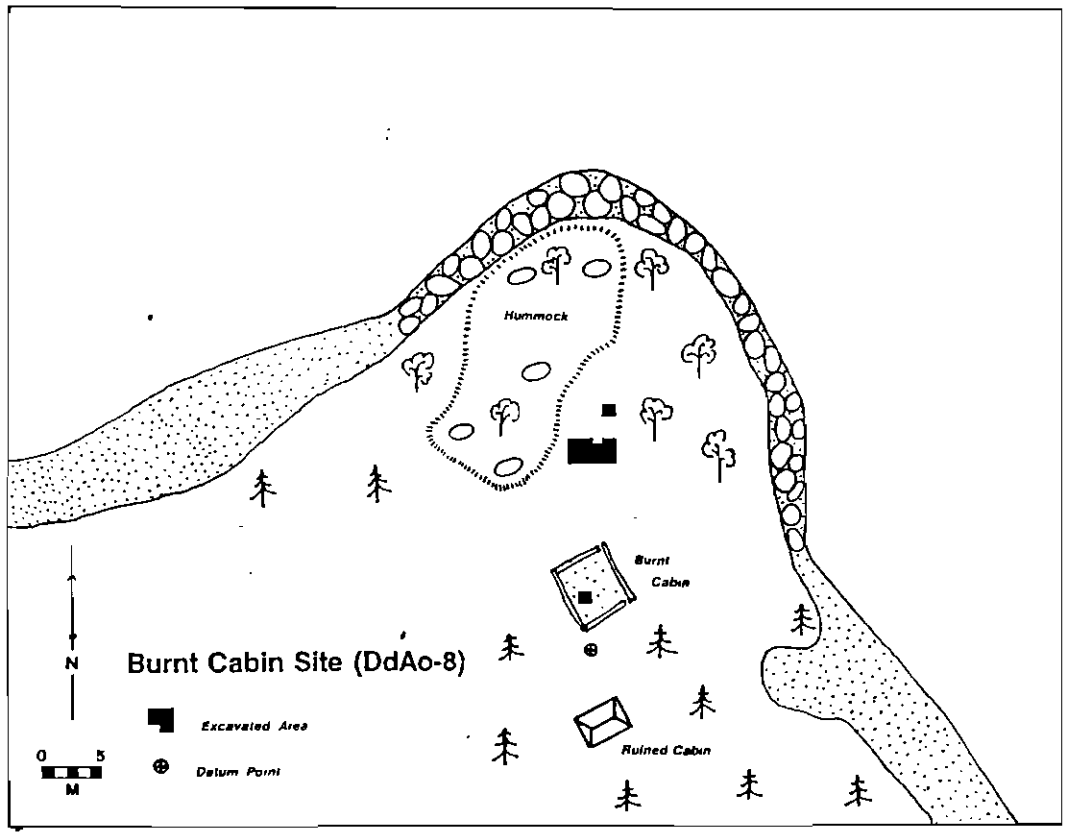

Figure 13. The Burnt Cabin Site (DdAo-8).

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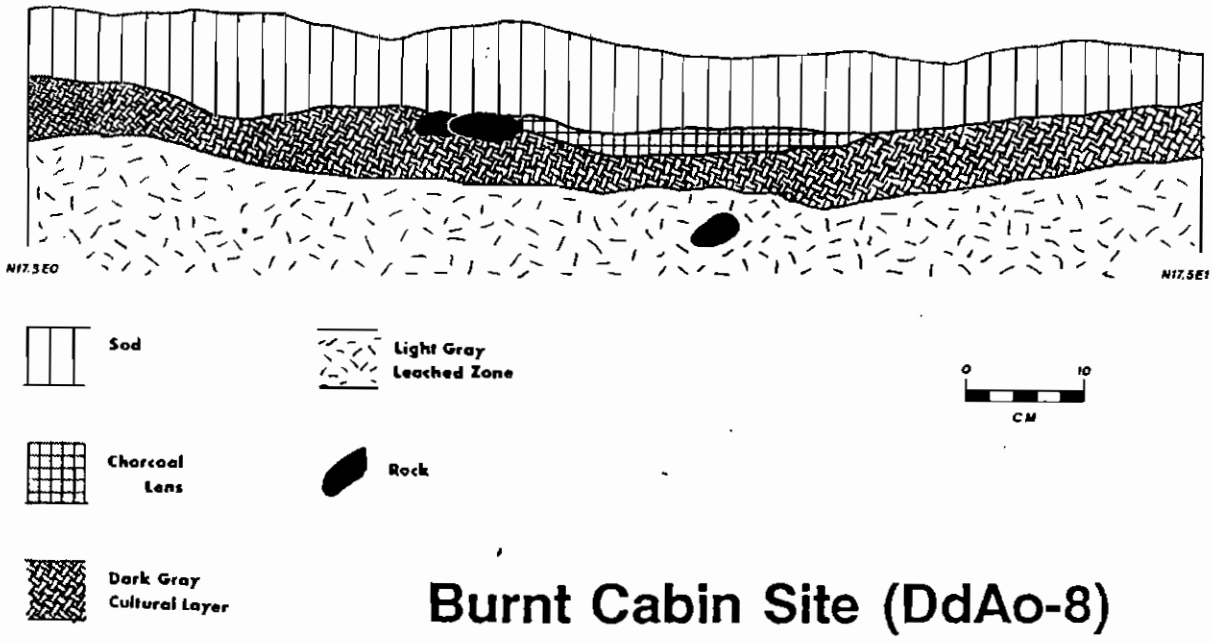

Figure 14. Burnt Cabin Site Profile.

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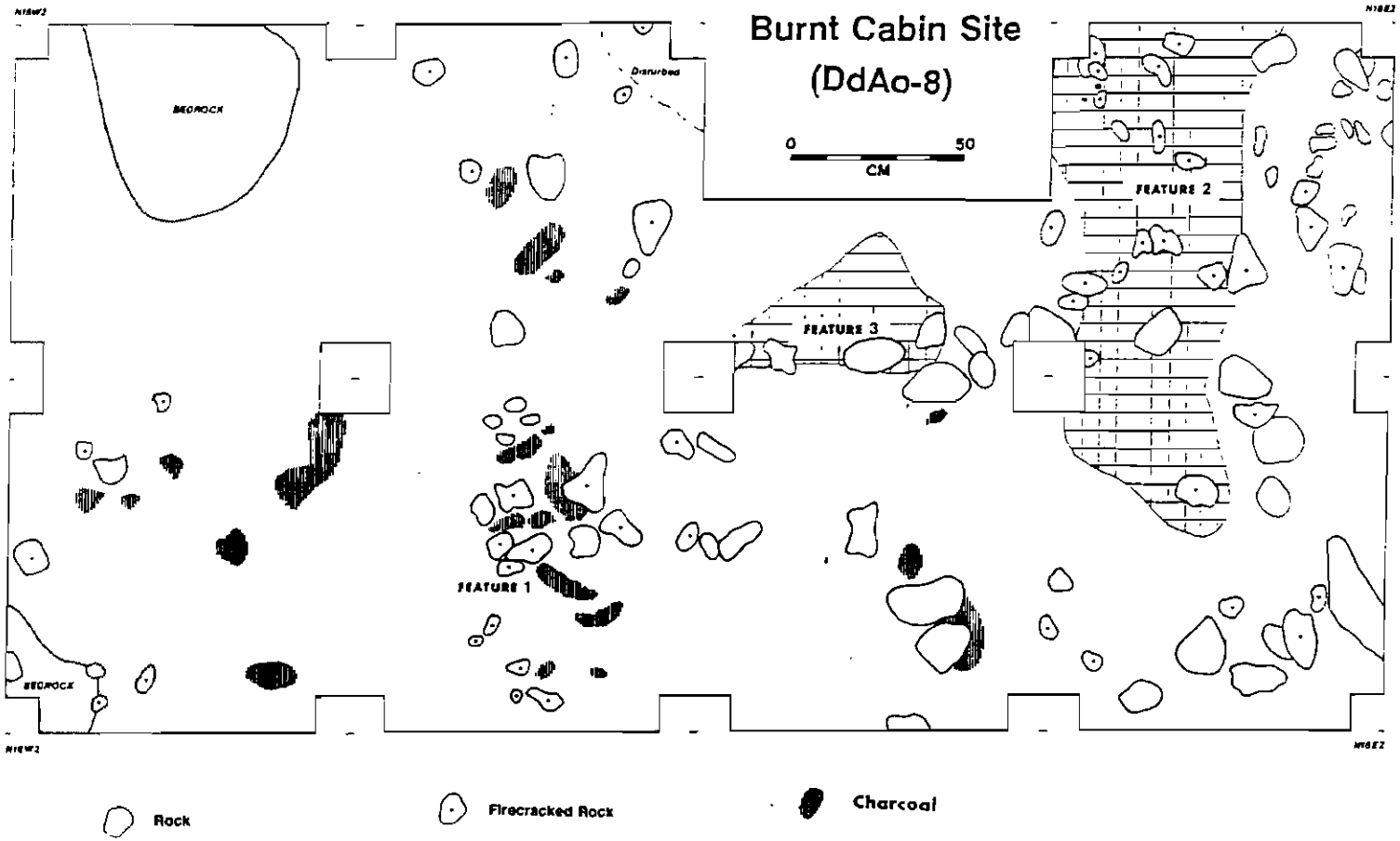

Figure 15. Plan of Main Excavated Area at the Burnt Cabin Site.

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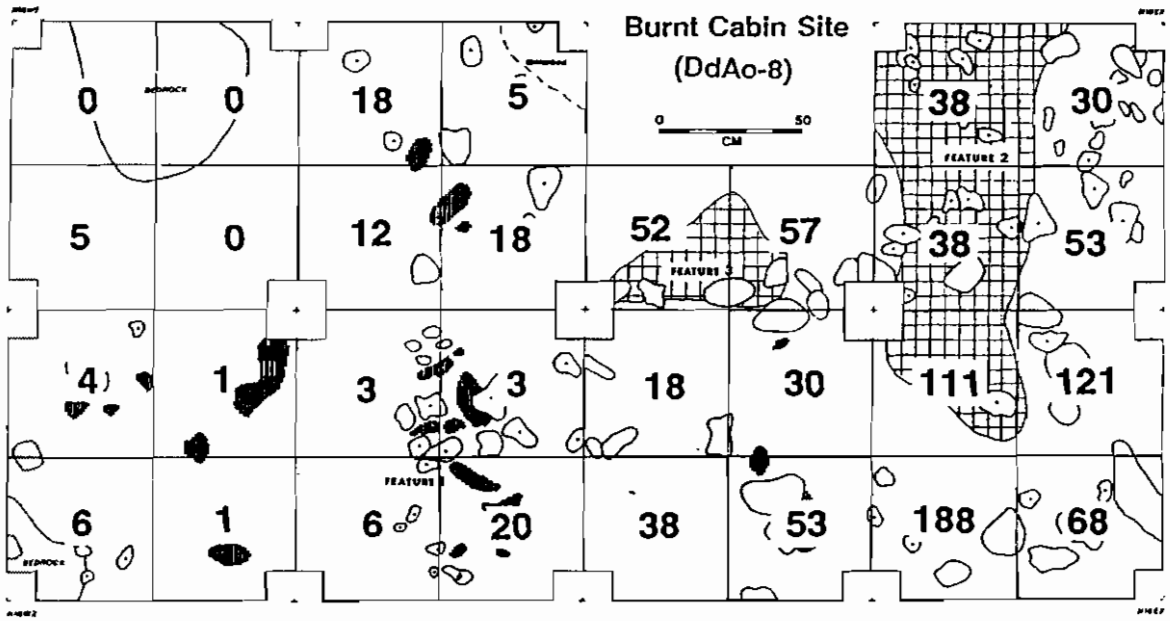

Figure 16. The Distribution of Lithic Debitage at the Burnt Cabin Site. Bold numbers indicate the number of flakes recovered from each meter-quadrant.

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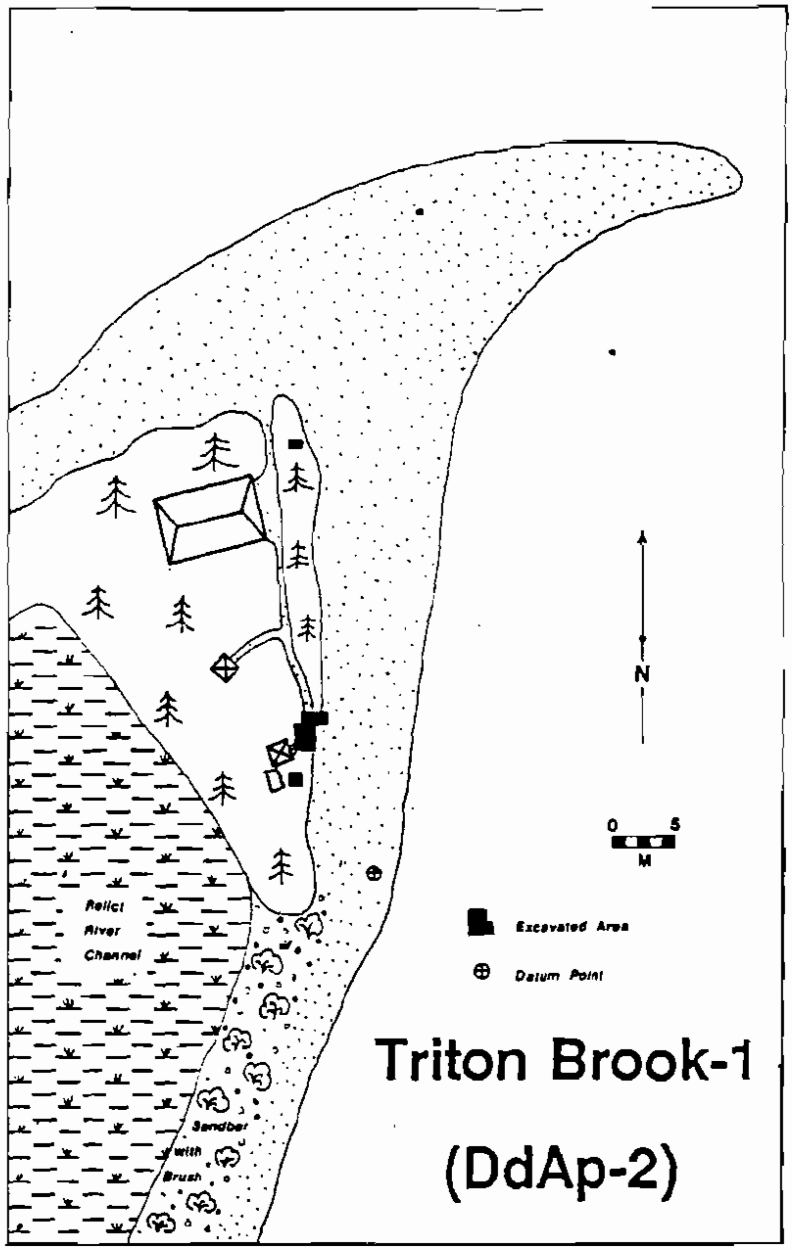

Figure 17. The Triton Brook-1 Site (DdAp-2).

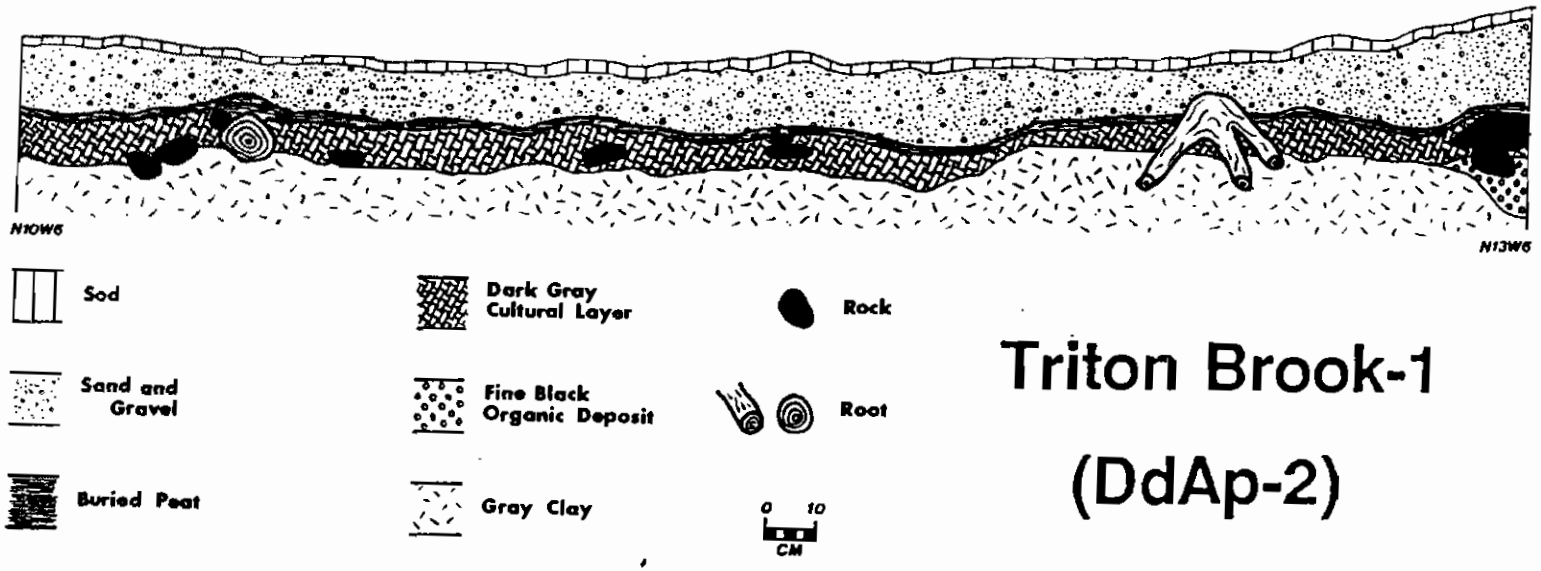

Figure 18. Triton Brook-1 Profile.

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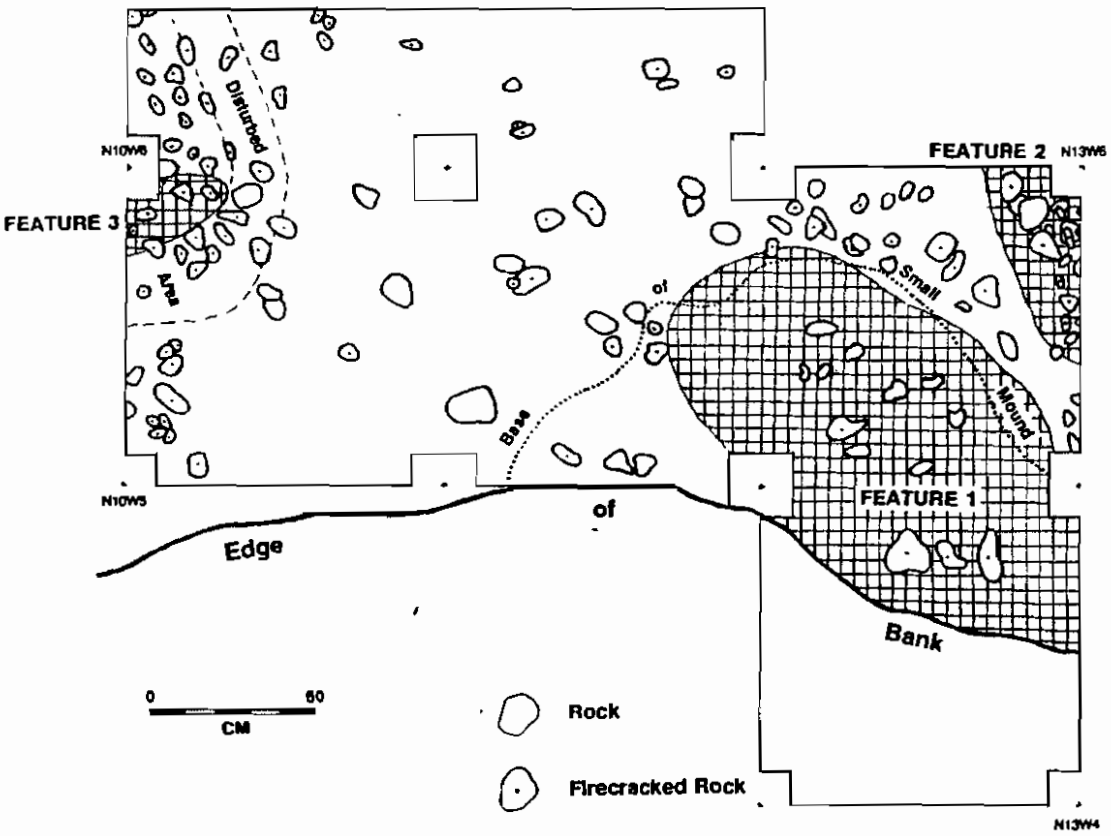

Figure 19. Plan of Main Excavated Area at Triton Brook-1.

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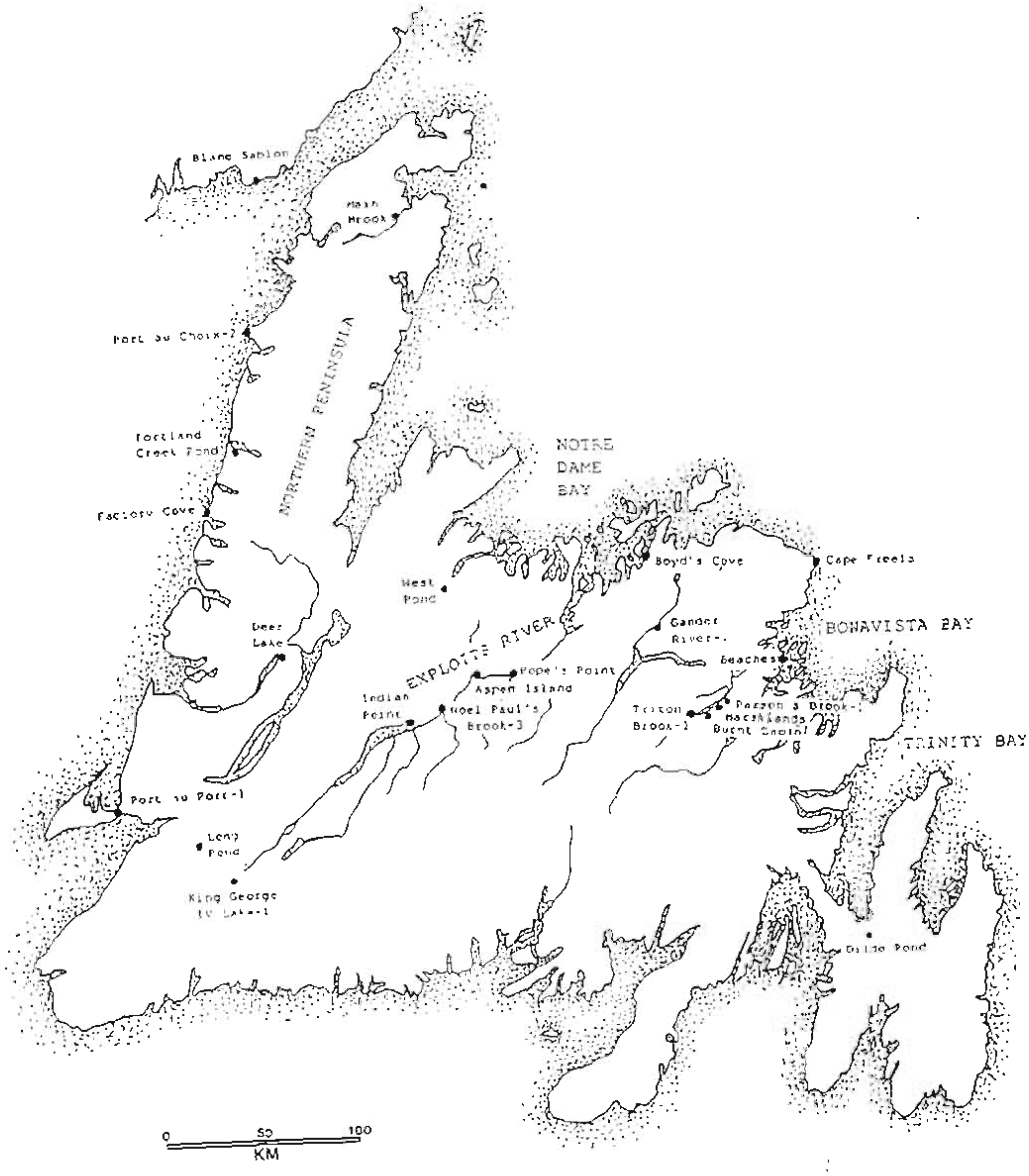

Figure 20. Major Archaeological Sites in Newfoundland, Including Interior Sites of Known Cultural Affiliation.

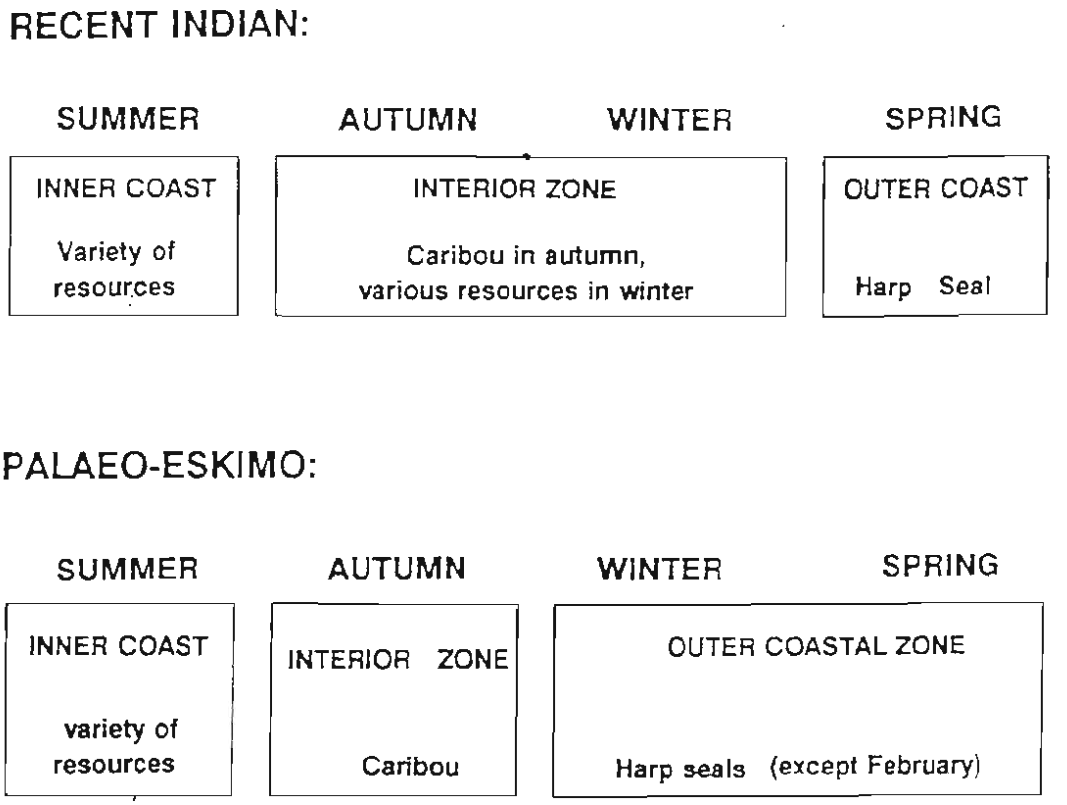

Figure 21. Proposed Model of Prehistoric Recent Indian and Palaeo-Eskimo Adaptations in Newfoundland.

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Plate 1. View of the Strait on Gambo Pond, Looking North, Toward the DFO Cabin.

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Plate 2. View of the Strait on Gambo Pond, Looking West.

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Plate 4. View of Big Head.

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Plate 5. View of the Community of Terra Nova from the Beach near the DdAn-1 Findspot.

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Plate 6. View West across DeAn-6 Toward the Mouth of Middle Brook, Freshwater Bay.

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Plate 7. View South across DeAn-7 Toward the Head of Freshwater Bay.

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Plate 8. Temporary Camp at Spring Point, Near DdAo-3, Used during Pedestrian Survey.

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Plate 9. The Two Cabins Site (DdAo-5).

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Plate 10. The Marshlands Site (DcAn-1).

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Plate 11. View of the Marshlands Site, Showing Excavated Units.

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Plate 13. Lithic Artifacts from the Marshlands Site (DcAn-1).

a-c:	Projectile points.
d:	Triangular biface.
e:	Biface.
f-k, m-p:	Endscrapers.
l,q,r,s:	Miscellaneous biface fragments.
t-w:	Linear flakes.
x:	Retouched core fragment.
y:	Sidescraper.

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Plate 14. The Mouth of Parsons Brook. DdAo-2 (Area B) lies to the left of the isolated tress near the end of the point.

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Plate 15. View up Parsons Brook, across DdAo-2 (Area A).

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Plate 16. Bifaces from Parsons Brook-1 (DdAo-2) Area A.

a: Pointed biface.

b-c: Ovate bifaces.

d: Lanceolate biface fragment.

e: Miscellaneous biface fragment.

f: Square-based biface fragment.

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Plate 17. Lithic Artifacts from Parsons Brook-1 (DdAo-2) Area A.

a-c,h:	Utilized flakes.
d-e:	Unifacially-retouched flakes.
f,g,i:	Large linear flake/blade fragments.
j:	Biface fragment.
k:	Unifacially-retouched scraping tool.

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Plate 18. Miscellaneous Lithic Artifacts from Parsons Brook-1 (DdAo-2) Area A.

a: Unifacially-retouched flake.

b: Retouched core fragment.

c-d: Utilized flake.

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Plate 19. View of Parsons Brook-1 (Area B), from Area A.

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Plate 20. View East across Parsons Brook-1 (Area B), showing Excavated Area.

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Plate 21. Lithic Artifacts from Parsons Brook-1 (DdAo-2) Area B.

a-b:	Notched bifaces.
c:	Chipped and ground burin-like-tool.
d:	Biface fragment.
e-h:	Endscrapers.
i:	Leaf-shaped uniface (possible inset sideblade).
j-k:	Proximal uniface fragments (probably from endscrapers).
l-m:	Microblades.
n:	Quartz crystal microblade.
o-q:	Assorted bifaces.
r:	Utilized flake (spokeshave?).
s:	irregular flake scraper.

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Plate 22. View of the Burnt Cabin Site (DdAo-8). The site lies within the grove of hardwoods on the point flanked by sandy beaches.

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Plate 23. View of the Burnt Cabin Site (DdAo-8). Triton Brook-1 (DdAp-2) lies on the end of the low point of land in the distance.

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Plate 24. View of Big Head from the Burnt Cabin Site (DdAo-8).

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Plate 25. Lithic Artifacts from the Burnt Cabin Site (DdAo-8).

a:	Projectile point.
b:	Probable projectile point fragment.
c:	Biface tip.
d:	Triangular biface.
e:	Biface fragment.
f-l,n,p:	Scrapers.
m:	Uniface fragment.
o:	Retouched flake.
q-s,u,v:	Linear flakes.
t:	Utilized flake.
w:	Biface preform.

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Plate 26. The Burnt Cabin Site, Feature 1 (to the right of the north arrow).

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Plate 27. View West, toward the Northern Edge of the Triton Brook Delta.

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Plate 28. The Triton Brook-1 Site (DdAp-2). The main excavated area lies to the right of the white outhouse.

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Plate 29. View of the Profile of Excavations at the Triton Brook-1 Site (DdAp-2). Feature 2 lies at the far right end of the profile.

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Plate 30. Bifaces from Triton Brook-1 (DdAp-2).

a-f: Projectile points.

g: Dorset triangular endblade.

h-j: Miscellaneous bifaces.

k-n: Triangular bifaces.

o-t: Lanceolate bifaces.

u-w: Biface fragments.

x: Irregular biface.

y: Small biface preform.

z-aa: Large preforms.

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Plate 31. Scrapers from Triton Brook-1 (DdAp-2).

a-cc: Scrapers.

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Plate 32. Lithic Artifacts from Triton Brook-1 (DdAp-2).

a:	Linear flake/blade core.
b,s:	Retouched flake scrapers.
c,g,i:	Linear flakes.
d-f:	Microblades.
h,m,n,p,q:	Retouched flakes.
j-k:	Flakepoint preforms.
i:	Beaches Complex projectile point preform.
r:	Utilized flake.

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Plate 33. Miscellaneous Lithic Artifacts from Triton Brook-1 (DdAp-2).

a,h: Irregular flake scrapers.

b,c,e-g,j,l,n-p: Retouched flakes.

d: Endscraper.

i: Biface fragment.

k: Utilized flake.

m: Retouched flake scraper.

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1988 Fieldnotes, Locke Survey

28 SUNDAY FEBRUARY

59th day / 307 to come

(material from Comfort Cove burials - one main one & 3 others).
(material from Swan Island - from site already well known. Should be some mat'l still there under the rocks & gravel which further in the entrance

North Angle DfAw-1
Boom Island DfAw-3
Aspen Island DfAw-4,5,6
Red Indian Brook
Slaughter Island DfBa-5
Little Red Indian Brook DfBa-6
Four Mile Rapids DfAv-1
Old House Site
Rattling Brook
Comfort Cove

1988 Fieldnotes

Sun 5-10 [illegible] N. Angle - w [illegible] Brook (and [illegible]) food church & food & [illegible] [illegible] company dam built

MONDAY FEBRUARY 29

Weather: Temp: Barom:

Mon October 3. ~~1985~~

8.00 am to DL's re contract. Signed.

To North Angle - the most important Beothuk site on the whole island, throughout the historic period.

North Angle first good caribou crossing (see David Buchan ref. in diary to stump up [illegible] string (stockade) hung [illegible] bank, used with fence to guide caribou) after [illegible] water. [illegible] more in hist times after [illegible] available, more access to sea - trade (distance trade). R.I.L. more favoured by present as better crossing.

Locke's HP #7 is the second farthest west - lookspoon on North Angle, at the edge of the present [illegible] around a 40' spruce. # 16 is 5m further west. most of Locke's hp's are still there, but under heavy brush & logs & the new dyke.

Long cobble hearth between hp 8 & 10 with broken bowl on it an unusual feature, 20' long.

HP's at east end, 23-11, much smaller, older, poorer than others, possibly robbed for later ones, but still only ca. 1600 - 1800 AD. no prehistoric [illegible] at all.

Most of the sites here pretty well worked over by Dev, Locke, & Hodder

1 TUESDAY MARCH

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61st day/305 to come

Weather:

Temp:
Barom:

65 from Spruce 0800 HP's 12, 13, 4 all plowed under to
0830 Scoop up gravel for beach.

0900

0930

110 from Spruce 1000 HP 11

1030

120 from Spruce 1100 (area bulldozed for beach.)

1130

1200

205 from Spruce to narrow water

1300

215 1330 to start of little passage where pond opens

1400

1430

Spoon Island has 3 housepits/hearths at edge of former beach (now 3' under water) with one coal, pennants, little passage gravel iron all together at hearth.

1700

1730

1800

1830

1900

Weather: Aspen Island

Temp:
Barom:

3 hp's where stone foundations ones are

3 more at W tip of island, 50-100m from stone foundations.

Lot of ice damage & flooding (Bishops Falls ?) since rocks here, & logging.

Aspen, Boom & other island & North Angle all part of one caribou ambush set up - wait till herd in water from north side then go at them from several points.

Ice has scraved tops of walls in the 3 hps at west end;

Beside stone founds (Micmac Carbon storage on top of S. h.p's), 2-3 1m diam. cache pits (like MA).

* 50 m east of stone founds, longhouse with not'l in situ below fallen & washed-up logs, long central hearth with fcr & bone. No habitation stuff, only drying & smoking or storage. 15m long.

Excellent potential for investigation of longhouse.

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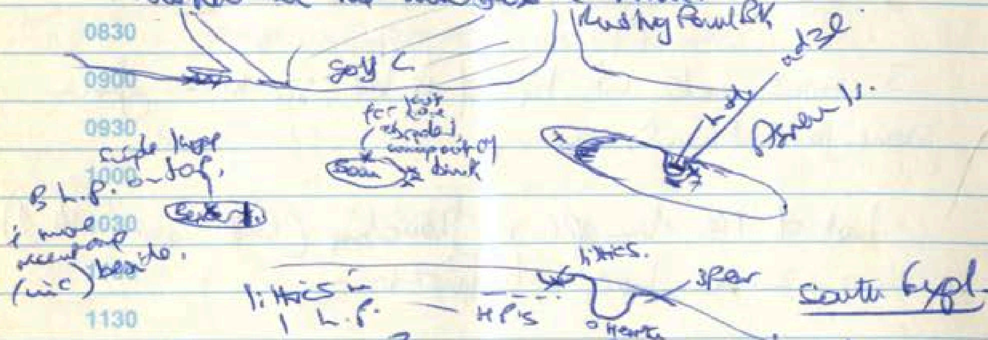
3 THURSDAY MARCH 63rd day/303 to come

Weather: South Exploits

Temp:
Barom:

0800 Bottom in the ambush chain:



1200 formerly 13? house pits in behind the
Dorset (?) site which is now eroding into the
river. House pits destroyed (most) except 2
1300 by road put in when boom being built. Large
1330 sized houses.
1400 ✱ Hearth possibly still intact in bank – burned bone, fcr + stone
1430 chips. Come back in spring when higher water has
1500 washed the silt off the shore for surface coll.
1530 Single complete point looks Groswater, not
1600 Dorset, i.e. much older.

1630
1700
1730
1800
1830
1900

PURIM

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FRIDAY MARCH 4

Weather: Temp: Barom:

note fence

2 mile ~~Agnes~~ Island

At ~~[illegible]~~ east end several house pits, 1 cache pit, 1 grave rocks (previously recorded?)

Near centre of island, south side, 1 h.p.

" " " , large h.p. with rocks piled around house rim, 6 m wall to wall, more in oval than round shape

(All along edge of beach)

1 more, deep, around stone 5 m diam

1 more, 7 m diam.

* Used over long time – not one of any all spread out.

2 more h.p.'s on lower terrace – this is where Gary & I worked at.

note – fence – good crabbing spot W of where all on S. side, so not to scare 'bow down greeting onto [illegible] water or [illegible], shallow, so [illegible]

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5 SATURDAY MARCH 65th day/301 to come

Fatzell / Z-mile 1.

Weather: Temp: Barom:

0800 Gorge runs down centre of [illegible]

0830  , near opposite landing place

0900 where we parked.

0930 Kill in gully. (antler bone?)

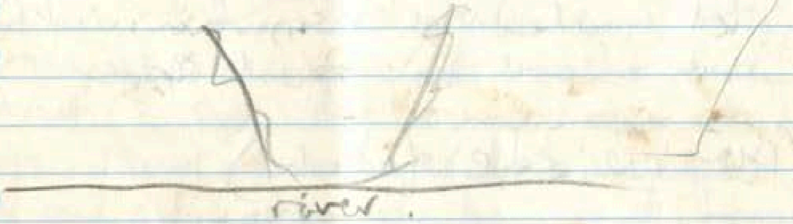
1000 1–2 [illegible] pits, incl. one on NW corner,

1030 [illegible]; ie not connected with caribou

1100 crossing hunts.

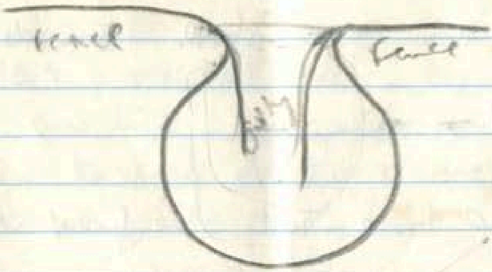
1130

1200



1300

1330



1400

1430

1500

1530

1600

1630

1700

1730

1800

1830

1900

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66th day, 300 to come

SUNDAY MARCH 6

Weather: ~~Camp~~ Red Indian Brook

Temp:
Barom:

Trace of burned base in clearing at corner, old tent camp for log drivers, prob. some other invest. use, but unevaluat. old B camp too.

—

50 m further west on top of bank, 5 small housepits, ca 10 m apart linearly.

R. I. Brook good fall route by canoe back into country for later Beoth. Bk route to Sea via ST Luke.

But these ~~might be~~ probably micmac, not Beothuk.

—

note lack of growth over hearth too much acid?

8.00 8.30 9.00 9.30 10.00 10.30 11.00 11.30 12.00 1.00 1.30 2.00 2.30 3.00 3.30 4.00 4.30 5.00 5.30 6.00 6.30 7.00

7 MONDAY MARCH

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67th day/299 to come

Weather: Slaughter Island

Temp:

Barom:

0800 2 house pits - 1 deep (found 82)

0830 Beothuk, tiny other shallow, micmac,

0900 with no fcr. Chert from this one

0930 too, is micmac.

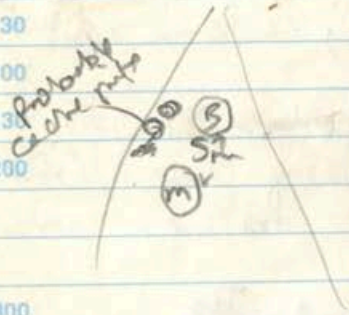
1000

1030

1100

1130

1200



1300

1330

1400

1430

1500

1530

1600

1630

1700

1730

1800

1830

1900

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TUESDAY MARCH 8

Weather:

Temp:
Barom:

Note Priscilla.

pass MA site near Phillips garden
R.C.MA Stn

8.00
8.30
9.30
10.00
10.30
11.00
11.30
12.00

1.00
1.30
2.00
2.30
3.00
3.30
4.00
4.30
5.00
5.30
6.00
6.30
7.00

1962 [illegible].

9 WEDNESDAY MARCH

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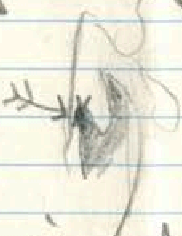
69th day/297 to come

Weather: Mangle
Temp:
Barom:

0800 April after got married (1964) —
0830 very first artifacts from RIL Point
0900 maybe we were going for a
0930 picnic. Found iron gouge, spear heads
1000 & other stuff & took it right into
1030 St. John's & presented to
1100 Allan Fraser
1130 Curator, Nfld,
1200



Later, saw these
artifacts in book by [illegible]
1300 under photo credit of Don McLeod.
1330
1400
1430 Little Port. SK = [illegible]
1500
1530
1600
1630
1700
1730
1800
1830
1900

site Conne? [illegible] for.

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70th day/296 to come

THURSDAY MARCH 10

Weather: 4 mile Rapids

Temp:
Barom:

mentioned by Cartwright — drying salmon, [illegible] on level ground in behind

maybe also by Buchan.

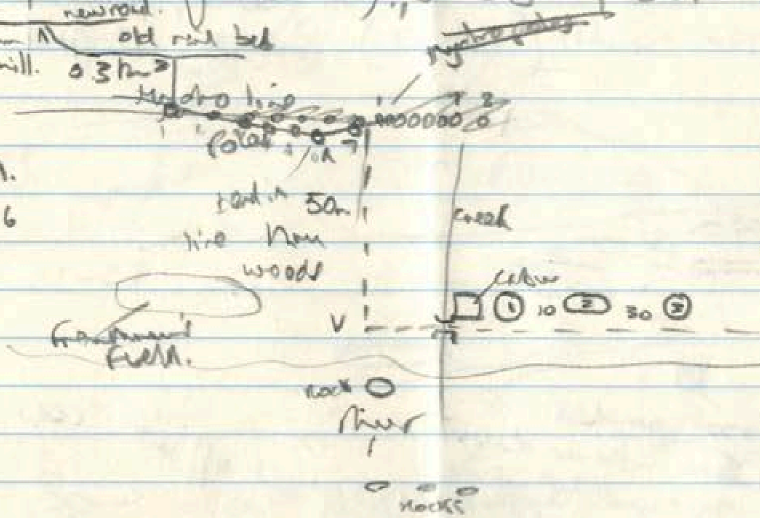
Salmon, caribou, stopping place up/down river

Site 400-500m above 4 mile Rapids (4 miles from C-f), on edge of bank

3.3km N from mill. 0.3km

89.

8.6



→ 4MR
400m

Stone weirs at mouths of rivers and brooks.

Stole Beothuk nets + used them, &
some fully cut out to enlarge holes &
used for seals. See Howley.

Watch this area for devel. of park or houses.

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11 FRIDAY MARCH

71st day/295 to come

Weather: Old House site:

Temp:
Barom:

No artifacts.
Access point to String of ponds
in back for beaver.

* As with nearly all the B. sites, located on a small cove, indicating open water (no ice) season, i.e. fall.

rock walled
4.5m interior diameter
75 cm deep inside
25 cm raised walls, putting out of winter ice.
[illegible] bark, [illegible]
[illegible]

Using rock walls saved cutting + building 4' stud walls

* All built on level ground for architectural efficiency

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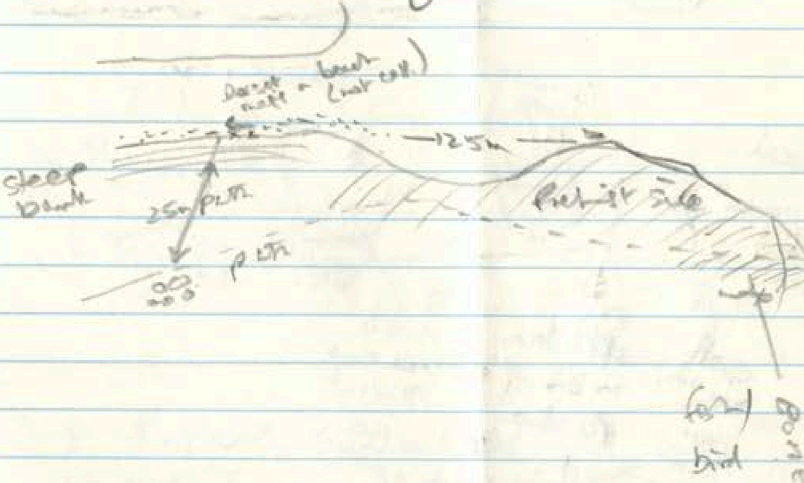
SATURDAY MARCH 12

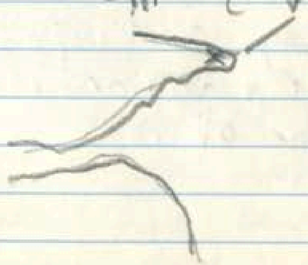
Weather: Rattling Brook.

Temp:
Barom:

Probable but salmon fishing/poaching site in woods. Clay pipe stems (given away) hammer found. Boulders off (east) path in woods possible foundation of building.



Some recent digging of former stone mound. Grave? No comm. [illegible], so suspension [illegible]. Check other side of River for site. [illegible] pot. Check appt. (map = wigwams)



13 SUNDAY MARCH

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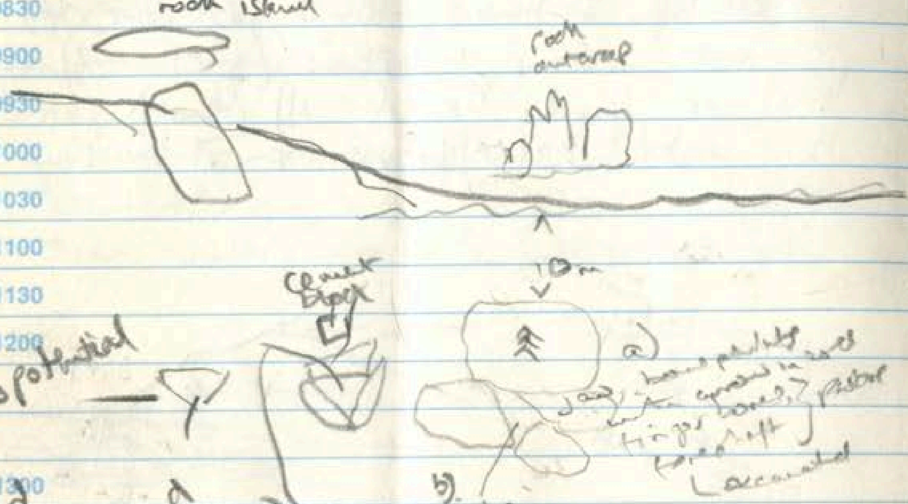
73rd day/293 to come

Weather: Comfort Cove.

Temp:
Barom:

check [illegible] site a west side of tip of pen. + Island



d) shell beads, copper pendant, human bones, bone h.h.

c) Skeleton in sitting position | prob. lengthy

b) ditto lead shot pendants Locke Has good potential

Bob Adams – boat.

Mr. Head VP Loon Bay school responsible for marking B. area C C & MB & others with cement blox. Contact for others.

74th day / 292 to come

MONDAY MARCH 14

Weather: mussel Cove burial Temp: Barom:

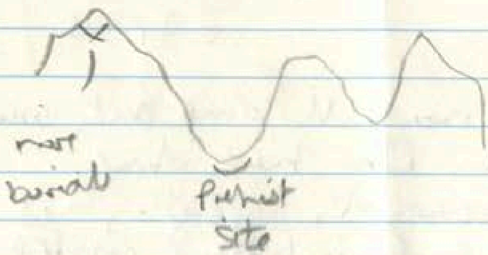
Skeleton + photos in basel. Tusk.

8.30
9.00

9.30
10.00

Comfort Cove II (CI)

10.30
11.00
11.30
12.00



see if anything from Hawley's zone)

1.00
1.30
2.00

---

* Ask Pastore again for:
pendant with arrow, decorated pendant, + pendant
finger bones } all marked with burial number
WB forehaft → Dorset?
skull parts
jaw + teeth
vertebrae
patellas

2.30
3.00
3.30
4.00
4.30
5.00
5.30
6.00

Gave to RP at Locke's house ca. 1983 in furnace room.
First year working at Boyd's Cove.
Pastore had brought artifacts out for analysis to MUN (a MUN event) the year before, so DL thought he'd take these to MUS too.

C.C burial a)

15 TUESDAY MARCH

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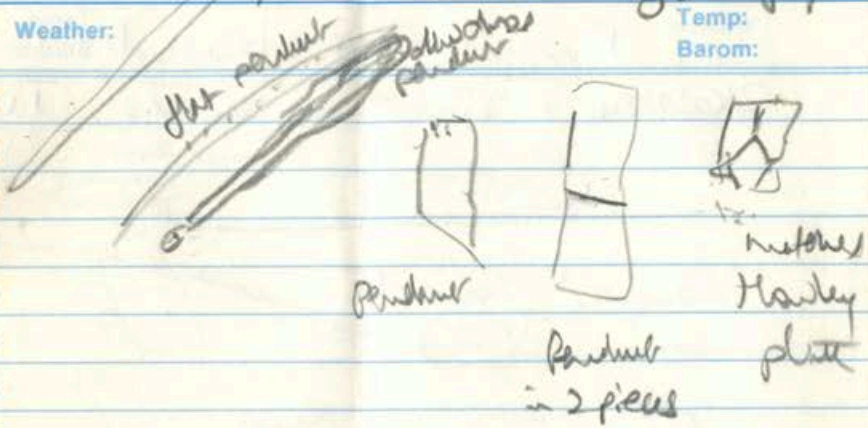
Weather: Temp: Barom:



0800
0830
0900
0930
1000
1030
1100
1130
1200 This burial now all dug out, very deeper than OL burial dug.
The one above it, though, has great potential, in below rocks.
1300
1330
1400
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900

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WEDNESDAY
MARCH 16

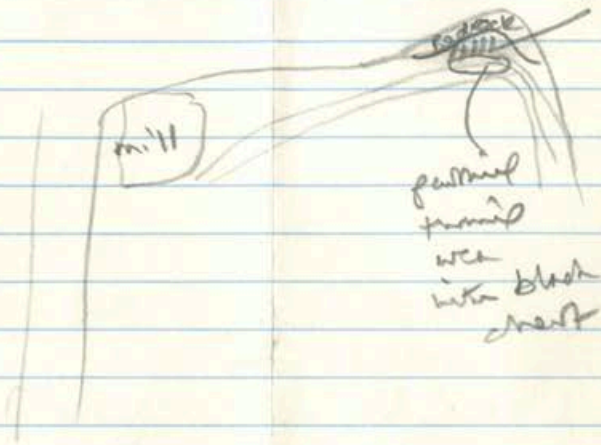
to come

Weather: Campbellton

Temp:
Barom:

Potential

8.00
9.00
9.30
10.00
10.30
11.00
11.30
12.00
1.00
1.30
2.00
2.30
3.00
3.30
4.00
4.30
5.00
5.30
6.00
6.30
7.00



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Don Locke, survey with Callum Thomson 1986?

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Don Locke
survey with Callum Thomson 1986?

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HISTORIC RESOURCES ALONG THE SUNNYSIDE TO SALT POND TRANSMISSION LINE

A Stage 1 Historic Resources Overview Assessment

prepared for:
Newfoundland and Labrador Hydro

under Historic Resources permits 88.27; 88.27.02; 88.27.03

by
Atlantic Archaeology Ltd.
and
Northland Associates

James A. Tuck

December 9, 1988
revised
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CREDIT SHEET

Project director: James A. Tuck

Researcher: James A. Tuck

Report author: James A. Tuck

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MANAGEMENT SUMMARY

A Stage 1 Historic Resources Overview Assessment was conducted of the proposed Sunnyside – Salt Pond transmission line between October 18, 1988 and November 30, 1988. Background research revealed no archaeological sites within the study area, although numerous prehistoric and historic sites are known from both the bottom of Trinity Bay and Placentia Bay. Local residents likewise were not aware of archaeological sites in the area.

A preliminary field reconnaissance, including helicopter survey of the entire transmission line and walking surveys of the Isthmus of Avalon/Come by Chance River and the Southwest Arm/Freshwater Pond areas revealed the presence of a single small archaeological site near the transmission line crossing of Southwest Arm. This find consisted of a small pocket of flakes of high quality mottled cherts which are of a type not familiar to me. No finished artifacts were recovered from very limited excavation, and no recognizable specimens except for five biface thinning flakes; additional test pits did not reveal any other cultural material or features. A return visit to the area on November 29 and 30 revealed that the transmission line will pass approximately 75m west of the site, hence will not affect it. It is recommended, however, that the point of land where the site is located be avoided entirely during the construction of the transmission line. Further, it should be made clear that any unusual features observed by workers on the project, or the discovery of artifacts of any kind be reported immediately to the Historic Resources Division, Department of Culture, Recreation and Youth

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LIST OF ILLUSTRATIONS

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INTRODUCTORY STATEMENT

This research was undertaken under contract to Northland Associates on behalf of Newfoundland and Labrador Hydro to assess the historic resource potential of the proposed transmission line between Sunnyside, Trinity Bay and Salt Pond on the Burin Peninsula.

The study was carried out to determine whether historic resources existed along the transmission line corridor and whether alternate routes for the transmission line or other mitigative measures could be recommended to avoid adverse impacts to such resources.

All phases of the research were carried out by James A. Tuck, archaeologist with Memorial University who has over 20 years experience in the study of the prehistoric and historical archaeology of Newfoundland and Labrador. Background research began on October 16 and continued throughout the duration of the project. A helicopter survey of the northern part of the route was conducted on October 25, 1988; foot survey of the Sunnyside – Come by Chance area on October 30, 1988; helicopter survey and ground testing of the southern portion of the transmission line on November 2, 1988. The area of the Southwest Arm crossing was revisited on November 29 and 30 in order to ascertain the relationship of the transmission line to the small site discovered during the initial survey.

The organizational format of this report follows that indicated in the *Guidelines* for Stage 1 Historic Resources Overview Assessment issued by the Historic Resources Division, Department of Culture, Recreation and Youth (June 23, 1982).

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PROPOSED DEVELOPMENT PROJECT

The proposed project involves the construction of a transmission line between the Sunnyside, Trinity Bay, Terminal and the Salt Pond Terminal on the Burin Peninsula. The transmission line essentially parallels the existing 138kV transmission line (TL 212) from Sunnyside to Salt Pond. However, at the southern end the route lies approximately 2-3km west of the existing line. Upon crossing Highway 12 at a point 4km northwest of Salt Pond, it will parallel and stay within 200m of the highway to its termination at the Salt Pond Station. The total length of the line is approximately 156km (*Terms of Reference* p. 1).

The impact of this development upon historic resources would be minimal unless transmission towers are to be located directly upon archaeological remains; the existing transmission line route will provide access with a minimum of new disturbance to the landscape.

Ancillary facilities, particularly the terminal stations, are already in place, hence need not be considered in this assessment.

Project scheduling allowed ample time for this assessment to be completed and for any recommendations regarding rerouting or other mitigative measures to be incorporated into the final design. The results of the study did not indicate that any alternatives to the proposed route need be considered, but that the small site at Southwest Arm should be avoided during the construction phase.

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STUDY AREA

The study area stretches from Sunnyside at the bottom of Bull Arm, Trinity Bay, westward across the Isthmus of Avalon and southward paralleling the west shore of Placentia Bay to Salt Pond on the Burin Peninsula. The topography is uneven and vegetation ranges from bog and marsh in many areas to forest and dry barrens in others. Climate is typical of the Avalon Peninsula, that is one which is moderated by the nearby bays and hence somewhat warmer than more interior areas of Newfoundland. These slightly warmer temperatures are not without drawbacks, however, and produce what Banfield (1981:90) politely refers to as "dull and damp" conditions. Annual precipitation averages 1500 to 2000mm, less than half of which falls as snow. Summers are cool with frequent sea fog, and freezing rain is common during late winter (Banfield 1981:128-129).

This climatic regime, and associated vegetation patterns do not appear to have changed significantly for at least the past 5,000 years. The Sugar Loaf Pond locus on the Avalon Peninsula assumes essentially modern vegetation at about 5400 B.P. (MacPherson 1981:199), a statement which appears to be essentially true for much of the Island of Newfoundland.

Fauna of the area available during the precontact period was probably also more or less the same, at least qualitatively, as that present in the area today. Post contact (*i.e.* the time prior to European contact with native peoples)hunting practices have reduced in number, or extirpated entirely, many species. The principal terrestrial mammals include (or included) caribou, bear, fox, beaver and smaller fur-bearers. The principal marine mammal in both Trinity and Placentia Bays is the harbour seal (Boulva and McLaren 1979); harp seals only rarely reach the inner reaches of Trinity Bay and are practically unknown along the southeastern coast of Newfoundland (Mansfield 1964). Grey Seals were probably present in parts of Placentia Bay, especially in the southwestern portions (Mansfield 1964) and may also have constituted an important food resource for native people.

Fish, especially Atlantic salmon, and marine and migratory birds round out the economically important species. This environment, as Robbins (1985) has pointed out, is distinct from that of many areas of Newfoundland, particularly the west and northeast coasts. The prehistoric human economy in the area appears to have been somewhat more diversified than that in other areas where the annual harp seal migration provided a substantial, if sometimes precarious (see Tuck and Pastore 1985), source of protein.

In summary, the study area appears to have been one which could have supported significant human populations whose livelihoods were based on the exploitation of both marine and terrestrial species. The former probably formed the more important part of the resources used by prehistoric populations, hence it might be expected that archaeological sites will most likely be found in those portions of the study area closest to the coast. The interior may have been exploited during the annual caribou migrations, but little is known of the migratory patterns of caribou on the Burin Peninsula hence it is impossible to predict where such hunts might have occurred.

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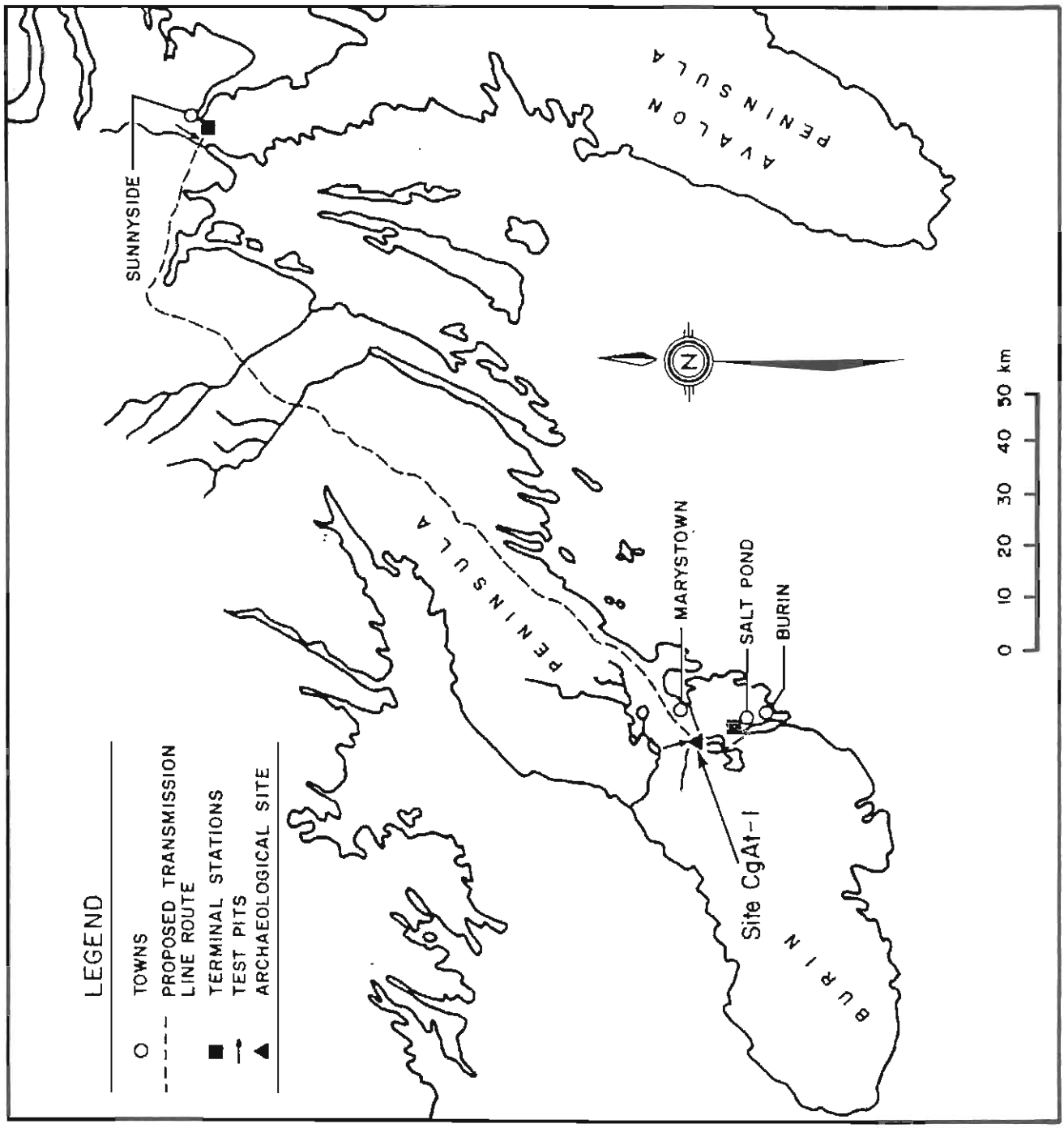

Figure 1
Study area showing approximate transmission line route and location of site CgAt-1.

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METHODOLOGY

The methodology employed in this study conformed both to the *Guidelines* of the Historic Resources Division, Department of Culture, Recreation and Youth and to practices standard in Canadian archaeology. The *Terms of Reference* for this study are found in Appendix 1.

Preliminary research consisted of consulting primary and secondary historical sources concerning the study area for references to land and resource utilization by both aboriginal and European peoples. Published archaeological reports and the site files at the Historic Resources Division were then consulted to determine whether sites were known from the study area itself and from adjacent areas; the latter assisted in making predictions as to where archaeological sites might, and might not, be located in the study area.

The preliminary field reconnaissance consisted of a two part overflight of the centre line of the proposed transmission line at low altitude and slow speed. Areas likely to have been utilized by both European and aboriginal peoples were surveyed from the ground, natural exposures inspected for traces of human activity and test pits dug in areas adjacent to natural exposures and in areas where no such exposures existed. The ground survey included walking the route from Sunnyside across the Isthmus of Avalon to the crossing of the Come by Chance River and the investigation and test pitting of the areas where the transmission line crosses Southwest Arm and the north side of Freshwater Pond.

Finally a revisit to the Southwest Arm crossing was undertaken on November 29 and 30 in the company of Terry Gardner and Frank Ricketts, both of Newfoundland and Labrador Hydro, to determine whether the projected route would impact the small site (CgAt-1) recorded during the initial survey.

Results of these investigations are reported below.

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RESULTS

Historical References

Trinity Bay was among the first, if not the first, place in Newfoundland where Europeans and natives came into contact. In October 1612 John Guy visited an abandoned Beothuk village "In the south bottom of Trinitie Bay" and a few days later met a group of Beothuks with whom friendly exchanges took place (Guy 1612; Crout 1613). Crout further reported that he and several men

> ...Found a great path made by the solvages which path we Followed which brought vs vnto a Faire river and much marshie ground being but 2 myells from the place that our penice was which river showeth to be great store of sammon by reassone the sea Cometh vp vnto it of pleasaunce Baye: neer by that river we found some of the solivagges housses and ther they had left in a baskett many Fishing hookes and a brassen kittell and divers other triffling Things For they had made a great path ways which they be accoustomed to Carie ther Cannose that waye from one side vnto the other for they haue cutt the way and great trees aporpose for to pase (Crout 1613).

This "great path" obviously led across the Isthmus of Avalon between Trinity and Placentia Bays, in all likelihood between Bull Arm and the Come by Chance River; the houses of the "solivagges" were probably located somewhere along the Come by Chance River, most likely at the mouth of the river and probably on the west bank, although nothing appears to remain of the site today.

That the Isthmus continued to be traversed by Europeans after the disappearance of native people from the area is indicated by Edward Wix (1836) who reports a tradition that Frenchman's Island (or McKay's Island), near Sunnyside in Bull Arm, was so named because French who came overland from Placentia burned an English bark in Bull Arm sometime during the eighteenth century.

To the south, Placentia Bay is well known to have been the scene of an intensive European summer fishery, probably beginning as early as the sixteenth century. Rice Jones, for example, visited Placentia Bay in 1594 where he found "...60 odd sail of fishermen of St. John de Luz, Siburno, and Biskay..." On the "...other side of the Bay, [at] a place called Pesmarck, [Jones] made stages, until the savages came and cut their boats loose..." (from Howley 1915:13). It seems probable, therefore, that both Europeans and native people utilized at least the coastal regions of the east side of the Burin Peninsula from precontact times.

Given these facts it is equally likely that native peoples also frequented the west coast of Placentia Bay from the Come by Chance River to the southernmost parts of the Burin Peninsula.

Previous Archaeological Research

Except for several surveys and excavations in the innermost parts of Placentia and Trinity Bays, and on some of the Islands in Placentia Bay, little archaeological reconnaissance or excavation has been carried out adjacent to the study area. It is not certain whether any investigations have been undertaken within the study area itself; the site files at the Historic Resources Division, Department of Culture, Recreation and Youth contain no references to sites within the area.

The first reference to archaeological material even close to the study area is Howley's (1915:291-293) description of two Beothuk burials found some years earlier on Tilt and Hangman's Islands in the Ragged Island group in Placentia Bay. The presence of distinctive bone "pendants" characteristic of Beothuk culture indicate clearly the people responsible for the burials. It is not certain whether they date from contact or precontact times, but the presence of preserved birch bark and other organic objects suggest that the graves were not of great antiquity.

During the 1960s Urve Linnamae (1971) conducted reconnaissance and excavation at a number of aboriginal sites in Placentia Bay. Although no archaeological sites from the study area were reported, three sites in the vicinity of

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Figure 2
The Sandy Harbour River crossing, a typical steep-sided crossing of low archaeological potential.

Come by Chance and Arnold's Cove indicate the presence of Dorset Eskimos near the study area, particularly that at Come by Chance which is located on the Come by Chance River, suspected to have been part of a travel route crossing the Isthmus of Avalon. An additional seven sites located on Merasheen and Long Islands serve to indicate the utilization of Placentia Bay by not only Middle Dorset people but probably by Archaic and Recent Indians as well.

Following Linnamae's investigations several additional surveys and two excavations were carried out adjacent to the study area. Gerald Penney (1978) surveyed portions of Trinity Bay and reported the large Stock Cove site on the southern shore of Bull Arm. This site was later investigated by Douglas Robbins (1982, 1985, 1986) whose excavations revealed the presence of a large Middle Dorset occupation overlain by a veneer of Little Passage Recent Indian artifacts and perhaps underlain by an earlier Palaeo-Eskimo occupation. The Middle Dorset artifacts are remarkably similar to those from Linnamae's sites on the Placentia Bay side of the Isthmus, and suggest that travel across that narrow neck of land was a regular feature of life as long ago as 1,500 or more years.

At the same time as Robbins was conducting his investigations, Clifford Evans (1981, 1982) began excavation of the Frenchman's Island site, also on the south side of Bull Arm, but much closer to the Community of Sunnyside. Evans found Middle Dorset material virtually identical to that from Stock Cove as well as a few older Palaeo-Eskimo artifacts and considerable evidence of Recent Indian occupation. Physically mixed with (if not actually culturally associated with) the Recent Indian material were artifacts of European origin (tobacco pipes, nails, gunflints, a musket barrel, *etc.*) dating to the latter half of the seventeenth century. Judging from the Recent Indian artifacts, there appears to be a significant temporal

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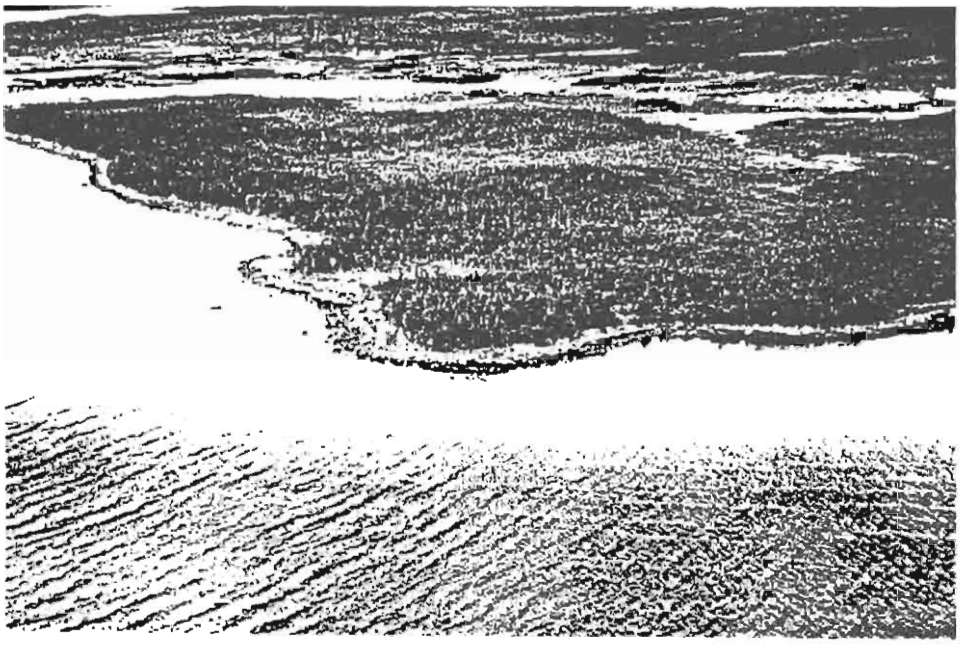

Figure 3
Site CgAt–1 on Southwest Arm. The site is located to the right of the prominent point.

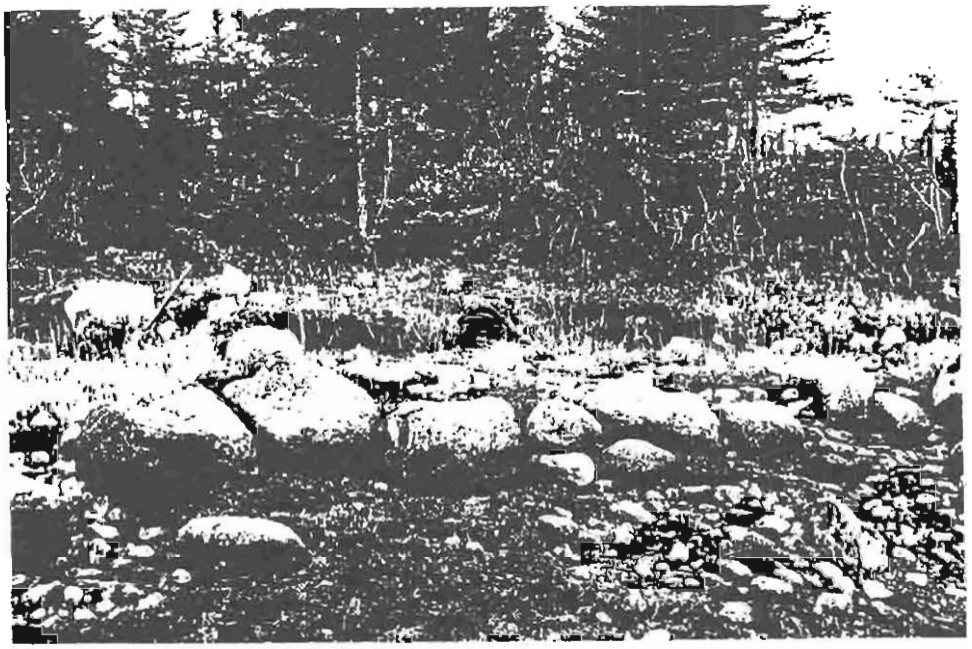

Figure 4
View of the bank from which flakes were eroding. The flakes were recovered from the exposure to the right of centre.

difference in the two assemblages; the best explanation for the European material is that it represents an unknown occupation by Europeans some time between A.D. 1650 and 1700.

While engaged in excavation of the Frenchman's Island site, Evans also spent some time exploring along the lower portions of the Come by Chance River. These investigations were to no avail, however; a further survey of the area during the late spring of 1988 by William Gilbert and Kenneth Reynolds also failed to locate any aboriginal or other sites on either side of the Come by Chance River; they surveyed from the mouth well upstream of the existing transmission line (W. Gilbert, personal communication). The settlement reported by Henry Crout continues to elude searchers.

Gerald Penney has also conducted Stage 1 Historic Resources Overview Assessments in the Spanish Room–Mortiers Bay area and along part of the Paradise River; the latter is crossed by the transmission line below the powerhouse and dam in a location off low archaeological potential. I do not have copies of these reports (Newfoundland Hydro should have a file copy of the latter) but no archaeological remains were discovered along the Paradise River and that the Spanish Room finds were confined to material from the nineteenth century.

During the early 1980s, Perry Moulton, a resident of Lewin's Cove near the south end of the transmission line, reported the discovery of several large flaked bifaces from within the Golden Sands Campground on Freshwater Pond. The artifacts appear to be of Indian origin and may date to the Intermediate or Recent Indian periods. These finds were made on the side of the pond opposite the transmission line and are far removed from the study area.

Figure 5
Flakes from CgAt–1; at bottom are biface thinning flakes.

Finally, Phillip E.L. Smith, archaeologist at the Université de Montréal, was contacted for information regarding winter houses of the eighteenth or nineteenth centuries in the study area. Although Smith has not conducted ground surveys for such structures he reports (personal communication) that historical references indicate that a family named Wilson maintained a winter house somewhere on the shores of Freshwater Pond during the 1850s. In all likelihood this structure was not located on the barren north side of the pond (*i.e.* within the study area), but was probably situated in an area where wood was easily available.

Preliminary Field Reconnaissance

The first phase of the preliminary field reconnaissance consisted of a flight at low altitude and slow speed over the transmission line between a point approximately opposite Rushoon on Placentia Bay and the terminal at Sunnyside. It was planned to fly the entire route and investigate the Salt Pond area during the same trip, but inaccurate weather reports failed to indicate that the "patchy coastal fog" on the east coast of the Burin Peninsula was, in fact, dense fog which covered the area up to a distance of 15km inland; I am not certain, but I believe that we were lost for approximately 45 minutes.

The remainder of the flight covered the northern portion of the transmission line from a point west of Rushoon to Sunnyside. River crossings were inspected from the air and photographed, but no ground tests were carried out since all crossings are located either in places where the terrain on both sides of the stream consisted of bog and marsh or where steep banks (see Figure 1) precluded human settlement.

A walking survey of the route between the Sunnyside terminal and the Come by Chance River also revealed marshy conditions in most places. If any trace of the Indians' cut path observed by Henry Crout remains it was not visible during this survey. Indeed, the area is now entirely denuded of forest. Test pits were dug on the hill overlooking the Come by Chance River and on the riverbank, but no cultural material was found.

The aerial survey of the southern portion of the transmission line route was only slightly more successful than that of the northern portion. The streams crossed by the line are not navigable and crossings are in locations similar to those in the northern portion of the study area.

At the crossing of Southwest Arm, however, a small point of land on the southwestern portion of the northwest extension of the arm offers a more likely location for settlement. The point rises approximately one metre above the water level, although high tides probably come to within 20–30cm of the present surface and extreme high tides may actually flood the area. The location is level and is clearly used by present-day residents for picnicking and other purposes. In the bank on the northwestern part of the point, sheltered from the southeast wind, a concentration of flakes was revealed by cutting into the bank with a shovel. The profile was then cleaned with a trowel and additional flakes exposed and collected. The cultural material lay upon a grey podsol which graded into a gravel and cobble substrate. The deposit was covered by up to 20cm of heavy, root-filled peat and forest duff.

The 151 flakes are of high quality chert, often mottled, and ranging in colour from grey to tan (sometimes with an almost pinkish cast) and white. This type of chert in unfamiliar to me; I do not recall seeing it in other collections from either Placentia Bay or the South Coast of Newfoundland. The pinkish cast to some specimens suggests that the material may have been heat-treated to improve its flaking qualities prior to the removal of the flakes recovered. Some evidence of weathering, in the form of chalky white patination was initially thought to have resulted from exposure in the eroding bank. With the permission of the Historic Resources Division, one thick flake was sectioned in two places by snapping. The fresh surfaces thus exposed show the same colour and apparent "weathering" as exposed surfaces. The raw material therefore does not appear to have been altered by exposure but is, in fact, a chert which is unique among the examples of raw materials I have inspected from other sites in Newfoundland. The flakes themselves range in size from a maximum length of about 4.5cm to tiny pieces of "shatter" less than 1.0cm in length. Five flakes display the flaked dorsal surface and sharply angled platform also with flake scars typical of bifacial thinning flakes. These flakes result from the process of thinning and shaping "preforms" (*i.e.* tools or weapons in the initial stages of maunfacture) prior to final finishing of the tool or weapon by more carefully controlled pressure flaking. It seems clear that this small deposit represents the debris from a single episode of tool or weapon manufacture.

From the limited collection it is impossible to assign a cultural origin to this small collection. More extensive testing along the bank

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might have produced a diagnostic artifact, but the same procedure would have increased the rate of erosion and called attention to the site with the likely consequence of looting. Additional testing along the bank and in the woods on the point of land did not reveal any additional evidence of occupation. Almost certainly, however, such material exists and additional testing of the site should be undertaken.

The point of land opposite this site (*i.e.* on the northeast side of the arm) was also test pitted during the initial survey and again on November 30 and the exposed banks cut and inspected. No evidence of occupation was found but, as on the opposite shore, more extensive testing, preferably by long one-metre wide trenches, might reveal cultural remains. Such work, however, is beyond the terms of reference of the present study.

Finally, the north shore of Freshwater Pond was walked for a distance of two kilometres more or less parallel to the transmission line route. The western portion consists largely of small boulders which appear to have been ice-rafted onto and above the beach. These make it impossible to dig test pits but two house lots have been cleared and the boulders removed; no trace of cultural material was found in these areas. The central portion of the beach is sandy, but aeolian sands are drifting landward forming a more or less stabilized dune which is encroaching into the adjacent bog. Test pits did not reach the old ground surface below this sand and inspection of the exposed bank did not reveal any cultural material. The eastern end of the beach is rocky but some level terraces afford areas where habitation might have taken place; no trace of any such utilization was found, however.

In summary, the interior areas produced the not unexpected negative results which appear typical of most similar areas of the province. The single site discovered is located in a sheltered inner bay area and the point of land opposite also appears to have high potential as a site location.

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EVALUATION AND DISCUSSION

The preliminary field reconnaissance and other research revealed only a single archaeological site in the study area. This is almost certainly because the transmission line route is almost entirely well-removed from the coast where the preponderance of aboriginal and European habitation took place. Both of these groups, however, may have utilized interior portions of the Isthmus of Avalon and the Burin Peninsula for hunting and travel. Sites resulting from such activities are for the most part extremely small, contain few artifacts and features, and are of extremely low archaeological visibility. Such sites may exist, but to date none has been located in the interior of Newfoundland.

The single site found on Southwest Arm is another confirmation of what archaeologists have long believed: that the coastal areas of Newfoundland were much more intensively utilized than interior areas. Although this site is small, and what was recovered probably represents only a single instance of tool manufacture, it is an indication that more such sites, and probably larger and more productive ones, exist in, or at least close to, the study area. A research oriented survey, that is one in which archaeological and environmental factors rather than modern construction activities dictate the areas to be examined, would undoubtedly be well repaid in terms of information about a virtually unknown area of Newfoundland.

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RECOMMENDATIONS

No further research is recommended along the proposed transmission line route. The revisit to the Southwest Arm site (CgAt-1) indicated that the transmission line will pass approximately 75m to the west of the site and will pose no threat to the site. However, it is recommended that the Southwest Arm site and the point of land opposite be avoided by all transmission line construction and ancillary work; the sites should be marked and construction personnel made aware of their existence.

Finally, construction and other personnel should be made aware of the possibility of archaeological remains being discovered during installation of the transmission line. In such a case work in that area should be halted immediately and no further work undertaken until Historic Resources Division personnel have been notified and appropriate measures taken.

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APPENDIX 1: TERMS OF REFERENCE

TERMS OF REFERENCE
HISTORIC RESOURCES ASSESSMENT FOR
THE PROPOSED
SUNNYSIDE - SALT POND
TRANSMISSION LINE (TL 219)

Newfoundland and Labrador Hydro
Environmental Services Department
August 1988

Sunnyside - Salt Pond Historic Resources Study

Introduction

Newfoundland and Labrador Hydro (Hydro) has been authorized to construct a 138 kV transmission line from Sunnyside to Salt Pond in order to meet the forecasted demand for power and energy on the Burin Peninsula. Studies by Hydro indicate that the most economic and reliable method of meeting this demand is construction of a second 138 kV line to the existing Newfoundland Light and Power Station at Salt Pond.

Hydro has been required to conduct an historic resources overview assessment of the proposed transmission line route, under the provision of The Historic Resources Act.

Objective

The objective of this study is to identify and assess the historic resources which may be adversely affected by the project and to recommend mitigative measures where appropriate.

Study Area

The transmission line route (map attached) for the most part ~~is immediately adjacent to and parallel~~ to (on the west side) the existing 138 kV transmission line (TL 212) from Sunnyside to Salt Pond. However, at the southern end the route lies approximately 2-3 km west of the existing line. Upon crossing Highway 12 at a point 4 km northwest of Salt Pond, it will parallel and stay within 200 m of the highway, to its termination at the Salt Pond Station. The total length of the line is approximately 156 km.

The study area will consist of the transmission line right-of-way, special emphasis is placed on ground surveys where the route crosses rivers, streams, ponds, and where portage or travel campsites may have been located.

Methods

The consultant shall conduct the study as per the Historic Resources Overview Assessment Detailed Guidelines (1982) and in Consultation with the Historic Resources Division of the Department of Culture, Recreation and Youth. The study shall consist of:

(1) a documentary search consisting of a review of existing literature, and The Historic Resources Division site record files, and other relevant data sources;

(2) consultation with individuals and organizations knowledgeable about the historic resources within the study area;

(3) a helicopter survey of the transmission line right-of-way; depending on the results of this survey the consultant shall undertake additional work, using professional judgement as to the need for ground surveys and test pitting in areas of potential historic resource interest;

(4) test pitting in areas identified by Historic Resources Division as having particular potential for historic sites; and

(5) any material found requiring conservation measures will be treated by a professional conservator meeting Historic Resources Division approval; materials will be returned to the Historic Resources in a fully conserved condition.

Other

(1) The Consultant shall be responsible for helicopter rental and travel arrangements.

(2) The work shall be conducted following a survey of the centerline of the right-of-way. This survey is expected to be completed by September 30, 1988.

(3) The contact person for Hydro will be David T. Day (737-1764).

Report

(1) A report on this assessment, and recommended mitigative measures shall be prepared by the Consultant.

(2) The report shall follow the format suggested in the Historic Resources Guidelines.

(3) Locations of test pits and survey areas shall be accurately presented on maps.

(4) A draft report (one copy) shall be submitted to Hydro within 30 days of completion of the final field survey. following a review period, two final copies will be submitted to Hydro within 30 days of receipt of review comments.

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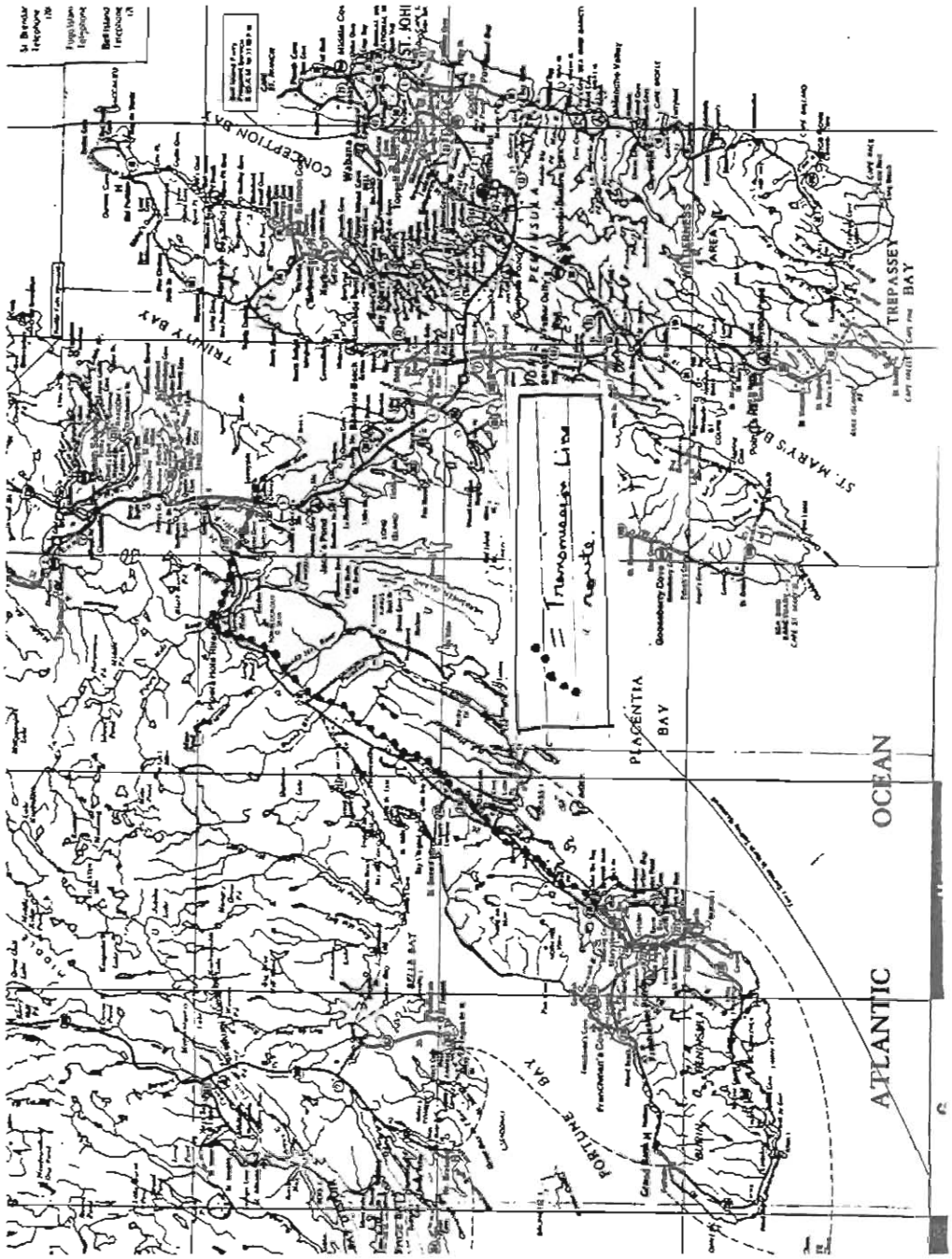

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APPENDIX 2: PERSONS CONSULTED

William Gilbert was consulted on October 25, 1988 regarding his survey of the Come by Chance River in the spring of 1988. Information provided is reported in the "Results" section above.

Philip E.L. Smith, archaeologist at the Université de Montréal, and native of Fortune on the Burin Peninsula was consulted on October 26, 1988 concerning archival references to winter houses in the study area. As mentioned above, he reported the vague location of at least one winter house dating from the mid-nineteenth century on Freshwater Pond. In all likelihood this was located on the wooded side of the pond opposite the proposed transmission line.

Harvey Thistle, resident of Sunnyside and an amateur historian with whom I had discussed the Sunnyside – Isthmus of Avalon area previously was contacted on October 26 and reported that he was aware of no recent (or other) discoveries in the study area. He recommended, however, that Mr. Reg Hynes, Fisheries Officer at Arnold's Cove, be contacted.

Reg Hynes, Fisheries Officer with the Department of Fisheries and Oceans, could not be contacted until October 27. He reported that he and a group of teenagers had found "some artifacts or rocks in the lower end of Sunnyside," but that he could no longer locate the collection. The find spot is on the opposite end of the town (*i.e.* on the east side of Bull Arm), from the transmission line, hence is not relevant to the study area.

Don Moulton, proprietor of the Golden Sands Campground, was contacted on October 31 to determine whether the artifacts reported from that area were still in his possession and whether other specimens had been recovered since the initial find or in areas closer to the study area. Mr. Moulton could not locate the artifacts and reported that no additional finds had been made.

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APPENDIX 3: SITE REGISTRATION FORM FOR CgAt-1

NEWFOUNDLAND AND LABRADOR
ARCHAEOLOGICAL SITE RECORD FORM

DA - Department: Sites
ZBN - Borden Number: CgAt-1
ZSN - Researcher's No.:
ZNA - Site Name: SOUTHWEST ARM
ZUB - Up. Case Borden: C T
ZLB - Lr. Case Borden: a g
ZSN - Borden Sequential No.: 1
ZBNA - Incorrect Borden:
ZLOC - Site Location: SOUTHWEST ARM, BURIN PENINSULA — ON SMALL POINT OF LAND ON SW SIDE OF NARROWS IN SOUTHWEST ARM
ZACS - Site Access: BY WATER OR ON FOOT FROM BRIDGE ON W N.W. END OF ARM
ZPR - Province: Newfoundland
ZTP - Nearest Large Settlement: LEWIN'S COVE
ZDRM - Major Drainage: PLACENTIA BAY
ZDRMI - Minor Drainage: SOUTHWEST ARM
ZLAT - Latitude: 47 ·08·40·
ZLTD - Latitude Direction: N
ZLNG - Longitude: 55 ·14·08·
ZLGD - Longitude Direction: W
ZEL - Elevation in Metres: 1
ZMR - Map Ref. NTS:
ZUTM - UTM Military Grid:
ZUTMZ - UTM Military Zone:
ZUTME - Easting:
ZUTMN - Northing:
ZMRA - Other Map Ref.: 1M/3
ZAIR - Air Photo Ref.:

DESCRIPTION
ZCU - Cultural Affiliation(s): RECENT INDIAN ??
ZDS - Site Type: TEMPORARY CAMPSITE
ZFE - Site Features: CONCENTRATION OF FLAKES
ZDAT - Site Dates: N/A
ZDATA - Dates Authority: N/A
ZTYC - A.D. Dates: N/A
ZSZ - Site Size (M² or Hectares): ± 100 M² ?
ZCON - Condition: ERODING
ZDPA - Disturbance Factors: RISING SEA LEVEL
ZWSR - Water Source: WEST BROOK

RESEARCH
ZREO - Original Observer: J. TUCK
ZOD - Original Observation Date: 13/11/88
ZREV - Revisitors: J. TUCK
ZRVD - Revisit Dates: 29/11/88
ZCOL - Collections: 151 flakes
ZINST - Collection Locations: MUN - TO BE DEPOSITED ~~Assn.~~ AT NFLD. MUSEUM - DEC - 1988
ZPRP - Pub. Refs.: NONE
ZUPR - Unpub. Refs.: TUCK, J. 1988 HISTORIC RESOURCES ALONG THE SUNNYSIDE TO SALT POND TRANSMISSION LINE — ON FILE AT NFLD & LAB HYDRO
ZREE - Excavator(s) and Date(s): N/A

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ZPHO - Photo Records ON FILE AT NFLD HYDRO

ZREM - Remarks

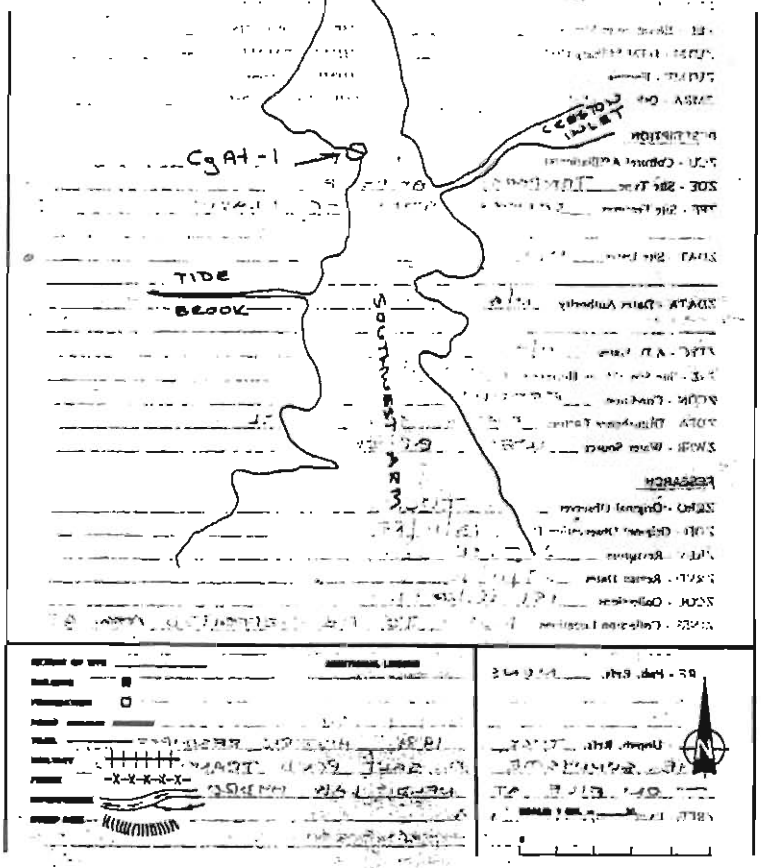
ZREP - Reporter J. TUCK

ZRAD - Reporter's Address c/o ARCHAEOLOGY, M.U.N.

ZRD - Report Date NOV. 16, 1988 ZRCD - Date Form Completed NOV 16, 1988

CAT - Cataloguer

SKETCH MAP OF SITE *(Include topographic references)*



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APPENDIX 4: MAPS A-G OF AREAS SURVEYED, ETC.

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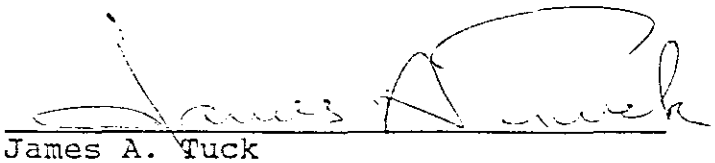
A STAGE 1 HISTORIC RESOURCES OVERVIEW ASSESSMENT OF THE PROPOSED PETIT FORTE ROAD

prepared for: Policy, Research and Planning Division
Department of Transportation
Government of Newfoundland and Labrador

research conducted under permit 88-07-02

July 15, 1988



James A. Tuck

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MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland A1C 5S7

Archaeology Unit

(709) 737-8872
737-8869

August 24, 1988

Ref. 88 02 30

Mr. Roger Pottle
Planning and Research Division
Department of Transportation
Government of Newfoundland
and Labrador
St. John's, Newfoundland

Dear Mr. Pottle:

Further to our telephone conversation regarding the changes to the proposed Petit Forte road this is to confirm that it is my opinion that the changes will not necessitate additional historic resources surveys.

I have studied the FAX sent last Friday and have gone over the changes with Douglas Robbins, who undertook the actual field reconnaissance. We agree that there are no areas of archaeological potential in the new right-of-way. The western side of Northeast Nonsuch Arm is almost identical to the eastern shore, which was surveyed. The terrain rises rapidly to elevations of more than 200 feet and provides no suitable locations for habitation. The interior portions of the new route are of the same bog and muskeg as other portions of the road which produced no evidence of aboriginal habitation.

In short, there seems no reason to conduct further research in the area.

I hope this is satisfactory for your purposes.

Sincerely,

James A. Tuck

James A. Tuck

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CREDIT SHEET

Principal investigator:	James A. Tuck Archaeology Unit Memorial University
Research assistant:	Douglas T. Robbins Department of Anthropology McGill University
Report author:	James A. Tuck Archaeology Unit Memorial University

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MANAGEMENT SUMMARY

Background research revealed no known archaeological sites along the proposed routes for the Petit Forte road. Field reconnaissance confirmed this and a first-hand look at the extremely rugged terrain indicates that there is little likelihood of native sites having been located on the right of way.

A large wood frame structure (see below) now stands abandoned in the right of way north of Petit Forte. It is recommended that the history and architectural details of this structure be recorded if it must be demolished to make way for the proposed road.

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LIST OF FIGURES*

* photographs taken during the course of field reconnaissance have not been returned by the processor; they will be forwarded upon receipt

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INTRODUCTION

a) This study was carried out on behalf of the Planning Division, Department of Transportation, Government of Newfoundland and Labrador which proposes to construct an access road to Petit Forte on the west side of Placentia Bay. As shown on Figure 1, two alternate routes are proposed. Both were surveyed during the course of this impact assessment.

b) The purpose and objectives of the study were consistent with the Guidelines issued by the Historic Resources Division, Department of Culture, Recreation and Youth (1982), i.e.:

(a) identify and assess Historic Resources potential or sensitivity within the study area, and
(b) recommend the appropriate methodology and scope for detailed impact assessment studies in Stage 2.

The study was limited to the two routes proposed by the Department of Transportation.

c) The study was carried out prior to selection of one of the two alternate routes and prior to the finalization of the specific route. The study was conducted so as to allow for minor route changes if important archaeological sites were threatened by construction.

d) The study took place on July 7-9, 1988.

e) Background research was carried out by Douglas Robbins and James Tuck; field reconnaissance by Douglas Robbins; this report was written by James Tuck. Robbins holds an M.A. degree in anthropology (archaeology) from memorial University and is now a Ph.D. candidate at McGill University. He has conducted field research on historic and prehistoric sites in Newfoundland and Labrador for more than 10 years. Tuck holds a Ph.D. degree in anthropology from Syracuse University and is presently University Research professor of Archaeology at Memorial University. He has conducted research on historic and prehistoric sites in Newfoundland and Labrador for more than 20 years.

f) The format of this report follows the Guidelines issued by the Historic Resources Division, Department of Culture, Recreation and Youth (1982).

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STUDY AREA

The study area is located on the west side of Placentia Bay and is restricted to the immediate right of way corridors shown on Figure 1. In general the area is one of rugged terrain in which steep cliffs rise between 100 and 400 feet from the coast. The interior is forested or consists of bog and muskeg. Previous studies of such areas have shown that this type of terrain was not selected for habitation by aboriginal peoples on the Island of Newfoundland because of difficulty of direct access to the coast and lack of shelter from winds.

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MATERIALS AND METHODS

The study was conducted as follows:

a) background research included searching site files at Memorial University and reviewing publications related to Placentia Bay, Trinity Bay and the south coast for information pertaining to previously reported sites and the types of local environments in which they were found;

b) the study area was flown at low altitude by helicopter to obtain an overview of the area and to assess the potential of the area for aboriginal occupation;

c) local residents were contacted in an effort to obtain information about known or rumoured, but previously unreported, archaeological or historic sites;

d) ground survey and test pitting were conducted in areas judged to be of reasonably high archaeological potential; no high potential areas were observed.

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RESULTS AND DISCUSSION

Literature review and background research indicated no known sites in the study area. Archaeological sites are, however, known from Upper Placentia Bay and on the islands in Placentia Bay Linnamae 1971, 1975), from the southern parts of Trinity across the isthmus from Placentia Bay (Evans 1981, 1982; Robbins 1982, 1986), and from the south coast of Newfoundland (Penney 1975, 1982). Unreported sites from the Burin Peninsula (Perry Moulton, personal communication 1984) indicate further that areas adjacent to the study area were exploited by native peoples.

The following paragraphs summarize the field reconnaissance and results of that research.

Boat Harbour to Brookside

A survey was conducted by foot and automobile along the existing road through and linking the communities of Boat Harbour and Brookside. It was not known at the time whether upgrading of the existing two-lane paved road is intended. As well, through the communities the road is bordered by "private" land (whether deeded or held by squatters rights is not known). Consequently no testing was done along the existing road. An examination of roadcuts, eroding banks, etc., produced no results. Terrain throughout the area is hilly, elevated and forested, and is unlikely to have been occupied by native peoples. The most promising location for native occupation is a small peninsula of relatively flat land projecting into the bottom of Boat Harbour between the two communities. This was not surveyed as it is removed from the main roadway and is currently the location of a cemetery.

Foot travel beyond the community of Brookside along the proposed Route 1 is extremely difficult due to the irregular, forested terrain. Random testing in this area produced no results. An examination of the shoreline beyond the community of Brookside (away from the proposed Route 1) also produced no results.

Boat Harbour to Petit Forte, via helicopter

The proposed Route 1 to Petit Forte was flown at low altitude. Much of the terrain is forested, with the notable exceptions of tops of monadnock ridges. Frequent caribou trails were observed along these ridges, some appearing quite deep and freshly cut. No caribou were seen. Overall the area appears highly unsuited to native occupation due to the nature of the topography and the absence of navigable waterways. As no potential locations were observed, no landings were made.

Proposed Route 1 first approaches the coast at the head of Northeast Nonsuch Arm. Both sides of the Arm are extremely steep (rising swiftly to about 400 feet) and forested. No areas

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remotely of interest were noted. A beaver lodge was observed at the mouth of the stream flowing into the head of the Arm.

The western shore of Petit Forte Harbour, where Route 1 again reaches the coast, is also steep and irregular, though less so than Nonsuch Arm. Here was located the only feature of historical interest observed during the survey. Approximately two kilometres from the present community of Petit Forte, towards the head of Petit Forte Harbour, is a large three-story, rectangular house, probably constructed at the turn of the twentieth century, or shortly thereafter. The shoreline in front of the house, which apparently once suffered erosion, is retained by extensive wooden, rock-filled cribworks. The structure is now abandoned. This house is considerably larger than any dwelling currently existing in Petit Forte; larger than most dwellings constructed in traditional Newfoundland fishing outports. Together with its cribworked shoreline, it represents a considerable outlay of labour (and probably expense). It is recommended that this building be recorded in full, through photographs and floor plan drawings, by a qualified individual. As well, at least a cursory exploration of its origin and history should be done. This feature is likely of most interest to a vernacular architect, and consequently it is recommended that it be brought to the attention of Dr. Gerald Pocius, Department of Folklore, Memorial University.

Petit Forte

After landing in the community of Petit Forte the main path through the community was walked, and cuts, eroding banks and gardens along the path examined. This produced no results. More extensive work in Petit Forte was not done as the precise route of the proposed road through the community was not known.

Discussions were held with a total of seven local inhabitants, including two youths, one elderly man, and four males aged 25-40 years. Of the latter, the two most discursive were Eric Hayden and Anthony Jones. Apparently, there exists no local folk knowledge of "Indians" or "Frenchmen"; none of the informants has found artifacts ("arrowheads") or has heard of such finds. Informants were perplexed as to the origin of their community's name. There is no local history of French occupation, and no knowledge of French sites ("forts"). Eric Hayden offered the suggestion that French from Placentia may have visited the Petit Forte area on short-term fishing expeditions. The idea appears plausible. If indeed there is a small or minor fort located at Petit Forte is it most likely situated on an outer headland in the vicinity of the present-day community, and is consequently removed from the proposed road route. According to informants, the existing community was established by Newfoundland fishermen and their families during the mid-nineteenth century.

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Inner Petit Forte Harbour

A brief landing was made in inner Petit Forte Harbour for purposes of testing. No features of interest were noted from the air (except for structure previously mentioned) or on the ground. Testing produced no results.

Petit Forte to Junction with Route 510: Proposed Route 2

Proposed Route 2 was flown at low altitude. Again, the terrain is hilly, irregular and largely forested. The area was likely unattractive to native peoples due to its nature, which would make land travel exceeding difficult. No features of interest were noted, and no landings made.

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INTERPRETATION

The entirely negative results of this study were predictable given the unsuitable nature of the topography as described in the preceding section. The study offers additional proof that steep-sided coastal areas were avoided by aboriginal peoples. This is a logical choice since many more attractive locations offering the same suite of marine and terrestrial resources are available within a short distance of the study area.

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RECOMMENDATIONS

a) No further archaeological reconnaissance is recommended in the study area.

b) It is recommended that the large end unusual structure in the right of way north of Petit Forte by either avoided by the proposed road or that it be properly recorded by drawings and photographs and its history recorded prior to its destruction. This work could be carried out by Dr. Gerald Pocius, Department of Folklore, Memorial University.

c) Although the results of this study indicate that the likelihood of finding archaeological remains on whichever right of way is selected is low, the project engineer should be made aware of the possibility of accidental discoveries and should be instructed to cease work in the area where such discoveries are made and to report such discoveries to the Historic Resources Division.

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Robbins, Douglas T.

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1986 Newfoundland Dorset culture? In Palaeo-Eskimos in Newfoundland, Labrador, and Ungava. Memorial University Reports in Archaeology 1:119-123. St. John's.

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Persons interviewed:

Eric Hayden, fisherman, Petit Forte

Anthony Jones, fisherman, Petit Forte

Five other persons as specified above whose names were not recorded

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FIGURE 1

Heavy lines indicate area surveyed from helicopter

Blue lines indicate extent of ground survey

Blue dots indicate areas test-pitted

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ARCHAEOLOGICAL RESOURCES AT ISLE AUX MORTS, NEWFOUNDLAND

A Stage 1 and Stage 2 Historic Resources Impact Assessment and Management Summary

Prepared for: Public Works Canada
P.O. Box 4600
St. John's, Newfoundland

under Historic Resources Division permit 88.20

September 12, 1988

James A. Tuck,
Principal Investigator

On Page 1 Jim mentions Figure 1 which is the location of the development area test excavations & underwater survey.
- It is not included with this report + 7 photos.

CREDIT SHEET

Principal investigator: James A. Tuck

Historical/documentary researcher: Ralph T. Pastore

Field researcher (land): Douglas T. Robbins

Field researcher (underwater): Joseph LeClair

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MANAGEMENT SUMMARY

The marine component of this survey located no historic resources in the area of the proposed breakwater/wharf. The land component relocated the site of a small Dorset Eskimo camp which was totally looted by school children approximately 15 years ago. Nothing remains of this site.

As a result of this study no changes to the proposed development project nor other mitigative measures are recommended.

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LIST OF FIGURES AND PHOTOGRAPHS

In view of the short time allotted for this survey, and the necessity of submitting the report by September 15, time did not allow for the processing of the photographs taken at Isle aux Morts. Photographs will shortly be available showing:

1. location of breakwater and wharf
2. shoreline of proposed development
3. close-up of profile from which artifacts were removed by looters
4. from northern part of development area, looking south with synchrolift wharf in background
5. from IP (MON 3) looking north
6. from NW corner of fence looking south toward existing road
7. with IP (MON3) in immediate foreground, looking west with buoy (marking breakwater wharf course) in background

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INTRODUCTORY STATEMENT

The proposed development project involves the construction of a breakwater/wharf and parking facilities at Isle aux Morts, southwestern Newfoundland (see Figure 1). The proponent in Public Works Canada.

The Stage 1 component of this study was carried out in order to determine whether historical resources existed in the areas of the proposed development which had not previously been surveyed. The Stage 2 component of the study was carried out to determine whether the reported Dorset Eskimo site at Isle aux Morts was threatened by the proposed development and to assess the site's condition and its cultural content. As it turned out, the site no longer exists, hence no alterations in the planning of the development are recommended.

The objectives of this study, as stated above, were to determine whether historic resources were present beneath the sea and on land in the threatened area and to assess the condition and extent of a reported Dorset Eskimo site (CjBr-1) adjacent to the development area.

Personnel involved in the project included:

Principal Investigator:	James A. Tuck, Ph.D., University Research Professor of Archaeology, Memorial University of Newfoundland
Historical researcher:	Ralph T. Pastore, Ph.D, Associate Professor of History, Memorial University of Newfoundland
Field researcher:	Douglas T. Robbins, M.A., Ph.D. candidate in archaeology at McGill University

Field researcher: Joseph LeClair, President, Newfoundland Marine Archaeology Society

The research reported in this document was carried out between September 3 and September 9, 1988. Documentary and background research preceded actual fieldwork, which was conducted between September 7 and September 9, 1988.

This report follows the format required by the Historic Resources Division, Department of Culture, Recreation and Youth, dated June 23, 1982, for Stage 1 Historic Resources Overview Assessments. In areas where elaboration is necessary, i.e. in the case of the reported Dorset Eskimo site (CjBr-1), the report follows the guidelines for a Stage 2 Detailed Impact Assessment.

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PROPOSED DEVELOPMENT PROJECT

Boundaries for the proposed project are shown on Figure 1, provided by Public Works Canada. The project consists of: (1) a breakwater approximately 65m long and 8m wide, with a "spillover" area up to 35m wide; (2) a marginal wharf approximately parallel to the shoreline which extends about 70m along the shore and extends up to 17m from the present shoreline; and (3) a parking lot of irregular shape whose maximum dimensions are approximately 94m by 45m. The proposed project would cover any existing marine historic resources with a thick layer of fill; levelling for the parking lot will involve cutting and filling and would destroy a significant portion of any resources present.

This study was carried out in order to assist Public Works Canada in planning the project so that adverse impacts on historical resources could be avoided. Since no historical resources appear to exist in the area this aspect of the study is no longer relevant, and the recommendation is that, insofar as historical resources are concerned, the project may proceed as scheduled.

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STUDY AREA

The development area is located on a small point of land at the bottom of Isle aux Morts Harbour (Figure 1). The landforms and vegetation of the area are typical of much of the surrounding region. The terrain is uneven and consists of bedrock outcrops surrounded by areas of low vegetation underlain by deposits of peat. Terrestrial mammals are practically non-existent at this time, but prior to European settlement probably included caribou (at least during the winter months when they migrate to the south coast), bear and smaller fur-bearers. Avifauna is typical if the south coast and includes those species of resident and migratory seabirds which furnished some sustenance to prehistoric hunters.

Today, and undoubtedly in the past, the sea provides the principal livlihood for residents of the area. In contrast to the west and northeast coasts of Newfoundland, the south coast is ice-free for most, if not all, of the year. Hence a profitable winter fishery is carried on at this time. It is not certain, however, whether aboriginal peoples possessed the technology to harvest the stocks of groundfish along the south coast; their principal prey may have been the marine mammals which are (or were) found there. As will be discussed further below, the first people to exploit the groundfish resources may have been Europeans beginning in the sixteenth century.

Harp seals are occasional visitors to the area although their appearance is not as predictable as it is in other areas of the province. Harbour and grey seals may have provided a larger percentage of the marine mammals exploited by prehistoric inhabitants of the area. Walrus were probably present prehistorically, but it is not certain how abundant they may have been. Small whales and porpoises may have been hunted, and drift whales of the larger species were probably utilized.

Although able to provide an adequate subsistence base for small populations, it is not certain whether larger population aggregates existed along the south coast in prehistoric times.

Indeed, archaeology suggests that the pattern of settlement between Cape Ray (where harp seals are available in large numbers) and Placentia Bay consisted of small camps occupied repeatedly (and seasonally) by small bands of hunters. The small Dorset site reported at Isle aux Morts is probably another example of such a settlement.

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METHODOLOGY

Historical and background research

Historical research was done by consulting standard primary and secondary sources with reference to the south coast generally and Isle aux Morts in particular. In the case of previous archaeological research in the area published reports, unpublished reports at the Historic Resources Division, Department of Culture, Recreation and Youth, site files also at that institution, and individuals with a knowledge of archaeological research in the area were consulted.

Underwater procedure

In the morning of September 8 LeClair made a dive of 33 minutes duration along the course of the proposed breakwater wharf, including a broad "spillover" zone to the sides and the head of the proposed wharf. First, the location of the head of the proposed wharf was established using reference points on shore. A point on the existing syncrolift wharf aligned with a lamp pole gave one line, and a point on the marine centre building aligned with another lamp pole gave a second line. Together these lines allowed the position of the head of the proposed wharf to be triangulated. LeClair rechecked these alignments when he reached the location of the head of the proposed wharf, and Robbins confirmed his position from shore. When he was certain of his position, LeClair dived and fixed a small iron rod to the harbour bottom. Attached to the rod was a 15-metre cord. Holding the cord extended, LeClair swam a 30-metre diameter circle and examined carefully the portion of the harbour bottom which was visible. This first circle took him to the limit of the "spillover" zone at the head of the proposed wharf. Visibility at this water depth -- slightly over or under 14 metres -- varied from six to eight metres, which meant that LeClair was in fact able to inspect an area slightly larger than indicated on the chart. LeClair then shorten his "tether" to ten

metres and swam a second circle, and then completed the inspection of this area by swimming a straight line through the centre. Together these swims allowed close inspection of all harbour bottom encompassed by the 30-metre circle, plus at least six metres outside the circle.

The iron rod centrepoint was next moved to a new location, at a point on the periphery of the first 30-metre circle along the course of the proposed breakwater wharf. This produced an overlap with the first circle. The overlap was not re-inspected, in order to conserve the diver's air supply and bottom time (the maximum time available for the dive was 40 minutes; actual time elapsed was 33 minutes). Bottom inspection then proceeded as described previously. After a third semi-circular swim on the 15-metre tether, LeClair shorten the line to 10 metre, as the "spillover" zone is narrower closer to shore. Two 20-metre diameter circles completed the area of the proposed breakwater wharf.

In the afternoon of September 8 LeClair made a second dive of 25 minutes duration to inspect the area of the proposed marginal wharf. As this wharf runs along the shoreline there were no potential problems of orientation underwater; hence the inspection could proceed in a more straightforward manner than that described above. LeClair began this dive at a small point of land at the southern margin of the development area. He then swam along the course of the proposed marginal wharf, 10 to 15 metres offshore at a depth of 4 to 7 metres. This allowed him to inspect the outer edge of the proposed marginal wharf zone. LeClair surfaced after 15 minutes, took bearings from shore (and discovered he had overswum slightly the zone) and dived again. He then moved closer to shore, into water about 2-3 metres deep, and swam back to his starting point. Visible was about seven or eight metres, enabling him to inspect easily all of the area of the proposed marginal wharf plus at least five metres beyond the wharf.

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Land Procedure

Examination of the proposed parking lot area proceeded on September 8 from 10:00 a.m. to 6:00 p.m. An initial walkover was done to gain general impressions of the area. The shorefront is rugged and rocky with a near-vertical bedrock embankment rising from sea level to a height of 3-5 metres. A small but steep hill in the northeastern sector rises to 10.68 metres. The shore side of this hill appeared to present the best locale for human occupation, and was accordingly given first attention. Intersecting north-south and east-west lines were laid out by compass in this area and 50-cm square units excavated every two metres. The upper peat level was removed with a shovel and excavation was completed with a hand trowel to bedrock or sterile subsoil. Thirteen 50-cm units were excavated in this fashion. Outcropping bedrock and small but dense areas of tuckamore growth made it extremely difficult to continue this systematic testing over all of the proposed parking lot area. Therefore, a decision was made to test randomly. Throughout all areas possible, 40-50 cm diameter holes were excavated, initially with a shovel and then with a trowel. The locations of these test units (23 in total) are indicated on Figure 1. Areas not tested consist of bedrock.

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RESULTS

Historical and background research

Isle aux Morts, located on Newfoundland's southwest coast, lies within an area long used by migratory European fishermen. From about the middle of the sixteenth century, the fishery of the south coast of Newfoundland, and particularly that of Placentia Bay, was dominated by French Basques (Quinn 1977:356-357). Because of the Spanish market for dried fish, and their proximity to Spain, French Basques in the sixteenth and seventeenth centuries were engaged in a "dry" as opposed to a "wet" fishery (Innes 1974:45-46). That is, instead of curing their catch at sea with large quantities of salt, French Basques erected temporary flakes, stages and wharves on shore and sun-dried their catch. Unfortunately, such activities usually left little behind in the way of obvious features for the archaeologist to find. Where such seasonal settlements did exist, however, some trace in the form of scattered artifacts should be preserved on land.

By the middle of the seventeenth century French Basques, operating largely out of the port of Bayonne, were sending sixty ships a year to Newfoundland's south coast (Innes 1974:82). With the building of a military base at Placentia in 1662, the French established their first permanent settlement on the island. By the end of the 1680s, there were approximately 640 French subjects living year-round on the south coast. They were concentrated at Placentia with smaller settlements on the Burin Peninsula, St. Pierre et Miquelon and in Fortune Bay. Westward along the south coast there were no over-winterers (Head 1976:11-13).

With the defeat of the French in the War of the Spanish Succession, and the resulting Treaty of Utrecht (1713), France was required to recognize England's sovereignty over Newfoundland and to vacate its permanent settlements on the island; the south coast thus became British territory. As part of its attempt to

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survey this territory, the British government sent a naval vessel under the command of William Taverner along the south coast in 1714. He found that there had been French settlements as far west as Cape La Hune (Janzen 1987:186). By the early 1730s, however, there were both English and French traders and fishermen in the Port-aux-Basques - Cape Ray area, as well as to the east at La Poile and Grole. About one-half of these were French; a significant proportion of the remainder were Irish. These were year-round inhabitants, rather than migratory fishermen (Ibid.:190-191). With the resumption of hostilities between Britain and France in 1744, the majority of these people appear to have withdrawn to Isle Royale and their premises in Newfoundland were looted by American privateers (Ibid.:193-194).

In the last quarter of the eighteenth century, there was relatively little exploitation of the south coast. When Captain James Cook surveyed the area in the 1760s he found only about 600 permanent residents -- a population which increased to about 1,800 (mostly from England and the Channel Islands) during the fishing season. In 1765 Cook reported stages at Garia (near Harbour le Cou), Harbour le Cou, Port aux Basques and Cape Ray. None was found at Isle aux Morts. By the early nineteenth century, the growing herring fishery on the south coast had attracted fishermen from St. John's and Conception Bay, and it is likely that some of these became livyers on the south coast rather than make the long journey back to their homes (Head 1976:160, 226-227).

Newfoundland's first census (PANL Census 1836) did not list Isle aux Morts, but ten inhabitants were recorded in nearby Burnt Island, 29 in Dead Island and 49 at Point Blach. The next census, in 1845, recorded 69 residents in Isle aux Morts, and the community has existed in that locale until the present day (PANL Census 1845).

In short, although there is little documentary information about the specific site of Isle aux Morts prior to the nineteenth century, it is clear that the community lies within a region once

exploited by French Basque, English, French and Irish fishermen since the first half of the sixteenth century.

Archaeological Research

Archaeological research in the Isle aux Morts area began with Helen Devereaux's (1966) reporting of the large Palaeo-Eskimo site at the Cape Ray light station (CdBt-1). Devereaux's work at the Cape Ray Light site was followed by Urve Linnamae's (1975) important excavations there which helped to lay the foundations of Palaeo-Eskimo archaeology in Newfoundland. In 1973 Paul Carignan tested a Palaeo-Eskimo site in the community of Isle aux Morts itself. The site was described as located "on a small point of land at the innermost part of the bay, near the highway and the community wharf." Carignan reported that the site (CjBr-1) was approximately one-half acre in size, and that he collected 43 artifacts from it. No report on his explorations or the site itself could be located at the Newfoundland Museum. As will be shown below, his information is at variance with that obtained during the course of the present investigation; much of it seems incorrect.

To the east of Isle aux Morts Gerald Penney (1982) located Little Passage complex and Palaeo-Eskimo sites in the Grandy's brook - Burgeo Islands area and a site of unknown cultural affiliations at Cape la hune. A recent survey of the environs of the Hope brook gold mine revealed evidence of what appears to be a contact period Beothuk site (Gerald Penney, personal communication to R.T. Pastore).

In 1981, recreational divers recovered, among other artifacts, a French coin dated 1638 and an astrolabe dated 1628 from a wreck in the harbour at Isle aux Morts. That find was followed by a survey of the wreck (CjBr-2) in 1982 by divers from the Newfoundland Marine Archaeology Society (NMAS). More extensive excavation was carried out under the direction of Sheli Smith in 1983. The wreck appears to be that of a mid-seventeenth century French fishing vessel and is of considerable significance

to marine archaeology (Smith 1984). The wreck is located far from the proposed development area and is not threatened by it.

In summary, archaeological investigation at Isle aux Morts and in the surrounding area has produced evidence of seventeenth century European, historic Beothuk and Palaeo-Eskimo occupations.

Field reconnaissance and evaluative testing

The underwater and land assessments produced no features or artifacts of historic value. Underwater, LeClair located an old oil tank, several rusted oil drums, a wrecked bicycle, an outboard motor hood, a pair of girls skates, and a "stubby" beer bottle. None of these objects was considered of historic significance. The uniform mud bottom and good visibility made it quite easy to locate objects on the harbour floor; it is very unlikely that anything of historic significance was missed.

On land, extensive testing both in systematic and judgmental fashions also produced no artifacts or features of historical importance. Plainly, from the account above, a Dorset Eskimo site once existed in the area. It was originally small in size: Mr. Park may be quite correct when he hypothesized an occupation by a small group or family unit. He is probably equally correct in his judgement that the site was entirely destroyed by youths searching for "arrowheads."

Most of the testing was completed by mid-afternoon, at which time attention was turned to discussions with local inhabitants regarding their knowledge of the proposed development area. Mr Lindsay Billard stopped to ask what we were doing and, on being told, stated that "arrowheads" had been found at a place nearby. He took us to the location, which is near two sheds just outside the southeastern part of the proposed parking lot zone. The specific area indicated by Mr. Billard is an embankment, consisting of 35-50cm of brown peat on top of 2-3cm of black peat, which in turn rests on a sterile grey subsoil. Mr. Billard then proceeded to explain how some of the local teenagers dug "arrowheads" from the bank about 15 years ago. One of these is

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Percy Evans, who is still a resident of Isle aux Morts.

Mr. Evans was found at his welding shop in the community. He talked freely of his activities 15 years ago, confirming the location of the finds and describing some of them. They included triangular points, likely Dorset harpoon end blades, notched points or knives which are probably Dorset but conceivably of other cultural origin, and a piece of "a pot,...black on the outside and the inside grey, soft that you could scratch it with your thumbnail." This would seem to refer to a soapstone vessel, burned and blackened on its exterior, and undoubtedly of Dorset origin. Mr. Evans stated that Israel Kinsella had also participated in the arrowhead hunting, and that they had given all their finds to Mr. Herb Park, a science teacher at the Isle aux Morts school.

Attempts to locate Israel Kinsella at the fish plant where he works were unsuccessful, as he was in Stephenville at the time. Mr Park was contacted at the school, and gave a full account of the fifteen-year old incident.

While teaching the "rocks and minerals" part of his science curriculum Mr. Park instructed his students to collect different kinds of rocks from around the community, and bring them to school for identification and discussion. Two youths brought prehistoric stone artifacts. Mr. Park was able to identify them immediately as Dorset "points," as he had visited the excavations at nearby Cape Ray several times. (The site at Cape Ray Light, first worked by Helen Devereaux and later by Urve Linnamae, is a large Dorset habitation site.) Mr. Park inquired as to the place of origin of the artifacts and was shown to the location by his students. More digging was done and additional artifacts recovered. Mr. Park then instructed the students to stop, but to little avail; he was aware that several youths continued digging. Mr. Park then packaged many of the artifacts and sent them, with an accompanying letter, to the Newfoundland Museum in St. John's. Subsequently Paul Carignan, then Provincial Archaeologist, visited Isle aux Morts and was taken to the

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site by Mr. Park. According to Park, Carignan spent an entire day digging test holes around the place, but found nothing. In his (Park's) opinion, the site was entirely destroyed by teen-agers in search of "arrowheads".

Park's knowledge gained from his visits to the Cape Ray Light site helped him to understand and describe the site at Isle aux Morts. He described the stratigraphy at the Isle aux Morts location as consisting of a thick brown peat layer (upwards of 50 cm) covering a thin layer of "ash," by which he meant wood charcoal. Artifacts were situated in the charcoal layer, immediately above the subsoil and bedrock. Park noted that there were very few flakes in relation to the number of artifacts; this he was able to judge, again, from his knowledge of the Cape Ray Light site. In his opinion the site had been occupied by a small group of people, a "family unit" in his words. Artifacts which Mr. Park retained (i.e., did not send to Carignan at the Newfoundland Museum) have been lost in the ensuing years. During our visit he searched, unsuccessfully, through several old "rock" collections. He stated that he had not seen the artifacts for many years.

Following these conversations we return to the "site" and removed a section of the peat bank with a shovel. The lower level was then excavated with a trowel. No charcoal (as described by Park) was seen; no flaking material or artifacts were found.

It seems, therefore, that the small Dorset Eskimo campsite which once existed at Isle aux Morts has been completely vandalized; our own extensive testing confirmed what the original looters discovered after a few weeks -- that the site would yield no more cultural material. It also seems that some confusion exists as regards Carignan's report of his visit to the site. Mr Park reports that Carignan found nothing and, in view of this, it seems likely that the artifacts now housed in the Newfoundland Museum were not collected in situ by Carignan, but are, in fact, those donated by Mr. Park.

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EVALUATION AND DISCUSSION

The small size of the site (or ex-site) at Isle aux Morts is in keeping with the pattern of Dorset sites along much of the south coast of Newfoundland. Several archaeological surveys along the coast have resulted in the discovery of Dorset sites, most small and relatively artifact-poor. No large Dorset sites have been found between Placentia Bay and Cape Ray, whereas several large sites have been found in other coastal regions. This may be a reflection of the Dorset adaptation to the south coast, which in turn stems from the nature of food resources. On the west and northeast coasts of Newfoundland immense herds of harp seals are available seasonally. This may have allowed Dorset people to gather in greater numbers, for a season, than was otherwise possible. Dorset people in southern Newfoundland relied on resources other than harp seals -- harbour and gray seals that were less numerous and more dispersed. Hence, a pattern of small, dispersed Dorset sites is found along the Island's south coast. The Isle aux Mort site may have been occupied by one or two families who hunted harbour and gray seals, and moved along the coast as necessity dictated. Alternatively, the site may have been utilized by a specialized hunting party who stayed at Isle aux Morts for a short time and then returned to another site where their families resided. A collection of stone tools from the site would aid in deciding which of these possibilities is the correct one. If the site had been occupied by a family or families, then it would be expected that a range of domestic tools as well as hunting weaponry would be present. If the specialized hunting party hypothesis is correct, then most artifacts would relate to hunting. As stated above, no artifacts were discovered during the assessment. However, a collection of artifacts is held by the Newfoundland Museum. Their analysis might assist in determining which, if either, of the two hypotheses mentioned above is correct.

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RECOMMENDATIONS

In view of the lack of evidence of any historic resources underwater and since the site CjBr-1 has long since been looted (and in fact no longer exists) it is recommended that from the point of view of historical resources the proposed Isle aux Morts breakwater/wharf should proceed as planned.

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PERSONS CONSULTED

Lindsay Billard, Isle aux Morts, September 8, 1988

Percy Evans, Isle aux Morts, September 8, 1988

Herbert Park, Isle aux Morts, September 8, 1988

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FIGURE 1

Location of proposed marine facility at Isle aux Morts showing areas surveyed and locations of test pits.

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ARCHAEOLOGY AT RED BAY, LABRADOR 1988

James A. Tuck
Archaeology Unit
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The 1988 field season at Red Bay, Labrador was supported by the Historic Resources Division, Department of Culture, Recreation and Youth; conservation assistance was again provided, both during and after the field season, by the Canadian Conservation Institute. Work commenced with a small crew in early June, a full crew conducted investigations during the months of July and August and a reduced crew continued work during the month of September.

Excavations were concentrated at: a) the sixteenth century whaling shore station and Recent Indian and other Native occupation areas at the Saddle Island West site; b) an extensive complex of tryworks associated with a cooperage explored during 1986 and 1987 and located on the mainland in the southeastern part of the Community of Red Bay; and c) at what appear to be two small European(?) dwellings loacated on the west side of The Basin and presumed to have been associated with the habitation of the Quebec entrepreneur Pierre Constantin and dating from the first half of the eighteenth century. Brief descriptions of each area of excavation follow.

Saddle Island West

The two foci of excavations at this site were to investigate further the tryworks and, particularly, associated roof falls which were suspected to have been derived from associated structures and

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to expose additional Native hearths and occupation areas to the west and north of the tryworks.

The former of these two objectives was met, that is the roof falls were mapped, photographed and removed, but no additional trace of structures in the form of post molds or other structural elements was recovered. It still seems as if the roof fall to the south of, and clearly discrete from, the tryworks roof fall represents a separate structure. A shallow culture layer was preserved in areas where the soil had not been trenched for gardening, but aside from a few sherds of coarse earthenware no artifacts suggestive of activities, other than the coopers' head vise or cask hook recovered in 1987 (Tuck n.d.) were recovered. The location of this structure, however, particularly when compared with the much better preserved structure found at Area J on Saddle Island (Tuck 1985:227) suggests that it, too, may have served to house the labourers who operated the nearby tryworks.

Additional excavations within and directly adjacent to the tryworks itself, revealed the presence of two ditches, dug parallel to the back wall of the rendering ovens and turning downslope toward the harbour at the south end of the structure. They appear not to have figured in the industrial process but more likely served as drainage ditches, although their necessity on the well-drained sandy soil of Saddle Island West is not obvious.

Considerable additional evidence of Native occupation at Saddle Island West was revealed by the 1988 excavations. Virtually the entire level floor of the natural amphitheatre formed by a

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terrace to the west contains remains of aboriginal hearths. More than 130 such features have been recorded to date. Most of these contain but a few flakes and little in the way of diagnostic artifacts. They appear to have been used for even shorter periods of time than those located immediately adjacent to the tryworks (Tuck n.d.).

While most of the material appears to pertain to Recent Indian occupations, at least a few objects indicate a Palaeo-Eskimo occupation of the area. Many of these were found among hearths and hearth rubble in a trench some 30 metres in length and between two and three metres in width. Evidence for the excavation of the trench was apparent in the form of sand and subsoil plied atop old sod on the east side of the trench; similar fill mixed with sods within the trench itself suggests deliberate re-filling of the trench. How long a time lapsed between excavation and re-filling cannot be said and the function of this unusual feature awaits further excavation in 1989.

Red Bay East

Work continued at the tryworks complex initially opened in 1987 (Tuck n.d.). Stratigraphy behind the back walls of the rendering ovens indicates at least four separate rebuildings, a fact confirmed by partially dismantling the rendering ovens themselves to reveal the construction layers themselves. Rebuilding of the tryworks raised the area by more than a metre, the fill consisting of fire-broken rocks, clay, tile fragments and a number of bits of wood, some representing once-substantial timbers which

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must have figured in the construction of the buildings housing the tryworks. Preservation of this wood and other organic materials, including a low-cut shoe or slipper, was remarkable, a result of infusion with whale oil spilled during subsequent rendering operations.

One interesting feature associated with this tryworks is a small (c. 7cm diameter by 4cm deep) hole in the bedrock immediately in front of the fireboxes. It shows evidence of having been produced by incomplete rotation of a heavy object. Its function remains unknown. It may have been the base of a crane or 'gin-pole' arrangement used to hoist blubber from the water to the level of the tryworks, but its proximity to the tryworks itself weakens this suggestion.

It was planned to continue to expose this tryworks and the surrounding area where wet conditions promised good organic preservation. Unfortunately at least one open sewer drains into the area and excavations cannot be continued until such time as the Red Bay water and sewer construction is completed and the area has had a chance to cleanse itself.

A second tryworks at Red Bay East was also exposed, providing some information on materials used in roof construction. In a wet area behind the fireboxes there were preserved a number of poles from five to ten centimetres in diameter resting directly below the roof tiles. They do not seem to have been large enough for major structural members but rather are most likely the remains of the roofing material between the rafters and tiles which covered them.

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Such a technique is not unknown in the Basque country and its use in Labrador would have relieved the whalers of the necessity either to bring boards from Europe or to have sawn them in Labrador. This information will be incorporated into a 1:4 scale reconstruction of a tryworks planned for the Visitor Centre, now under construction.

The Basin

During September work continued at two locations on the north side of The Basin, the large inner harbour which provides shelter from most winds. These two sites were discovered in 1987 (Tuck n.d.) and testing revealed artifacts suggesting an eighteenth century date. Tobacco pipes, green bottle glass, iron nails, fragments of a tin-glazed bowl, shot, gunflints and other objects associated with stone fireplaces all suggest a European occupation. The sites are located at some distance from the shore of The Basin and access is not particularly convenient. It is hard to imagine fishermen, for example, settling at such a distance and having to carry any amount of equipment from the shore to their dwellings, there are no structures of equivalent date on or near the shore immediately in front of the small dwellings. Moreover, the inordinate numbers of blackflies at these two locations during the entire summer makes it very unlikely that any human beings could have survived in such an environment. The function of these structures, therefore, remains equivocal. Small beads of white and blue glass, usually associated with the fur trade, suggest that the structures may be those constructed by Pierre Constantin, a Quebec

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entrepreneur, about 1715. They were burned by Inuit a few years later and the post reconstructed in the following year.

At least slight evidence of burning at one of the two loci suggests destruction by fire, but the evidence is far from overwhelming. Moreover, neither of the two structures appears to have been large enough to have housed even three or four Europeans and their provisions and goods for exchange with native trappers. Further exploration of these structures planned for 1989, as well as more intensive surveys of the surrounding area, may reveal additional information regarding their function and origin.

Tourism at Red Bay in 1988

Although the numbers of visitors to Red Bay remained only approximately equal to the 1987 numbers, this fact is explained by road upgrading and construction which resulted in virtually impassable conditions during much of the summer. These conditions were particularly detrimental to organized tours since large busses were unable to travel the road. The improved road, and particularly the eventual paving of the Pinware to Red Bay section of the road promises to increase tourism considerably in the coming years.

Even the approximately 2,000 visitors to the sites have taxed present facilities considerably. For this reason, a self-guided walking tour of Saddle island, clearly marked and with appropriate interpretive signage (in both English and French) was established this past summer. It met with immdeiate success, not only in relieving staff of the burden of conducting tours three times each day but also in the fact the visitors were free to spend as much

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time as they wished on Saddle Island. Many reported that they preferred this type of tour to one in which they were conducted around the area at a fixed (and usually rapid) pace.

The Community of Red Bay has obtained funds for the construction of a Visitor Centre, in a new building immediately adjacent to the Memorial University field laboratory. Construction on the 3,500 square foot building, which will house exhibits, a small thearte, gift shop and washrooms, began this summer and is expected to be completed during 1989. This interim facility will allow Red Bay to continue to take advantage of the increasing tourist momentum until larger facilities are constructed.

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