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LA THÈSE A ÉTÉ MICROFILMÉE TELLE QUE NOUS L'AVONS REÇUE
NORTH GASPE PREHISTORY: A CONTRIBUTION
TO QUEBEC ARCHAEOLOGY

by

Joseph Benmouyal
B.Sc., Université de Montréal, 1969
M.A., Université de Montréal, 1972

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
in the Department
of
Archaeology

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November 1981

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APPROVAL

Name: Joseph Benmouyal
Degree: Doctor of Philosophy
Title of Thesis: North Gaspe Prehistory: a contribution to Quebec Archaeology

Examining Committee:

Chairperson: Roy L. Carlson
Herbert L. Alexander
Senior Supervisor

Knut R. Fladmark

P. M. Hobfer

James V. Wright
External Examiner
Archaeological Survey of Canada
Ottawa

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North Gaspe Prehistory: A Contribution to Quebec Archaeology

Author:

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November 16th 1981

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This thesis presents the results of three salvage field seasons (1973-1975) of prehistoric research conducted on the north coast of the Gaspe Peninsula, Quebec. In this archaeologically unknown region, on the terraces of the Goldthwait Sea between Les Mechins and Marsouï, seven sites were excavated and 27 others were surface collected. This thesis is concerned with the two preliminary aims of archaeology: to reconstruct the cultural sequence of the region and to understand some aspects of prehistoric adaptation.

Detailed analyses of the sites and tool assemblages are presented. They indicate that the area of research was settled between at least 6000 B.P. and the sixth century of our era. The earliest occupations recognized are related to the Late Paleo-Indian stage which seems to have persisted longer here than elsewhere in the Northeast. They are associated with long parallel-sided, pressure-flaked points, herein named Ste-Anne points and other tool forms which indicate a distant western origin, probably around the Great Lakes, according to our present knowledge. During the following stage, the Gaspe Tradition (ca. 5000 - 1300 B.P.), an early and a late period are distinguished. This tradition appears to be the result of local evolution, and shows few outside influences except during the late period. It is argued that throughout the sequence a maritime adaptation prevailed, and adaptation which probably existed during the Paleo-Indian stage in the Northeast.

For the Gaspe, a model of subsistence similar to that of the historical Micmacs is proposed.

Sometime after the sixth century A.D., north Gaspe seems to have become deserted, a situation witnessed at contact when Iroquoian groups seasonally organized fishing expeditions along these shores.
ACKNOWLEDGEMENTS

It is with great pleasure that I formally express my gratitude to the people and institutions who have participated in this research. The Gaspé project was made possible by contract grants from the Service d'archéologie et d'ethnologie, ministère des Affaires culturelles du Québec, and the Musée d'Archéologie de l'Est du Québec, Rivière-du-Loup; and by two doctoral fellowships from the Canada Council. I would like to mention Georges Barré, Charles Martijn and Carole Thibault of the Service d'archéologie et d'ethnologie. Without their support and assistance, the research would not have been done.

Recognition must also go to the field crew members, including Daniel J. Carlson, Pierre Dumais, Dominique Groison, Jean-Yves Ross, Gilles Rousseau and Alain Slakmon, for their patient and meticulous work; and especially Ann Baulu who was co-director during each field season. My thanks are also extended to the numerous Gaspé residents, particularly members of the ministère des Transports in Ste-Anne-des-Monts, who provided technical assistance.

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I am much indebted to Herbert L. Alexander and Knut R. Fladmark who provided helpful guidance and suggestions for the final draft; with Roy L. Carlson, they have contributed in making my association with Simon Fraser University a most rewarding and pleasant experience.
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Finally, I owe grateful appreciation to my wife, Ann Baulu, for the support and loving encouragement she has given me during the past years. To her, this thesis is dedicated.
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Chapter I

INTRODUCTION

History of Investigation

During the last decade, archaeological research in Quebec has known an important upsurge (see Martijn 1973; Chapdelaine 1978), and investigations in the Gaspé Peninsula have been instrumental in this expansion. In this previously untouched region of the Northeast, work began in 1969 with excavations at La Martre (see Figure 1) by members of a newly formed research group, the Société d'archéologie préhistorique du Québec (S.A.P.Q.). The site had been discovered the previous year by a local priest, R. Provost, who subsequently founded an amateur society, the Société d'archéologie de la Gaspésie (S.A.G.). It had also been examined by T.E. Lee who, in a short note (1969), made known some particular aspects of the remains and proposed the term Gaspé Archaic.

The 1969 excavations were followed by an activity report (S.A.P.Q. 1970) in which the La Martre material was also distinguished from other Archaic traditions in the Northeast. Parallels were drawn, however, with other sites south of the Boreal Forest – among them Tadoussac, Sheguiandah and others on the Labrador coast. These collections were tentatively placed under another new designation, the Peri-Boreal Archaic.
Thus, the Gaspé established itself in the scant literature on Quebec prehistory, making it apparent that further research was necessary. Over the following two years, two surveys were conducted along the shores of the peninsula concentrating mainly on the north coast (Duval 1970, 1971; Provost and Ross 1972), and some two dozen sites were located. Many of these sites called for a salvage intervention and one of them was in immediate danger of destruction. The latter, Cap-Chat, to be partly destroyed by road construction, was the object of salvage excavation in 1971. This site, immediately above the present shoreline, was radiocarbon dated to the sixth century A.D.; because of this age, and a single pottery fragment, it was assigned to the Middle Woodland (Barré 1975).

This was about the extent of the research in the Gaspé when I started investigations in this area. It was established that prehistoric vestiges were numerous and many were in the path of destruction. More important, excavations and surface collections had unveiled some complex and original aspects of the prehistoric remains in this part of northeastern North America. Late Paleo-Indian sites are rare in this area, almost unknown in Quebec except for some undated and surface finds, so the Gaspé with its well defined paleobeaches offered encouraging potentials. In fact, evidence for such a Paleo-Indian penetration had been found at La Martre, in particular a finely pressure-flaked projectile point (S.A.P.Q. 1970:Figure 100C). As for the following period, it had been proposed on the basis of environmental considerations that coastal Gaspé had known populations of the Maritime Archaic Tradition (Tuck 1971:350). Contrarily, the first investigations had indicated the presence of an Archaic tradition not yet defined, but apparently unlike those recognized in the Northeast.
The spread of, or contacts with, Middle Woodland groups had been proposed. This alternative, however, was based on a single pottery sherd, much too scant an evidence to allow any further interpretation. Finally, the data at hand was insufficient to answer the simplest questions regarding cultural sequence, not to mention cultural development and adaptation.

These problems, however, did not prevail in the decision to pursue archaeological inquiry. The cause was much more prosaic and urgent: the road which belted the peninsula was being rebuilt in several places, potentially endangering more sites. This and related gravel operations had unearthed the site of Cap-Chat and several other sites (Provost and Ross 1972). Site salvage and inventory being among the priorities of the Archaeology and Ethnology section of Quebec’s Department of Cultural Affairs, further surveys were planned along the projected road.

In 1972, the author surveyed several parts of coastal Gaspé and concluded that three known sites called for urgent intervention. Two of these sites, Ste-Anne-des-Monts (DgDo-4) and St-Joachim-de-Tourelle (DgDo-6), were located on large gravel pits; the last one, Cap-au-Renard (DhDn-1), was discovered during the excavation of a cellar. These sites were surface collected and tested; their extent was ascertained and the data gathered was presented in a lengthy preliminary report (Benmouyal 1973). From the rather restricted tool samples recovered, it appeared that we were dealing with the remains of an undefined tradition which was termed the Gaspé Archaic, as had been proposed by T.E. Lee. More substantial data, however, were needed; since the destructive earth moving activities were to continue, it was decided to pursue excavations at
these sites.

In 1973, a nine-week salvage program was conducted. The three mentioned sites were more fully sampled and, simultaneously, a systematic reconnaissance between Cap-Chat and St-Joachim was made on every terrace along the St. Lawrence Estuary. One of the significant outcomes of the excavations was the discovery that the sites were not as homogeneous as previously thought. This was most obviously displayed in the projectile point forms, some of which showed features generally associated with the Plano tradition. The survey revealed eight new sites, some of them very large and productive, but all badly disturbed by agricultural activities, as is the case of most sites in this area. On the other hand, several negative findings also resulted from the 1973 season. Among them were the consequences of plowing at most sites, and the absence of datable charcoal remains and organic matter. These shortcomings demanded the investigation of undisturbed sites also in danger of destruction. Another site at Cap-au-Renard, the Ruisseau (DhDn-2) was in this condition; having been partly bulldozed for the erection of a power line, it was periodically deforested, and was to be further destroyed by road construction.

In 1974, while working at the Ruisseau site, in situ archaeological remains were discovered on two other terraces, above and below the power line station. Test excavations on these three stations yielded relatively undisturbed artifacts, recognizable features, charcoal samples and, in one case, faunal remains. At the end of this nine-week field season, the Ste-Anne site was again investigated; the lithic industry sample was increased and a datable quantity of charcoal was discovered.
Figure 1. The Gaspé Peninsula
At this point, the amount of data gathered were sufficient to prepare the grounds for a preliminary interpretation of the prehistoric events which took place in the Gaspé. Suitable samples had been recovered from excavations at six sites - the three terraces of the Ruisseau counting for three - which offered a picture of cultures ranging widely in time. In addition, surface collecting provided an appreciable quantity of remains. They also supplied information on site location, and attempts could be made to relate them through classification and elevation.

Finally, in 1975, the excavation of the cellar at Cap-au-Renard was completed, and a lower culture-bearing terrace was discovered and salvaged. In addition, the systematic survey was extended to Les Méchins to the west and Marsoui to the east. As a result of this seven-week season, seventeen other sites were discovered, giving a more regional scope to this research.

In this report, the data from the last three seasons are presented and discussed. The investigation thus concerns the south coast of the St. Lawrence Estuary, from Les Méchins to Marsoui on the Gaspé Peninsula, a distance of about 70 km as the crow flies. Along this stretch of land, twenty-seven sites were surface collected and/or tested. More important, four other sites, one of which consists of three distinct stations and another of two, were sampled more extensively.
Theoretical Perspective and Aims

In the past few decades, a period particularly marked by the writings of Taylor (1948), Willey and Phillips (1958) and Binford (1962, 1968), North American archaeology has witnessed an accelerating concern to delineate its place among the social sciences and to rationally evaluate its possible contribution to the cultural development of man. Given the time scope within which they were working, archaeologists realized the potential of their data to explain cultural change. This resulted in redefining the aims of the discipline, and the approaches and scientific methods best suited to achieve these aims.

These reevaluations gave rise to much controversy, but I believe that most contemporary archaeologists would agree that the ultimate goal of their discipline is to delineate and explain cultural processes, to explain cultural differences and similarities (Binford 1962; Clarke 1968: 20-23; Trigger 1970; Thomas 1979). In this perspective, parallels can be drawn with ethnology, but unique contributions of archaeology rest on the fact that it deals with a much longer time period: the entire duration of man. This goal, however, cannot be achieved without the knowledge acquired through two other objectives: to arrange cultural chronologies, and to reconstruct past lifeways. These objectives have been qualified as "less important" and "a necessary evil" (Thomas 1979:138-141). Considering one's particular aims, this may be true; but regarding archaeology, all three goals are equally important. The last two are simply prerequisite to the first one (see also Deetz 1970:115-116; Trigger 1970:36).
Constructing cultural chronologies is perhaps the simplest goal. At this stage, one tries to order prehistoric artifacts into temporal divisions within a specific region. Chronological research was the subject of many studies during the early development of archaeology as a science. Sometimes, it was the ultimate implicit or explicit goal of some studies (see Taylor 1948); actually, it is the first task of archaeologists facing previously unknown areas. Here, the major concerns are time (dating, stratigraphy, seriation, diagnostic artifacts, types, components, phases...) and space (geographic areas derived mainly through comparison). Archaeologically, one needs at least a well stratified site or several sites which can be arranged chronologically.

The second goal of contemporary archaeology, reconstructing extinct lifeways - more or less the ethnography of past cultures - is a considerably more complex task. Here, archaeologists try to understand how individual cultures adapted to particular environments by reconstructing their technology, subsistence practices, settlement patterns, social organization, religious institutions... For a long time, researchers often neglected some of these reconstructions postulating major limitations in the archaeological record and the unreliability of such studies (Hawkes 1954; Chang 1967:12-13). Our data certainly sets varying degrees of limitations, but it has been stressed that "... we can and do excavate the material items which functioned together with these more behavioral elements within the appropriate cultural subsystems" (Binford 1962:243). The limitations thus may lie also in methodological inadequacies, but this goal requires much more varied information than the previous one. Ideally,
research must now include the following: (1) a wide range of adequately sampled sites, as different activities were conducted at different sites and parts of sites; (2) the archaeological remains at these sites must be well preserved and especially undisturbed, original patterning being the result of prehistoric human activities; (3) a good knowledge of past environment is also required since it is known to have changed through time; finally, (4) an adequate body of ethnographic data upon which analogies can be based is requested. In practice, the above data are rarely available but archaeologists have sometimes obtained relative success in reconstructing some aspects of extinct cultures (see for example Leone 1972:193-410; Thomas 1979:237-38).

This thesis contributes to the last two goals of archaeology, but mainly to the first one as severe limitations were encountered in the Gaspé.

Considering that the data at hand covers several millennia and a homogeneous area, the first aim is to reconstruct a cultural sequence which could be used as a general framework in future research. As noted above, site salvage and inventory were the leading guidelines of the fieldwork, and dictated the program from year to year. Nevertheless, as work progressed, new questions were raised demanding more information. Inasmuch as it was compatible with the salvage-inventory priorities and, obviously, within the limits of the sites' nature, attempts were made to solve these problems. Extreme deficiencies, however, were encountered at most sites and hopefully as new studies are conducted, the proposed cultural sequence will be perfected.
Secondly, efforts were made to understand some aspects of the adaptation of these populations, but this objective must presently remain incomplete. As noted, cultural reconstructions require at least a good preservation of sites and their organic remains, a suitable knowledge of the aboriginal population, and a good comprehension of prehistoric environmental changes on which speculations and hypotheses can be based. In the area of research, such data being absent or scant, a general model of adaptation based on some environmental imperatives, site location and ethnographic analogies is proposed.

Finally, an important aspect of this report is to present the archaeological data in a standardized and understandable fashion so that they can be useful to other northeastern, and particularly Quebec archaeologists. All too often, archaeological investigations here are followed by short preliminary reports or, as seems to be a current trend, by interpretative papers excluding helpful material descriptions. This scarcity of published comparative data has compelled researchers, sometimes legitimately, to borrow concepts and adopt cultural labels from archaeologically better known surrounding regions. It has also resulted in a primary concern to integrate local manifestations into well defined, or rather "accepted", traditions on the basis of few similarities and at the expense of important differences. It is hoped the following site and material descriptions will help alleviate this unsatisfactory situation.
Chapter 2

PHYSICAL ENVIRONMENT

Present Setting

GEOGRAPHY

The Gaspé Peninsula, the southeastern extremity of Quebec, advances into the Gulf of St. Lawrence in a Southwest–Northeast direction. To the north, it is bordered by the St. Lawrence Estuary, a body of salt water 50 to 130 km wide. From Ste-Anne-des-Monts, on a clear day, one can perceive the north shore of the river at Pointe des Monts, some 70 km to the northwest; from further east, the hills of Anticosti Island are visible across the Gaspé Passage. To the south is the Chaleur Bay across which the north of New Brunswick can be seen. The western limit varies with the criterion used; from a geographical point of view, the depression occupied by the Matapedia River makes a convenient boundary. Thus, the peninsula is approximately 300 km long, at the most 150 km wide, and could be reached through several maritime routes from most neighbouring areas.

Physiographically, the Gaspé is a part of the Appalachian Mountain system locally known as the Notre Dame Mountains, or more precisely the Shickshock Mountains. Its bedrock is mainly Cambrian to Devonian in age (McGerrigle 1950). North of the Shickshock, Cambrian and Ordovician in
ages, it is composed of intensely folded sedimentary rocks, mostly slates, shales, limestones, sandstones and conglomerates (Lebuis and David 1972; Alcock 1941).

Following Lebuis and David (1972:1-4), the north-central part of the Gaspé can be divided into three zones parallel to the St. Lawrence. From north to south are the coast, the quasi-plateau, and the Shickshock Mountains.

The coast covers a discontinuous and irregular strip of land which extends from the present beach to the quasi-plateau. Here, bedrock is generally covered by thick littoral and fluvial deposits forming a series of terraces. The width of this zone varies greatly; at places, it is limited to the present beach and covers a few dozen meters; elsewhere, it extends for several hundred meters, or even a few kilometers at the mouth of important rivers. Generally the coastal zone is well developed west of the area of research, especially between Cap-Chat and St-Joachim, while it is confined to stream and river mouths to the east. Elsewhere, the hills of the quasi-plateau fall abruptly in the St. Lawrence. Usually, sand and gravel beaches border the wide coastal zones and estuaries, while bedrock outcrops in front of coastal cliffs.

Littoral sediments, stratified and well sorted gravel and sand deposits, can be more than 10 m in thickness, and form a series of marine terraces to a maximum altitude of 68 m around Ste-Anne. Because of the complex history of post-Pleistocene marine submerisions, regressions and land uplifts, these paleobeaches vary greatly in extent and elevation.

This coastal zone constitutes the area of research. All excavated
and discovered archaeological sites are situated on these terraces, on
top of the littoral or fluvial sediments. Unfortunately, this zone is
also the main area of present settlements. Villages were established at
the mouth of every river and stream of any importance. The lowest
terraces are usually occupied by constructions, such as roads and various
buildings; the highest terraces have been logged and are presently
utilized by agriculture—mainly potato and hay, grazing animals, and
sand and gravel exploitations. These earth-moving activities have greatly
altered the surface of most terraces resulting in the disturbance of the
majority of the prehistoric sites.

The second zone, the quasi-plateau, spreads between the coastal
zone—sometimes the present beach—and the Shickshock Mountains for
distances generally in excess of 25 km. This plateau is strongly dissected
as a consequence of glacial and post-glacial phenomena, and changes in
bedrock lithology. Altitudes average around 400 m with maximums of some
600 m. Several V-shaped river valleys, generally flowing in a NNW
direction, have deeply eroded the surface, causing sudden changes of
relief of more than 300 m. To the south is a series of lakes but much
smaller and more sparse than those to the west or on the north shore of
the St. Lawrence.

Sporadic habitations can be found on the plateau but mainly
adjacent to the coast. Several attempts to settle this zone have been made
but most were abandoned; generally, agriculture is unpractical and snow
isolated these settlements several months a year. Nevertheless, this
area is easily reached through numerous logging roads and the Transgaspesian
road which connects the north and south of the peninsula. In the past, this could be done by canoe through the Ste-Anne or Cap-Chat, and the Cascapedia Rivers, using one of several portages.

No attempt has yet been made to locate archaeological sites in the interior - the plateau or the mountains to the south. Such a reconnaissance would be time-consuming and probably unrewarding at first. It is postulated, however, that the prehistoric populations which settled the coast camped and hunted inland for part of the winter season.

The last zone, the Shickshock Mountains, are the divide line between the St. Lawrence and Chaleur Bay hydrographic basins. These mountains rise abruptly from the plateau to altitudes ranging around 1000 m; they rarely form sharp peaks but rather higher, though more restricted plateaux. On each side of the Ste-Anne valley, some 800 m deep, are Mount Albert and the Tabletop Mountains; here the summits are plain-like, up to 20 km² in the area, and offer a good view of the St. Lawrence and its north shore. They are bare of trees, scattered with boulders detached by frost action, and glacial erosion has left old cirques and depressions some of which are occupied by lakes and swamps. Several points rise around 1200 m and Mt. Jacques Cartier, among the highest summits in Eastern Canada, has an altitude of 1268 m.

South of Ste-Anne, the mountain zone is part of the Gaspesian Provincial Park. It is mostly uninhabited, and the traces of civilization are those associated with wood, mining and tourist industries.

In conclusion, the Gaspé is a massive plateau-like land deeply dissected by several rivers which connect the north and south shores.
Figure 2. North Gaspé and Site Location
It is mainly populated along the narrow coastal fringe which consists of a discontinuous series of terraces which reach the maximum altitude of 68 m.

CLIMATE

On a continental scale, the Gaspé climate has been assigned to the temperate zone, further qualified as humid continental with cool summers, but this generalization does not reflect some local variations. The peninsula is submitted to maritime influence with the result that thermometric values and amplitudes are often lower than in central Quebec (Gagnon 1970:1). However, maritime influence is mostly felt along the coast, while physiographic features - altitude in particular - are preponderant inland where islands of arctic climate are found. A detailed study of this region's climate should take into account such elements as the proximity of the sea and relief and, hence, the divisions of northern Gaspé presented above can also be used. Various climatic data are presented for the coast, plateau, and Shickshock regions in Table 1.

In general, the Gaspé may be said to know two seasons: a rather long winter, and a shorter but relatively warm summer separated by intermediate periods whose length varies mainly with altitude. Along the coast, minimum average temperatures above freezing point have been observed between early May and late October, and frosts from late September to early June. In the Shickshocks, minimum average temperatures above 0°C start a month later in the spring, end in late September, and everywhere inland, frosts occur at least monthly throughout the year. Due to the neigbtouring
sea, and prevailing northwestern winds, summers are rather cool along the coast. Precipitation increases with elevation: a total of 85 cm falls on Ste-Anne-des-Monts, 166 cm on Mont Logan, the latter being among the highest values in Quebec.

Snow covers the ground from late November to early May at Cap-Chat, from early October to mid-June on Mt. Logan, and for intermediate periods on the plateau. It constitutes from 30 to 45% of the total precipitations, the smaller figures being found along the coast.

Two features of great importance to aboriginal adaptation are the ice shelf fringing the shore in the winter, and the occurrence of rain in the same period. Ice builds up along the coast starting in late November, but takes a solid station only a month later (Biays 1964:108). This fringe of ice can reach a width of several kilometers for winds and currents mainly pack the ice along the south shore of the estuary. Before the ice break-up, which takes place in late March, it is possible to travel on the ice. However, tides averaging some 2 m, and storms make such travels perilous, hindering the exploitation of marine resources.

Secondly, the coast and plateau zones, and even the top of the Shickshocks receive some rain during each of the winter months. From January to March, a monthly average of at least 1 cm of rain falls, thus forming an ice crust over the deep snow, and allowing a man with snowshoes to easily overtake the larger species of the cervidae family, moose in particular.

Thus, if the largest part of the Gaspé can be classified in the humid continental temperate zone, the coastal area is affected by the
Table 1
Climate Features of Northern Gaspé

<table>
<thead>
<tr>
<th></th>
<th>Coast</th>
<th>Plateau</th>
<th>Shickshock</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature (in °C)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual average</td>
<td>3</td>
<td>0 to -1</td>
<td>-2.5</td>
</tr>
<tr>
<td>January daily maximum</td>
<td>-7</td>
<td>-9</td>
<td>-12</td>
</tr>
<tr>
<td>January daily minimum</td>
<td>-15</td>
<td>-18</td>
<td>-23</td>
</tr>
<tr>
<td>July daily maximum</td>
<td>21</td>
<td>18 to 24</td>
<td>16</td>
</tr>
<tr>
<td>July daily minimum</td>
<td>10</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Absolute maximum</td>
<td>32</td>
<td>34</td>
<td>26</td>
</tr>
<tr>
<td>Absolute minimum</td>
<td>-31</td>
<td>-40</td>
<td>-44</td>
</tr>
<tr>
<td>Length of frost-free season in days, 50% probability</td>
<td>140</td>
<td>120 to 100</td>
<td>80</td>
</tr>
<tr>
<td><strong>Precipitation (in cm)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total annual</td>
<td>81 - 102</td>
<td>102 - 142</td>
<td>163^</td>
</tr>
<tr>
<td>Annual snow</td>
<td>254 - 380</td>
<td>380 - 635</td>
<td>635^</td>
</tr>
<tr>
<td>Average winter rain</td>
<td>3.2</td>
<td>4.3</td>
<td>3.5</td>
</tr>
</tbody>
</table>

proximity of the sea which levels temperature extremes, while the highest mountains know a climate similar to that of the east coast of Hudson Bay. Finally, while unstable shore ice prevents the utilization of the marine fauna, winter rain facilitates the hunt of large land mammals inland.

**VEGETATION**

A large part of Gaspé presents a typical boreal cover, but a closer study reveals perceptible changes in the apparently monotonous flora. These changes are directly related to the climate which, in turn, depends greatly on altitude. Although other topographic features complicate the picture, and transitions are gradual, three distinct vegetations can be discerned: a mixed forest along the coast, boreal forest on most of the plateau, and an alpine tundra on the highest summits of the Shickshocks (Grantner 1972).

On the north coast and deeply inland along some river valleys is an irregular strip of land classified in the Great Lakes – St. Lawrence forest region (Rowe 1972). The vegetation is dense, mostly made up of white spruce (*Picea glauca*) interspersed with birch (*Betula papyrifera*); eastern white cedar and pine (*Thuja occidentalis* and *Pinus strobus*), tamarack (*Larix laricina*) and trembling aspen (*Populus tremuloides*). Particularly in valleys, but elsewhere also, the cover is characterized by the occurrence of sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*) as well as balsam fir (*Abies balsamea*) (Hosie 1972).

South of the coastal zone, sometimes starting immediately on mountainous shores, is a true boreal forest, a continuous cover of
balsam fir, black (Picea mariana) spruce and white spruce, white birch and eastern white cedar in either pure or mixed populations, while in deep valleys, species of neighbouring phytographical regions – eastern white pine, sugar maple, and red spruce (Picea rubens) – can be found. This forest is generally dense but varies with altitude; above 600 m, trees tend to become shorter and sparser, forming a lichen covered taiga, a favoured habitat of the caribou (Moisan 1958:6).

The last vegetal zone, restricted to the flat mountain tops, is in marked contrast with the rest of the peninsula. It is an alpine tundra similar to that found at much higher latitudes, with its moss and lichen carpet, and dwarf trees (Damsereau 1950). Because of the intense cold and winds, and the general absence of trees, the earth is rarely covered with snow, and herds of caribou often spend the rutting season and winter on several mountain tops (Moisan 1958:19-21).

Among the several hundred plants (Rousseau 1974; Marie-Victorin 1935), some give fruits which probably contributed to human diet. These include a large assortment of berries – raspberry, stemless arctic bramble, dwarf red blackberry (Rubus sp.), cloudberry (Rubus chamaemorus) Virginia and American strawberry (Fragaria virginiana and F. americana), several varieties of currants (Ribes sp.), hairy gooseberry (Ribes cynosbati) – and nuts, particularly beaked hazel nut (Corylus cornuta). Several of these fruits grow along the coast where they mature from June to September, and berry picking is still an important activity.

Today, most of the terraces rimming the Gaspé have been deforested and used for agriculture; all accessible parts of the plateau have been
extensively logged, while the vegetation above 600 m in altitude, being unsuitable for the wood industry, is mostly untouched. In prehistoric times, the main factors altering the composition of the vegetal cover - other than climatic changes - were forest fires which have devastated close to 20% of the peninsula in the last fifty years.

**FAUNA**

The Gaspé Peninsula offers a large variety of game animals and there is no doubt that most species important in a hunting-fishing economy have been represented by much larger populations than they are now.

Among the most valuable land-mammals are the caribou (*Rangifer tarandus caribou*), moose (*Alces americanus*), and American black bear (*Ursus americanus*). The white-tailed deer (*Odocoileus virginianus*) is now common and may have been present intermittently in the prehistoric period; the same applies to the American elk (*Cervus elaphus*), formerly found in southeastern Quebec and the Appalachian Mountains (Banfield 1975:374), but now extinct in the Northeast.

The woodland caribou population of the Gaspé was recently estimated to be around 1000 head (Moisan 1958:28). It is now limited to small areas surrounding the highest mountains, but its original distribution covered the whole peninsula, and the herd was much more important. Its present migration pattern is very different from that of its northern cousin: the Gaspé caribou assembles for the rutting season, in autumn, on the alpine tundra where it winters until the ground is covered with ice. This usually happens in the spring, but occasionally earlier during a warm
winter. At this time, the caribou is most easily hunted for it is found in large herds and can be approached rather closely. Furthermore, during the September-October migration, it follows definite paths on the way to the mountain tops, several of these being accessible through limited slopes. In the spring, this animal moves to lower altitudes, to the open forest where its nourishment is more abundant. Until the next migration, they are solitary or in small groups, and are much more difficult to approach.

Before the period of contact, when the population was more numerous, seasonal migrations were probably somewhat different because of the limited extent of the alpine tundra. Then, they probably wintered also in the open forest, found everywhere at higher altitudes, as some herds did until recently (Moisan 1958:11), in the eastern part of the Gaspé. During periods of colder climate, as for example during and after the deglaciation, the tundra and taiga environments were more widespread, and presumably larger herds could be maintained.

The Gaspé offers the best habitat for moose in Quebec - its density averages 2.6 moose/km$^2$ (Brossard et al. 1974:72) - and this large mammal may have been the most important food source part of the year. It can be hunted throughout the year, but it is a solitary and timid animal which is best approachable in autumn and winter when it can be called or pursued on ice-covered snow. These and other techniques were used by the historic Micmacs who depended heavily on this quarry during these seasons (Hoffman 1955:173-4, 180).
Probably of secondary importance in the human diet was a series of land mammals, mostly smaller game which could be taken all year round or seasonally. Among these are the black bear (Castor canadensis), porcupine (Erethizon dorsatum), as well as the muskrat (Ondatra zibethicus), river otter (Lutra canadensis), hare (Lepus americanus), woodchuck (Marmota monax), red fox (Vulpes fulva), American marten (Martes americana), and raccoon (Procyon lotor). According to historic sources, most of these animals were hunted by the Micmacs during the cold seasons, and were an important complementary or substitute food resource (Hoffman 1955:151-186).

A wide number of sea-mammals frequent the waters bordering the St. Lawrence Estuary. Four species of seal are found — gray, harbour, harp, and hooded (Halichoerus grypus, Phoca vitulina, P. groenlandica, and Crystophora cristata) — and the walrus (Odobenus rosmarus) distribution may have extended this far south in the past (Banfield 1975:340). In addition, the Cetacea order is represented by the Northern bottlenosed (Hyperoodon ampullatus), white (Delphinapterus leucas), killer (Orcinus orca), Atlantic pilot (Globicephala melaena), fin (Balaenoptera physalus), minke (Balaenoptera acutorostrata), blue (Balaenoptera musculus), humpback (Megaptera novaeanglia), right (Balaena glacialis), and bowhead (Balaena mysticetus) whales, the Atlantic white-sided dolphin (Lagenorhynchus acutus), and the harbour porpoise (Phocoena phocoena).

Most of the whale and some of the seal species are available in the summer, while the bowhead, killer and white whales are present in the winter or throughout the year. The harp and hooded seals breed on the ice or islands in the St. Lawrence Gulf in late winter; it appears that
some of the Micmacs took advantage of these large gatherings (Hoffman 1955: 178-9), but they were probably out of reach for the inhabitants of northern Gaspé because of the unsuitable shore ice.

Some of these marine resources were probably taken in prehistoric times. The white whale or beluga, particularly common in the western part of the estuary, was harpooned until recently (Vladykov 1944). Other small sea-mammals were most likely hunted, and larger stranded whales may have been utilized. Whale bones are frequently found along the shore of the Gaspé, and we have seen stranded belugas on two occasions.

Fish are another important marine resource in the estuary, and their capture has been among the major economic activities of the Gaspé. In 1974, a difficult year for the commercial fisheries, some 4280 metric tons of fish were taken from the north shore of the peninsula. They included cod (Gadus morhua), hake (Urophycis tenuis), redfish (Sebastes marinus), mackerel (Scomber scombrus), smelt (Osmerus mordax), capelin (Mallotus villosus), sea-trout (Salvelinus fontinalis), halibut (Hippoglossus hippoglossus), plaice (Hippoglossoides platessoides), turbot (Reinhardtius hippoglossoides), herring (Clupea harengus), and salmon (Salmo salar) (Anonymous 1976). Some of these, however, are deep-water species which were probably of little use to primitive fishermen.

Among the numerous fishes which visit these waters (Leim and Scott 1966; Scott and Crossman 1973), the most easily caught are the shallow-water species, those that spawn near the shore and in freshwater. The Gaspé offers several such forms of fish which could support rather large populations during the warm season, and part of the winter if
adequate preservation techniques are utilized.

With the ice break-up, the fishing season begins with the winter-flounder (*Pseudopleuronectes americanus*), which spawns near the shore. Soon after, and well into the summer, the smelt (*Osmerus mordax*), alewife (*Alosa pseudoharengus*), sturgeon (*Acipenser fulvescens* and *A. oxyrhynchus*), American shad (*Alosa sapidissima*), striped bass (*Roccus saxatilis*) and Atlantic salmon (*Salmo salar*) migrate up rivers and streams to spawn. In addition, the herring comes near the shore in spring; the brook trout (*Salvelinus fontinalis*) descends rivers remaining in shallow salt-water part of the year; the capelin (*Mallotus villosus*) spawns just where the waves break over the beach, and is often stranded; and in the summer, the squirrel hake (*Urophius chuss*) and the Atlantic mackerel (*Scomber scombrus*) are close to shore. At last, in autumn, the catadromous eel (*Anguilla rostrata*) and the adult salmon return to sea.

The above fish still exist in abundance. The Matane, Ste-Anne and Cap-Chat are still good salmon rivers, and so were most important streams until recently. Locally, the capelin spawns in such spectacular numbers that it is also used as a land fertilizer. There is little information concerning the number of fish in the past, in this part of the Gaspé, but they were probably as numerous, and their spawning runs are spectacular as in the Micmac territory to the south (see for example, Relations des Jésuits 1611, vol. 1:10). To catch this marine fauna, the Micmac Indians used weirs—some of stone—fish traps, harpoons, leister prongs, and possibly hooks and lines which would have allowed them to obtain deep-water species as well (Hoffman 1955:162-5). Sea-trout, sturgeon,
and salmon were also caught in large numbers with the use of night torches (Denys 1908:353-436-7), while capelins could merely be harvested along beaches.

The sea also provided a series of shellfish which, however, are not abundant presently. Clams (mainly *Mya arenaria*) are present in sandy beaches and mud flats, but these environments are restricted to estuaries and such bays as the Capéclins. Smaller mollusks such as the blue mussel (*Mytilus edulis*) and whelk (*Buccinum undatum*) are still caught in large numbers but generally live below the tide line. Finally, crustaceans are represented by the northern crab (*Cancer borealis*) and the lobster (*Homarus americanus*), but are much more frequent on the east and south part of the peninsula.

Among the hundreds of bird species in the Gaspé (Godfrey 1967), an appreciable number are of economic importance to man. Among the important resident game birds are the gannet (*Morus bassana*) which still nidificates on an island off Percé, the black duck (*Anas rubripes*), ruffed and spruce grouse (*Banas umbellus* and *Canachites canadensis*), great black-backed and herring gull (*Larus marinus* and *L. argentatus*), red-breasted merganser (*Mergus serrator*), common murre (*Uria aalge*) and three owls: great horned, barred and hawk (*Bubo virginianus*, *Strix varia* and *Surnia ulula*).

In addition, from spring to autumn, this population is greatly increased by hordes of migratory species most of which nest on the peninsula. These include several forms of the *Anatidae* family - Canada goose (*Branta canadensis*), ring-necked duck (*Anas collaris*), pintail (*Anas acuta*), common goldeneye (*Bucephala clangula*) and eider (*Somateria mollissima*).
the common loon (Gavia immer), great blue heron (Ardea herodias), American bittern (Botaurus lentiginosus), American woodcock (Philohela minor), common snipe (Capella gallinago), razorbill (Alca torda), black guillemot (Cepphus grylle), double-crested cormorant (Phalacrocorax auritus), and Atlantic kittiwake (Rissa tridactyla). The long extinct passenger pigeon (Ectopistes migratorius) also nested in the Gaspé in great numbers, and was an easy prey.

At contact, the migrant bird population south of the Gaspé seems to have been surprisingly large, and the Micmacs welcomed this food source to their fish diet from spring to autumn (Hoffman 1955:167-170). Birds were clubbed, taken with head-snares, and approached at night with torches. As several of these species nest in large colonies, their eggs could also be collected in large quantities.

From the above discussion, it appears evident that the Gaspé offered two types of biological resources, each associated with one environment during a particular period of the year. Starting in April, with the ice break-up, was a season of relative abundance along the coast and adjacent rivers and streams, in the form of fish, sea-mammals, migratory birds, some shellfish, as well as plant foods. Land mammals were also available on the coastal zone or through short trips inland. The second period, which began sometime before December, was probably much more trying for the available food - mainly land mammals - though plentiful, was scattered throughout the interior or concentrated in areas of difficult access. Prehistoric human groups, obviously, had to take into account these environmental imperatives in their annual subsistence cycle, a subject discussed in next chapter's conclusion.
Paleoenvironment

Although paleoenvironmentalists have worked in several areas of the Northeast (Newman and Salwen 1977) bringing back an impressive amount of data to archaeologists, the Gaspé still remains practically unknown in most fields. Studies of past fauna which would have supplemented the absence of bone preservation at most prehistoric sites, have yet to be made. The main information concerns some marine mammals which frequented the St. Lawrence Estuary soon after its deglaciation (Harington 1977).

The history of post-Wisconsin vegetation has just been touched and climatic interpretation must await the palynological research being initiated on the peninsula (P. Richard, pers. comm.). Fortunately, some geographical aspects of post-glacial events are better known and provide some basis for the interpretation of cultural history.

RECENT GEOLOGY AND TERRACE FORMATION

Between 1971 and 1974, the late Quaternary of the area under study was the subject of intensive research by J. Lebuis, Quebec Department of Natural Resources, and P.P. David, University of Montreal. They studied and mapped surficial deposits—tills, erratics, fluvioglacial, glacial, marine sediments...—of the western half of the Gaspé, and interpreted the late glacial and post-glacial history of this area. The following account, largely based on their writing (Lebuis 1973a and b; Lebuis and David 1972, 1977) and on previous works summarized by McGerrigle (1952), deals mainly with the post-glacial events along the northern coast.

It appears that during the Wisconsin, an icecap whose center was in the high mountains of the Gaspé, covered the peninsula. This glacier merged with the Laurentian ice sheet, but the latter does not seem to have
reached the high plateau, a conclusion partly based on the absence of Precambrian erratics from the north shore of the St. Lawrence in this zone. A slightly different view is held by Grant (1977a) who proposes the existence of several unglaciated areas along the north coast of the Gaspé during the late Wisconsin. According to Grant, these nunataks are indicated by "... degrees of weathering greater than might be expected during the last postglacial..." in several parts of eastern Canada (Grant 1977a:250, Figure 1). In the Gaspé, however, these areas would have been restricted to isolated parts of the plateau and not the coastal zone (Grant, pers. comm.). The existence of such unglaciated areas in the Gaspé is still being debated, but recent research conclusions seem to argue against this possibility (Hétu and Gray 1980; P. Gangloff, pers. comm.).

With the initial warming trend, eustatic rise in sea-levels caused the calving of the continental ice sheet and the retreat of ice from the estuary. Consequently, the local glacier was isolated and retreated toward the mountains. Alpine glaciers, however, still descended important river valleys, coming in contact with the sea.

As soon as it was free of ice, the north shore of the Gaspé was invaded by marine waters. This transgression, which formed the Goldthwait Sea in the St. Lawrence Estuary and Gulf (Dionne 1977), was dated to a minimum of about 13,800 radiocarbon years B.P. Around Ste-Anne-des-Monts, the submersion reached the maximum level of 68 m according to Lebuis and David (1977:289), around 75 m according to Grant (1980:Figure 4). Further west, probably due to more dominant isostatic uplift, marine transgression
reached higher altitudes (see Dionne 1977).

This submersion was followed by a series of regressive phases of the Goldthwait Sea which resulted in the deposition of littoral sediments, mainly well sorted, rounded and stratified sands and gravels. They sometimes incorporate shell fragments which in some cases have been dated; occasionally, they contain blocks originating from the north shore of the estuary, apparently brought by floating ice. At most sites reported here, sand and gravel layers were encountered under cultural deposits. Their thickness depends on various physiographic features and the speed of regression, but deposits in excess of 12 m were noted in several gravel pits, some 45 m in altitude.

Littoral sediments have formed a series of terraces whose altitude range between present sea-levels and +68 m. The best defined of these paleobeaches are those at +45 and +6 m. In between, several other terraces were also formed, particularly between 14 and 21 m, but they are sometimes discontinuous. Fragments of shell have been utilized to date the formation of these terraces. Samples of *Mytilus edulis* from altitudes of 46, 23, 5, and 18 m at Ste-Anne-des-Monts, were dated at 11 700 ± 190, 9230 ± 150, and 9300 ± 180 B.P., respectively (Lebuis and David 1977:287). The slight discrepancy of the last two dates may be attributed to a variety of reasons, such as a short transgression or material transport, and an approximate age of 9250 B.P. for the ca. 21 m terrace seems reasonably accurate. A last set of dates is available for the 6 m terrace, or the Micmac terrace, as named by Goldthwait (1911). Various whole shells from 7 and 6 m in elevation were dated at 2380 ± 90 and 2260 ± 110 B.P.
respectively. These samples were collected at Matane, but the formation of the terrace is thought to be coeval around Ste-Anne-des-Monts (Lebuis and David 1977:289-290; Dionne 1977:66-68).

While paleobeaches were being shaped by the Goldthwait/Sea, the Gaspesian glacier withdrew south to the high mountains, some of its water flowing to the north in the deep river valleys. Eventually, it was confined to the Shickshocks where it broke into smaller icecaps and valley glaciers. Complete deglaciation of the peninsula occurred before about 9810 ± 360 B.P. This date was obtained from organic sediments deposited above sand and silt at the bottom of Lake Côté (48° 58' N., 65° 57' W.), a small lake some 915 m above sea-level (Lebuis and David 1977: 287). At that time, the ca. 26 m terrace was being formed along the coast.

We thus possess the maximum date for human occupation on three terraces around Ste-Anne-des-Monts. The 45 m terrace could not have been inhabited earlier than ca. 11 700 years ago; the ca. 20 m terrace could have been occupied ca. 9300 B.P.; and the Micmac terrace at 6 m could have been settled after 2300 before present.

On this basis, the age of intermediate terraces may be evaluated, but because of the unknown history of marine transgression between the dated paleobeaches, these calculations remain approximate. Figure 3, which shows a simplified curve of marine limits for the last 13 800 years, indicates that the marine regression followed two stages. During the first stage, before the complete deglaciation of the Gaspé, the marine level dropped rather abruptly to form terraces between about 68 and 26 m in altitude, but mainly below 45 m. Assuming that the regression was
constant - which was probably not the case - sea-level dropped by one meter per century. In the following stage, responsible for the formation of terraces below 26 m, marine levels were lowered by an average of 0.25 m per century. This variation is probably due to the rapid isostatic rebound which accompanied glacial recession, and the relatively slow marine regression which succeeded in the estuary. A similar marine regression chronology is also proposed by Dionne (1977:65-68) and Hétu and Gray (1980:189-190).

On the same figure, the three radiocarbon dated sites have been plotted according to their elevation, and this curve follows the marine limit curve, some 6000 years later. At least for the most recent part of the curve, however, this correlation is purely accidental: two of the dated sites (DhDn-2 A and DhDn-2 B) are in a location which offers no alternative terraces suitable for human occupation (Figure 18). Thus, supposing that DhDo-4 is a manifestation of the initial settlement in coastal Gaspé and has been accurately dated (both presumptions may be correct as discussed later), a time-lag of 5800 years between the 45 m terrace formation and occupation needs to be explained. The apparent absence of human settlements during this interval may involve cultural factors, but restrictions imposed by the environment must also be considered here.

As noted above, central Gaspé was glaciated while the Goldthwait Sea was shaping the higher terraces. This ice existed until ca. 9800 B.P. and may have created an impenetrable barrier to north-bound population
Figure 3. Deglaciation and Marine Limits Around Ste-Anne (drawn from data in Lebuis and David 1977)
movements. A migration from the west, following the ice-margin and the Champlain – Goldthwait Seas (see Ogden 1977a:23-26; Andrews and Tyler. 1977) was practicable, but while the local glacier was still active; food resources in the peninsula were possibly insufficient to maintain human groups. Marine resources were most likely plentiful, but probably inaccessible during the winter season as argued later. Thus, the 5800 years interval could be reduced to 3800 years, and it may be proposed that north Gaspé was not inhabitable until 9800 B.P. when the peninsula became completely free of ice. This hypothesis is presented with reservation: large parts of the Gaspé have not been surveyed; the ca. 6000 years age of Ste-Anne may prove to be too recent; and other important paleoenvironmental data concerning the estuary (climate, water currents, tidal factors...) are presently lacking. Finally, the above reconstruction of terrace formation may be incomplete; Grant (pers. comm.) has pointed to the possible existence of presently submerged terraces in the estuary, as seems to be the case in the St. Lawrence Gulf (Grant 1975, 1977b).

VEGETATION, CLIMATE AND FAUNA

Other than general inferences based on our present knowledge of glacial retreat, we possess little local information which could contribute to a reconstruction of past environments. Due to the lack of research and/or the generally poor preservation of organic matter, the re-entry and evolution of land fauna are unknown. Much the same can be said of vegetation and climate sequences.
Quaternary palynological studies in Canada began in Quebec, and this province is among the best known in this respect. Nevertheless, our knowledge of the vegetational history is scanty; it has been qualified as "insufficient", at a "preliminary stage of reconnaissance" (Terasmae 1969:287), and in spite of recent studies by Richard (1977a) and others, this situation still prevails in several regions.

The Gaspé, unfortunately, still remains almost unknown. Here, two pollen studies were conducted several decades ago without the help of radiocarbon, corrective factors, and other techniques employed presently by palynologists (see Eisenberg 1978:23-30; Ogden 1977b). For these reasons, and because they do not bear upon the area of research, these studies are open to variable interpretation and are of little use here. The first investigation by Auer (1930), covered a large area from Niagara District to Nova Scotia. Of the 34 sampled bogs, none were in the Gaspé, the closest being in the areas of Rivière-du-Loup and northeastern New Brunswick. The study would have been more complete if there had not been the general absence of early postglacial records in the profiles and the fact that non-arboreal and some tree pollens were not considered. Nevertheless, changes were noted in the pollen profiles, attempts were made to synchronize stratigraphic features, and correlations with European climatic changes (Boreal, Atlantic, sub-Boreal and sub-Atlantic periods) were proposed.

A more recent study by Potzger (1953) deals with 19 bog samples from south Quebec. Three of these are located in the Gaspé: two are in the western limit (on the Matapedia River) and one at the southern edge,
on the Chaleur Bay. Compared to the area of research on the north coast of the peninsula, the sampled bogs are in markedly different environments in terms of geography, vegetation, and climate (see Grantner 1972). Here again, the investigator noted the absence of an early tundra episode but this was later attributed to a hiatus in the pollen sequence (Terasmae 1969:283). For the following periods, Potzger (1953:399-400) defined five pollen zones and inferred climatic fluctuations for the "Gaspé". In the middle of this undated sequence, one notes a warm and dry episode dominated by pine (white, red and jack pine were not separated although they do not represent the same control factors), a decline in spruce and fir, and an increase in broadleaf genera.

Three more informative studies, although each based on a single sample, were made recently. The first one was collected by J. Lebuis from the bottom of Lake Côte (discussed above, and used to date the deglaciation of the peninsula). The pollen diagram has yet not been published but was analyzed by P. Richard (pers. comm.). What is remarkable in this sample is the general stability in pollen curves. After an initial tundra period which started some 9800 B.P. when non-tree (herb and shrub) pollens predominate, tree pollens (particularly pine, black spruce, balsam fir, and birch) appear and remain more or less constant until the present.

The second and third samples come from the coastal zone ("lacotte à Léonard") and the Plateau (Lake Turcotte). They were also studied by P. Richard and are briefly described by Hétu and Gray (1980:192-193). The first one was situated some 17 m in altitude, in the "rivière à Pierre" valley, about 2 km inland from Mont-St-Pierre Bay. The second one was
collected ca. 8 km southeast of the previous one, some 497 m in altitude. These pollen samples also showed a "periglacial climate" between deglaciation and 9300 B.P., followed by a stable "temperate climate" lasting until the present (Hétu and Gray 1980:205).

These studies may not be very informative since paleoclimate interpretations based on palynology are difficult, even when large samples and modern techniques are utilized (see Richard 1977a:241-258; Stukenrath 1969:62-63). In this case we are dealing with only three columns, two from the plateau, and one from the coastal zone, less than 20 km east of Marsoul. Nevertheless, they do indicate a remarkable stability in vegetation, and possibly climate, for the last 9300 years. Further west, in southern Quebec, climatic fluctuations have been postulated on the basis of palynological studies (Mott 1977; Richard 1977b). From 6000 to 3000 B.P., a climate warmer than at present seems to have prevailed. This period, the megathermic, which approximately corresponds to the hypsithermal elsewhere in North America, was followed by cooler temperatures without the warm episode (xerothermic) proposed for the Great Lakes and possibly New England (Richard 1977a:253-258). In front of the Gaspesian evidence, it seems that these interpretations cannot be transferred to northern Gaspé where the proximity of the sea, high mountains and late remaining ice on the north shore of the St. Lawrence (see Prest 1970), combined to create distinct conditions. Regional or even world-wide climatic fluctuations probably had varied effects, as shown by Gangloff (in Hétu and Gray 1980:191) who proposes a "paleoclimatic provincialism" approach in such studies.
The possibility of validly interpreting the little available data on faunal history is even more remote. It may be presumed that soon after the estuary was free of ice, marine animals frequented the Goldthwait Sea, and eventually the coastal rivers (Harington 1977); and land mammals probably started to invade the peninsula soon after it became deglaciated. The megafauna found elsewhere in the Northeast (Funk 1972; Eisenberg 1978: 30-35; Newman and Salwen 1977) has never been reported in the Gaspé, and a mastodon's tooth discovered near Lake St. John (Barré, pers. comm.) seems, presently, to be the only evidence for such animals in Québec. In any case, if they were present in the Gaspé, they probably were extinct when the populations studied here were evolving. By ca. 6000 years B.P., the modern fauna presented above was probably well implanted. Finally, it should be noted that a sufficiently cool climate, any time after ice-retreat, would have resulted in a spread of tundra and open forests. Such a terrain would have fostered caribou, the prey of predilection to Paleo-Indians in the Northeast according to most archaeologists. What such a climatic change would have on other animal species is debatable until substantive data become available. Considering the relatively large number of late Paleo-Indian sites in the Gaspé, a climate change favoring the spread of caribou would seem an attractive solution, but the data at hand do not support, and appear to contradict this hypothesis.

The above presentation of some post-pleistocene phenomena provides a temporal and geographical framework for the establishment of human populations on the north shore of central Gaspé. Glacially-imposed
boundaries and marine boundaries to occupation have been presented and seem well supported. Presently, however, any statement concerning past vegetation, climate and fauna must remain hypothetical, chiefly because of the lack of research in these fields. Nevertheless, on the basis of the little data at hand, it is proposed that the present environment of the area of research; at least in terms of food resources, did not change significantly in the last 6000 years. Evidently, this statement will need to be revised if future investigations provide contradictory information.
Chapter 3

HUMAN ENVIRONMENT

Recent History

We possess no ethnohistories for the north shore of the Gaspé since this land was apparently mostly unoccupied at time of contact, and in the immediately following period. Although several European travelers and fishermen preceded him in Eastern Canada, Jacques Cartier seems to have been the first European to explore the Gaspé coast (see Hoffman 1961; Bailey 1969:4-7).

On his first voyage in 1534, traveling in the Chaleur Bay, Cartier encountered a large group of Indians crossing the bay in forty to fifty canoes. Where they lived is not known, but according to Hoffman (1955: 88-111), they probably inhabited the New Brunswick side of the bay; in any case, the Quebec side was manifestly part of their territory. Cartier bartered some iron wares against some furs, and later was offered pieces of cooked seal meat (Pouliot 1934:34-6).

Several days later, he reached Gaspé Bay where he met some three hundred people who had come there to fish, mainly for mackerel. These Indians were "not at all of the same race or language as the first... met" (Hoffman 1961:135). They used their overturned canoes as shelter for the night, had large quantities of corn as well as dried fruits, and were in
fact a fishing party which had come from up river, around the present city of Quebec. It appears that these agriculturists made summer trips of some 600 km, to the eastern tip of the peninsula, to obtain fish which formed an important part of their diet; and that they regarded this land as home territory.

The identity of these two groups of Indians encountered by Cartier on his first voyage has been the subject of much research. The generally accepted opinion is that the first group were Micmac Indians while those of the Gaspé Bay were "Canadian or St. Lawrence Iroquois or Iroquoians" whose exact affiliation, based on linguistic data in the Cartier accounts, is still unknown (Hoffman 1955:104; see also Pendergast and Trigger 1972:69-93). Historical and legendary evidences indicate these people were at war, and that the Micmacs were very much afraid of the other group (Ganong 1910:150; Hoffman 1967:23-7).

In 1535-6, the years of his second voyage, Cartier explored the St. Lawrence and camped near Stadacona, the permanent village of the fishing party he had met in Gaspé Bay in 1534. He again noted that these Iroquoians practiced agriculture, and learned about the state of war between them and the Toudamans which were, or included the Micmacs (Hoffman 1955:107). During his travels, Cartier navigated twice along the north shore of the Gaspé in August and late May (see Biggar 1924:Pl. XVI), but did not mention the presence of people along this coast. On the other hand, he seems to have reported the shortest encounter he had with Indians, as well as the occurrence of villages or smoke which indicated their presence during his travels (for example, Pouliot 1934:19-20,28,50,65-66).
We may thus infer that the north shore of the Gaspé Peninsula was deserted at the time of Cartier. However, this stretch of land was probably visited by St. Lawrence Iroquoians who fished and camped during their expeditions to the St. Lawrence Gulf.

During the end of the sixteenth century, the waters of Atlantic Canada saw a great expansion of maritime traffic. Contacts with the different Indian tribes, which until then had been relatively scarce, became more common as "dry fishery" methods were adopted. Two important effects were a steady increase in the fur trade which perturbed the natives' economic structure, and a renewed interest in this part of the world by several European countries. Fleets of several thousand ships frequented the Labrador coast, Newfoundland, the Gulf of St. Lawrence but rarely, if ever, ventured along the St. Lawrence (Hoffman 1955:31-42). Therefore, for this period, there is little information concerning the north Gaspé coast. By that time the Micmacs, whose territory included Nova Scotia, Prince Edward Island and New Brunswick east of the headwaters of streams running into the St. John River (Wallis 1961:42), had been in contact with fishermen and fur-traders for over two generations, with the result that most of their culture had undergone deep modification.

The seventeenth century saw a great number of changes in New France. Following Champlain's voyages (Champlain 1966), several settlements were established along the St. Lawrence, on the north shore and around Quebec city, and in the Maritime Provinces; missionaries were sent from France to convert the different Indian tribes; the fisheries and fur-trade became well established; and, evidently, Indians attracted
by this trade depended increasingly on foreign goods. Regarding the Gaspé, two population movements must be emphasized. First, by about 1600, the St. Lawrence Iroquois whom Cartier had met had disappeared as a tribe, possibly as a direct result of the fur trade (Pendergast and Trigger 1972:93). Second, the Micmacs whose territory was previously bordered by the Chaleur Bay, occupied the southern coast of the Gaspé (see Hoffman 1955:Figure 5). This second movement is possibly a consequence of the first, but other factors—such as the attraction of French settlements near Gaspé Bay—may also have existed. Nevertheless, this spread by the Micmacs into the Gaspé appears to have been a re-occupation of a former territory rather than an invasion (Lee 1971:28; Mechling 1958:15), although the legendary material of the Micmacs is equivocal on this subject (see Hoffman 1955:97-104; Crevel 1970:39-41).

At that time, the north of the peninsula was still unoccupied by Indians (Hoffman 1955:111), a fact for which we now possess more positive evidence.

Between 1614 and 1616, some trading took place at the present site of Matane, some 80 km west of Ste-Anne-des-Monts. This venture, however, was not repeated, perhaps because of the small number of furs obtained (Lee 1971:44). We have no information about the Indians who frequented this seasonal post, which probably attracted a few groups traveling on the St. Lawrence. It appears that no trading was ever done further east, nor missions established, two points which further corroborate the proposition that this coast was deserted.
In 1647-8, a group of Montagnais from Tadoussac accompanied by a Jesuit, Father G. Druillettes, crossed the river and wintered inland, south of Matane. They seem to have been little acquainted with this area, and because of poor hunting, barely escaped starvation (Relation des Jésuites 1648, vol. 4:27-32). In another instance, similar groups wintered south of Rivière-du-Loup, west of the Gaspé, also experiencing severe hardships (Relations des Jésuites 1634, vol. 1:51-84). This venture was repeated a third time in 1661-2 when another group from Tadoussac wintered in the Notre Dame Mountains, probably south of Matane (Relation des Jésuites 1662, vol. 5:7-8). In all cases, no other habitants were encountered.

Another point which should be mentioned is the toponomy of the Gaspé. Gaspé seems to derive from a Micmac word meaning "end of land" or "extremity" (Pacifique 1927a:113). Similarly, a good proportion of the place names along the Chaleur Bay are also of Micmac origin (Pacifique 1927a,b). On the other hand, all toponyms along the St. Lawrence are French, with the possible exception of Matane which, in Micmac language, means "beaver-house" (Gagnon 1945:39).

The first sedentary French settlements on the north shore of the peninsula were established in the 1690's at Matane, and Mont-Louis (Gagnon 1945:91-6; Lee 1971:46-7). Both concentrated on the fisheries; at Matane, they were more diversified and included salmon, cod, and possibly beluga and porpoise; Mont-Louis, some 55 km east of Ste-Anne, focused primarily on cod fishing and drying. For several reasons, these settlements did not survive. By 1755, other localities were visited at
least seasonally (see Hoffman 1955:Figure 4), and it is not until the
nineteenth century that the area of research was inhabited.

Ste-Anne-des-Monts and Cap-Chat knew their first settlers around
1815 (Pelland 1914:38), and soon, less important villages were established
at the mouth of most rivers and streams. These were mostly self-sufficient
families who subsisted on cod, salmon and other sea-water animals; small
gardens were cultivated, but often neglected; some animals, mainly pigs,
were kept but moose, caribou and deer hunting provided most of the meat.
With time, the wood industry and agriculture became more important but
fishing and hunting were still practiced by a good part of the population.

Today, from Les Méchins to Marsoui the population amounts to some
14300 people. Since the past few decades, a paved road circles the Gaspé
and this previously isolated peninsula has witnessed a steady development
of the tourist industry. Agriculture, wood industry and two inland mines
provide work for a large part of the population; various government
agencies furnish a growing number of jobs; and in each village, a few
families still obtain a seasonal income from the marine resources. Finally,
two Micmac reservations are located at Rèstigouche and Maria, on the
Chaleur Bay.

Thus, from the somewhat inadequate historical accounts at hand,
it appears that at the time of Cartier's voyages, the Gaspé coast was a
fishing territory of a St. Lawrence-Iroquoian group living around the
present site of Quebec. The Micmacs inhabited the south shore of the
Chaleur Bay; they were a hunting and fishing people who were at war with
their northern neighbours probably because of territorial contentions.
By the beginning of the seventeenth century, following the disappearance of the first group, the Micmacs occupied, or possibly re-occupied the Gaspé south of Gaspé Bay. However, the north shore of the peninsula was never populated by sedentary groups. Throughout the historic period, it seems to have been a no man's land first visited by St. Lawrence Iroquois groups during their summer fishing expeditions; and, in the 1700's, by Montagnais people as a winter hunting territory. In the following centuries, this area was inhabited by populations of European origin who initially exploited the marine and land fauna for their subsistence, activities which were largely replaced by the forest industry, small scale agriculture, and recently by services.

Micmac Adaptation

From the above studies of the history and environment of the Gaspé, the following conclusions can be drawn:

1. Primitive agriculture was impractical in this area.
2. The peninsula offers environments and resources very similar to those exploited by the historical Micmacs.
3. The Micmacs occupied the south shore of the Gaspé after the disappearance of the St. Lawrence Iroquois.
4. The Micmacs may have occupied the whole peninsula prior to their displacement by the St. Lawrence Iroquois, or their ancestors.

It is therefore proposed that the prehistoric populations of north Gaspé had an adaptation similar to that of the historical Micmacs. In this view, a brief résumé of some aspects of their culture is opportune.
Although the Micmacs were never studied directly by anthropologists in their aboriginal condition, their culture is one of the best known in the Northeast. They were among the first Indians in continuous contact with Europeans and, early in the seventeenth century, they awakened the curiosity of travelers who lived with them, several of which have left accounts of their customs. The most important writings are those by Marc Lescarbot republished by the Champlain Society (Lescarbot 1907); various Jesuit missionaries (Relations des Jésuites 1972); Nicolas Denys (1908); and a Recollect missionary, Crestien Le Clercq (1910). These and numerous other accounts have been at the base of ethnographic reconstructions by Mechling (1958-9), Wallis and Wallis (1954), and Hoffman (1955). The following pages draw heavily from these studies, but it should be remembered that at the time of the earliest writings, Micmac culture had already experienced profound changes.

The Micmacs spoke an Algonquian language closely related to the Malecite's and Passamaquoddy's, their western and southern neighbours. As noted previously, their territory covered Nova Scotia, Prince Edward Island, and New Brunswick north and east of the St. John River drainage, to which the southern part of the Gaspé was added in the early 1600's. This area shares a number of physiographic, climatic and faunal features but local variations do exist.

This population, which probably amounted to some 6000 people before contact, subsisted on fishing, hunting and plant collecting. In general, the marine resources made up around 90% of their diet, providing them with a sufficient food supply ten months a year. Two winter months, February and March, were spent inland in search of terrestrial mammals.
Figure 4 illustrates their annual subsistence cycle. In early April, with the breaking-up of the shore ice, the long fishing season began. Villages were established along the coast, habitually near the mouth of rivers, the most important factors in the selection of a site being the "proximity to navigable water, abundant fish and shellfish resources, a well drained and level site, and a good water supply" (Hoffman 1955:130). Weirs and fish-traps were repaired or installed, and a great variety of fish and shellfish, plentiful in prehistoric times, were taken on the coast and in adjoining streams. In addition, harpoons and hooks were utilized. In spring and early summer, advantage was taken of a large assortment of migratory birds whose eggs were also collected, and in autumn, these birds were again intercepted. In the summer, various berries and other minor plant foods came to maturity and were also collected. Throughout this time, some land and sea-mammals were also hunted but seem to have been of secondary importance.

Starting in October and continuing through the fall and winter months, the Micmac villages separated into smaller bands and family units which scattered toward hunting territories assigned by the village chief or council of elders. In October they moved to small rivers where eels and returning salmons were trapped or harpooned, and preserved. November and December were mainly spent hunting moose, beaver, bears, and possibly caribou. Because of insufficient snow, hunting at that time was rather difficult and a series of stratagems - dogs, moose-calling, snares, deadfalls - had to be used. In December, the Micmacs moved down-river where tomcod was taken, and in January they were along the coast seal
hunting. That month was the seal whelping season and large herds could
be found on certain islands.

February-March seems to have been the most difficult period of the
year as, apparently, the only food resources were inland and successful
hunting depended upon certain weather conditions. The most wanted food
was moose and to approach it, a thick cover of snow with a surface crust
was necessary. Mounted on snowshoes, the hunter could then run down a
moose and spear it. In adverse snow conditions, this time of year was a
period of famines for, although food preservation techniques were known,
they were not practiced on a large scale. Other land mammals such as
beaver, muskrat, otters, martens were then taken, and it was generally
with great relief that the survivors returned to the coast in April.

In terms of technology, it is interesting to note that the Micmacs
made a wide use of organic materials. Bark, hide and wood entered in the
manufacturing of a great number of commodities and tools. Their dwellings
conical tents or "tipis" and wigwams - were covered with skins, mats or
birchbark. Another example is the means of transportation: birchbark
canoes, snowshoes, toboggans and back-packs. Cooking vessels and related
utensils were made of bark, hide or wood, as were a variety of instruments
including bows, shafts and handles. Bone was used to make cutting and
piercing tools: awls, arrow, lance and harpoon heads, wedges, and knives.
On the other hand, stone appears to have been rarely utilized except for
axes, used alternatively with fire to hollow out "kettles" in the end of
fallen trees, to cut wood, and possibly to smash beavers' houses in
winter. Heated stones were used for boiling foods in wood and bark.
<table>
<thead>
<tr>
<th>MONTH</th>
<th>JAN.</th>
<th>FEB.</th>
<th>MAR.</th>
<th>APR.</th>
<th>MAY</th>
<th>JUNE</th>
<th>JULY</th>
<th>AUG.</th>
<th>SEP.</th>
<th>OCT.</th>
<th>NOV.</th>
<th>DEC.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>SEA COAST</td>
<td>INLAND</td>
<td></td>
<td></td>
<td>SEA COAST</td>
<td></td>
<td></td>
<td>SMALL RIVERS</td>
<td>INLAND</td>
<td>RIVERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCIAL GROUPS</td>
<td>BANDS</td>
<td>BAND AND FAMILY UNITS</td>
<td></td>
<td></td>
<td>VILLAGES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4. Mackaye Annual Cycle (from Boisfeuillet, 1935:163)**

**LOCALITY**
- Sea Coast
- Inland
- Sea Coast
- Small Rivers
- Inland
- Rivers

**SOCIAL GROUPS**
- Bands
- Band and Family Units
- Villages

**WINTER FLUNDER**
- Scallops
- Mussels
- Clams
- Crabs
- Sea Urchins

**PRINCIPAL**
- Sturgeon and Salmon
- Salmon
- Herring
- Brook Trout
- Alewife
- Codfish

**FISH OF WINTER**
- Capelin
- Shad
- Mackerel
- Skates
- Flounders
- Halibut
- Plaice
- Squid

**FOODS**
- Lobsters
- Eels
- Turtles

**Beaver, Moose, Bear, Caribou**
- Spring Bird Migration
- Fall Bird Migration

**PERIOD**
- Strawberries
- Raspberries
- Blueberries
- Cranberries
- Ground Nuts
vessels. Finally, according to one source (see Hoffman 1955:218), pottery was made in prehistoric times.

Gaspé Adaptation: a Probable Model

In the absence of direct historical accounts about inhabitants of the north shore of the Gaspé, a brief summary of Micmac economy has been presented. Based on environmental similarities, and on "traditions current among the Micmacs which seem to indicate that Gaspé was owned by their ancestors" (Mechling 1958:15), it was inferred that the Gaspé's prehistoric inhabitants exploited their territory in much the same way as the Micmacs to the south. However, considering the time gap, geographical distance and environmental variations, this model cannot be applied without some modifications. At present, time and geographic factors cannot be profitably speculated upon but differences in faunal resources indicate some varying adaptations.

As noted above, because of unstable shore-ice, seals were probably not available in January to hunters in northern Gaspé. Presently, seals do not whelp in the estuary, which presents few off-shore islands in any case, and there is no indication that they did in the past. Secondly, shellfish were probably much less common in the area of research, whereas they formed an important source of food to the southern Micmacs. On the other hand, both areas - the Gaspé and Micmac territory - offer the same faunal resources, at about the same seasons, and in similar quantities. Cervids, however, may have been relatively more abundant; in particular, the high plateau of the peninsula was probably more densely populated with caribou.
Thus, one may conclude that marine resources were less important to prehistoric inhabitants of northern Gaspé than they were to historic Micmacs. Correspondingly, land mammal hunting was probably practiced throughout the year, especially in autumn when fish spawning had about ended, and certainly in the winter when it was probably the only way of obtaining food.

In Figure 5, the annual subsistence cycle of the Micmacs has been adjusted to the Gaspesian environment. It is proposed that soon after ice break-up, small bands and family units came to the coast to form large villages where fish, birds, sea-mammals, shellfish and vegetal food could be caught or gathered. From these coastal villages, hunting expeditions probably went inland, particularly in autumn, and possibly, more than one village was established along the coast to take advantage of the various types of food during this period. Sometimes in late autumn, when the coastal ice made marine exploitation difficult, small bands and family units dispersed inland to areas where important concentrations of game had been observed a few months previously, and where moose and caribou were known to winter.

To support this model, we have rather restricted archaeological faunal samples. They come from three late sites excavated on low terraces where, for various reasons, a podzolic soil could not develop and some preservation of organic matters was possible. They are the sites of Cap-Chat, and the lowest stations of the Ruisseau and La Martre. Being coastal settlements, spring to late autumn villages according to the tentative cycle proposed, their faunal remains should portray at least
Figure 5. Proposed Annual Cycle in North Gaspé
part of the food resources available during this period. Table 2 shows the groups of animals, or species, whose remains were excavated, and those known to have been exploited by Indians in Cartier's time, on the peninsula.

From Cap-Chat, a sixth century site on the Micmac (6 m) terrace, some 434 pieces of bone and shell were recovered from a 34 m² excavation. Of this sample, some 30% of the bones belong to land mammals, mainly Cervidae and beaver, and 12% to sea resources - fish, birds, shellfish and sea-mammals. The remaining 58% were unidentified mammal bones, including land and sea species. In addition, a "large quantity" of shells were encountered in a feature but could not be kept (Barré in Bisaillon and Pierard 1976:4).

Before the faunal analysis, this site was interpreted as a spring-summer camp mainly because of its coastal situation and the occurrence of fruit remains which ripen in July and August (Barré 1975:23-4,57). In view of the surprisingly large proportion of land mammals in the sample, and the corresponding small proportion of fish and sea-mammal bones, the faunal analysts concluded that the site was inhabited from late summer to late winter, an interpretation also based on the direct application of the Micmacs' annual cycle of subsistence (Bisaillon and Pierard 1976:10-11). Finally, due to the absence of house remains and the site's exposure to winter winds, the season of occupation was changed to the end of summer-early winter, and several hypotheses were presented to explain the apparent rarity of marine resources (Barré in Bisaillon and Pierard 1976:4).
The first terrace of the Ruisseau site also yielded faunal data which were studied, as those from La Martre, by the Zooarchaeological Identification Center, in Ottawa. These were highly fragmented, probably crushed, and decaying concentrations from which the best preserved pieces were collected (Figure 21). They amounted to some 3319, of which 99.5% were burnt, and only 2.6% of the total were identifiable. Again, the latter belonged mainly (59%) to land mammals (beaver, porcupine, and cervidae), while marine fauna, birds and fish, formed the remaining 41%.

Lastly, some 3234 tiny burnt fragments were those of medium and large mammals, an unknown percentage of these being sea-mammals.

The last faunal sample was gathered from a 20 m² excavation at La Martre, on the 6 m terrace which was formed some 2200 years B.P. (Benmouyal 1976:28-43). The 454 specimens were mostly fragmented but were the best preserved of all sites. Some 48% belonged to unidentified medium and large mammals, while the remainder are those of fish or mollusc (87%) and cervidae (13%). In addition, two bones relating to domesticated animals (sheep and pig) were found in the plowed zone but are discarded here.

Thus marine resources are represented by 30, 41 and 87% of the identified remains recovered from Cap-Chat, the lowest terrace of the Ruisseau site, and La Martre, respectively. These percentages vary rather widely, and it could be justly argued that the samples are limited and, most probably, unrepresentative of the animal foods consumed at the site. At least at Cap-Chat and La Martre, the excavations were small and limited to particular areas. All faunal remains were not recovered, and the great
Table 2
Aboriginal Faunal Use in the Gaspé

<table>
<thead>
<tr>
<th>Historic sources</th>
<th>Prehistoric sources</th>
<th>Cap-Chat</th>
<th>DhDn - 2 A</th>
<th>La Martre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified</td>
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<td>253</td>
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<tr>
<td>Medium</td>
<td></td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium to large</td>
<td></td>
<td>ca. 3051</td>
<td>ca. 163</td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td></td>
<td>28</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>Cervid</td>
<td></td>
<td>60</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Moose/Caribou</td>
<td></td>
<td>6</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Moose</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caribou</td>
<td></td>
<td>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American elk</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Beaver/Porcupine</td>
<td></td>
<td>53</td>
<td>2</td>
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</tr>
<tr>
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<td></td>
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<tr>
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</tr>
<tr>
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* Tabulated from Bissaillon and Pierard (1976)
majority of those that were are unidentified. Most important, a great proportion of the remains were highly fragmented and more or less decayed, and as different bones have a tendency to decompose faster than others, some — particularly fish bones — are evidently under-represented. Moreover, fruitless arguments involving unknown cultural habits of bone disposal could also be invoked. It could be concluded that the data at hand are of little value as they cannot be used to calculate minimum numbers of individuals or the main sources of foods in terms of animal weight.

However, they do indicate that these recent sites were utilized during at least part of the warmer seasons, between spring and autumn. For environmental considerations, it is quite improbable that winter settlements were located along the coast.

In conclusion, the faunal remains presently available do lend some weight to the revised Micmac's annual cycle of subsistence presented above. They also suggest that the hunting of land mammals was essential to the north Gaspé populations, more particularly in late summer and in autumn. This mode of subsistence and general pattern of settlement is proposed for prehistoric groups in this area who enjoyed an environment similar to that found today.
Chapter 4

ARCHAEOLOGICAL DATA

In this chapter, the archaeological data obtained during the 1973 to 1975 field seasons are presented. Beginning with excavated sites, we will deal with each site together with its cultural remains. Each section contains detailed descriptions of the site's environment, excavations, features, material distribution, and, in some cases, soil and charcoal analysis. Where applicable, each of these is interpreted and statements will be made on the site's nature and age. This is followed by a description of the material recovered, an important part of any site report covering archaeologically unknown areas or periods. To avoid undue repetitions which often result from the description of individual artifacts, and to facilitate comparisons, the material has been divided into groups. This is preceded by a presentation of the soil stratification commonly found in coastal Gaspé; the identification and sources of raw material; and methodological considerations on the excavations and the description of artifacts.

Soil Profile

The soil profile generally encountered on the terraces of the Gaspé is that of a typical podzol, a soil widely distributed in the boreal Northeast. Its formation and effects on prehistoric remains have
been ably described by Fitzhugh (1972:73-74), but a recapitulation is necessary for the comprehension of the stratigraphic context (see also Butzer 1966:80-86; Limbrey 1975:137-141).

The undisturbed profile (Figure 5A) can be described as follows: under the humic layer (A horizon), the growing and decomposing organic matters, is the mineral soil. Due to percolating rain water, the upper part of this soil (Ae horizon) loses most of its soluble elements (among them iron and aluminum sesquioxides) which are redeposited below, in the B horizon. This process of podzolization generally requires a good soil drainage and abundant rain water which, combining with the residues of a coniferous forest, becomes acidic. Through podzolization, the leached zone, the horizon of eluviation (Ae), becomes gray-white in color and consists mainly of resistant minerals such as quartz. The enriched zone, the horizon of illuviation (B), becomes yellow or orange-brown. Beneath, one finds the unaltered parent material (C horizon) which, in coastal Gaspé, is generally made up of well-sorted and stratified sand and gravel deposits of the Goldthwait Sea.

Because this process requires the combined effect of several factors (such as the presence of a coniferous forest cover, soil permeability, abundant precipitation, and seasonal soil-frost), the speed of podzolization and the extent of the leached horizon may vary, even on the same terrace. Podzols were noted at most sites above 6 m in altitude, thus on terraces formed before our era, but when all conditions are met they could develop more rapidly, probably within a few centuries. Consequently, the outlines of any prehistoric pit would become blurred and disappear as a new leached horizon is formed.
Various environmental factors have also contributed to the altering of cultural remains. First, soil acidity has hindered the preservation of organic material and, thus, only lithic artifacts have survived. Second, the absence of soil accumulation, forest fires, the action of roots and burrowing animals seem to have displaced all lithic remains. The following interpretation is proposed by Fitzhugh (1972:73-74) and P.P. David (pers. comm.), and is supported by the position of artifacts at all podzol-associated, undisturbed sites. Artifacts left on the ground surface become deposited on the surface of the mineral soil (Ae horizon) as the humic level decays and new vegetal matter is accumulated. This process, mainly a vertical displacement of the archaeological remains, may take a few centuries or much less in the case of a forest fire consuming the vegetal carpet. Subsequent cultural depositions would undergo the same process and, thus, a multi-component site would not be recognizable stratigraphically: artifacts from any number of occupations are redeposited on the surface of the leached horizon. Furthermore, the combined action of tree throw, roots, and burrowing animals are responsible for additional displacements, both vertically and laterally of artifacts. Some of them come to be buried in the Ae and B horizons; generally, however, the majority remain on top of the leached horizon as was noted at all undisturbed sites.

Another consequence of forest fires which, presumably, were as frequent in the past as they are today, is the production of natural charcoal. It becomes incorporated in the culture-bearing horizons and undiscernable from cultural charcoal. Samples must therefore be
Figure 6. Typical Podzol Profiles in North Gaspé
associated with identifiable hearths, and their dates should be given preference over those of unassociated samples, even if the latter produce a group of similar estimates.

Although podzols create situations already unfavorable for archaeological interpretation, they are rarely found undisturbed in coastal Gaspé. Most sites are situated in plowed fields and consequently some of the remains have been repeatedly mixed for several decades. At these sites, the profile (Figure 5B) shows a grayish-brown plowed zone, a mixture of A, Ae and B horizons, which contains the majority of the cultural data. Below lies the "undisturbed" material which had been buried naturally in the Ae and B horizons and was out of the plow's reach. Thus, the material distribution is greatly altered; artifacts are often broken; and the largest specimens and rocks are usually absent, having been removed by farmers. Furthermore, because of the recent addition of certain elements through fertilization and grazing cattle, chemical analysis of soil samples becomes useless. The only benefit of plowing is that it brings artifacts to the surface. Sites can then be easily discovered and sampled, and their limits are readily observable.

The soil profiles described above were noted at most Gaspé sites. Two notable exceptions are Ste-Anne and Ruisseau A where the presence of impermeable deposits above or below the cultural remains has hindered podzolization. These profiles are covered in the description of the two sites.
Raw Material Sources

Apart from perishable organic materials which left few traces, the most conspicuous remains in Gaspesian sites are flaked stone artifacts. Identification of raw material sources can be of great importance in archaeological interpretation. For example, it can help in formulating hypotheses on cultural contacts, movements and trade patterns. In the Gaspé, it can also aid in predicting site location. These reconstructions usually require precise physical and chemical studies, such as trace-element analysis which, in archaeology, has been applied to copper, pottery, obsidian, and recently to cherts. The last material seems to show wide variation within the same formation and calls for particular sampling procedures (Luedtke 1978). Such interpretations also demand an accurate geological knowledge, especially concerning the distribution of various rock formations, outcroppings, and fragments scattered by ice, water and gravity.

Although these kinds of information are lacking or incomplete in the area of research, visual examination indicates that most, if not all commonly utilized raw materials were available in the peninsula, generally in the immediate vicinity of several sites. Raw materials found in archaeological context are rather restricted in number. They include cherts, quartzites, granite and iron pyrite.

CHERTS

In coastal Gaspé, they occur in several varieties as, in the same formation, one can find mottled, banded, black and green cherts. They also seem to vary in grain size and flaking quality, and two varieties
can be recognized on a single artifact. These cherts can be found sporadically along the coast in tabular form, in mudstone and shale formations of Lower and Middle Ordovician age (Biron 1971, 1972, 1973). They also occur as rounded pebbles and cobbles along rivers and shores. No attempt was made to record all possible sources but, while surveying, several observations were made. In situ outcrops were noted at Marsouil, Cap-au-Renard and Ste-Anne-des-Monts, while large numbers of nodules brought to light by plowing were noticed at the St-Joachim site. The geographical distribution of chert-bearing formations in Biron (1971) and McGerrigle and Skidmore (1967) indicates that many other chert outcrops could be found along the north coast of the peninsula, although some may be hidden by vegetation and recent sand and gravel deposits.

The most common variety is mottled chert. It is opaque and dull, generally dark gray, sometimes greenish or brownish in color, and spotted or banded by darker inclusions. After a prolonged burial, notably in local podzols, artifacts of this material are strongly altered. Depending on the soil horizon with which it was in contact, mottled chert undergoes various changes in color which further complicate the identification of the original color. In the Ae leached horizon, artifacts acquire light gray weathering rinds which may reach depths of 2-3 mm. This chemical and physical alteration is so intense that the surface is easily scratched with a pointed metal object, and the thin edges lose their former flaking properties. In B horizons, the extent of alteration is restricted to the outer surface which presents a grayish, brownish or greenish patina. The least weathering was noted for artifacts found in humic layers at recent
sites where, at most, they acquired a light surface patina. Finally, a few artifacts (some of them associated with a hearth or carrying thermal fractures) display pink colorations probably due to intense heat. The above associations were not invariable; some artifacts in the B horizons were light gray and deeply leached, indicating they had been recently buried after a long stay in the Ae horizon.

Mottled chert was the most popular lithic material used, a preference probably correlated to its widespread distribution and availability. At every site, mottled chert is represented in the majority of tools, particularly at most of the older sites where it was about the only microcrystalline rock found. On the other hand, a wider variety of materials is present at very late sites.

The second type of chert is black, also rather dull but finer-grained, and banded by thick white chalky impurities. One source was noted at Ste-Anne-des-Monts, in the same geological formations as the mottled variety. Black chert was mainly used at the Ste-Anne site and, to a lesser extent, at Ruisseau A. In archaeological contexts, weathering of this material is minimal but, with greater age, artifacts seem to acquire a rather glossy patina.

The third variety is grayish-green and slightly glossy. According to Biron (1971), it is associated with the previous type of chert but we have noted no such outcrops. However, large blocks, one of them of boulder size, were uncovered at Ruisseau A, the main site where this material was utilized.
Finally, several kinds of high quality microcrystalline rocks (chalcedony and agate?) were found at a few sites. They are black, gray, brown or reddish-brown in color, generally more vitreous than the previous cherts and finer-grained. Presently, it is impossible to establish if these materials can be found in the Gaspé, although some efforts have been made in solving this problem (Gagnon in Barré 1975:47-48). Some of them may be exotic but agates can be found in conglomerates on the east and south coast of the peninsula. In any case, these fine materials were very rarely used and never exceed one percent in any sample. Furthermore, they were almost exclusively found at the most recent sites: Ruisseau A, Petits-Capucins, and the upper level at Ste-Anne B. The only exception is a single flake of brownish-gray chalcedony from Ste-Anne A.

QUARTZITES

These materials can be divided into two groups: coarse and fine-grained. Coarse-grained quartzite is generally pink-beige or pink; its source seems to be in central Gaspé (Lebuis, pers. comm.), but it is commonly found as rounded pebbles and cobbles along the coast. Because of its poor flaking properties, this material had limited applications. At older sites, pebbles were utilized as hammerstones and as cores for the production of large spalls and choppers. On the other hand, fine-grained quartzite has flaking qualities similar to those of cherts and was almost exclusively used at the most recent sites. Although this material is only represented by a few dozen artifacts – mainly flakes – it varies widely in appearance from opaque to translucent and from white to dark or bluish gray. In Quebec, artifacts of this or similar material
are frequently found north of the St. Lawrence (Martijn and Rogers 1969; Chevrier 1977; Baulu 1978) where several outcrops have been found, and a few attempts made to relate archaeological samples to particular sources (Martijn and Rogers 1969:190-211; Fitzhugh 1972:38-44). Presently, it is not known if this material outcrops in the Gaspé but ice-rafted fragments occur, although in small numbers, along the coast. Vein and crystal quartz are also very common in the local sedimentary deposits.

GRANITE

Other than a few tools of local sandstone and siltstone, granite is the last lithic material encountered. Generally pink in color, it seems to have been brought by floating ice from the north shore of the St. Lawrence to coastal Gaspé where fragments of pebble to boulder size are common (Lebuis, pers. comm.). Granite was mainly used to obtain large spalls at the older sites.

IRON PYRITE

This material can be found in the green and black shale deposits along the coast and seems common around Cap-au-Renard (Biron, pers. comm.). Small nodules, some 2 to 5 cm in diameter, were found at most excavated sites. Their appearance is similar to rusted iron, and several are regularly shaped, possibly intentionally or through use. These iron pyrite nodules are thought to have been used to produce fire and, indeed, some were associated with hearth remains.
Thus, the prehistoric populations made a wide use of locally available lithic materials. At older sites, these materials make up virtually 100% of the artifacts, whereas at the most recent sites, what may be "exotic" cherts and quartzites represent 1-2% of the lithic industry. The use of a wide range of microcrystalline rocks was likewise noted at Cap-Chat, also a late site (Barré 1975:47-48), while at La Martre (S.A.P.Q. 1970:71) all flaked stone artifacts are of local cherts. In the following descriptions, artifacts are of local cherts, mainly of the mottled variety, unless otherwise mentioned.

Excavated Sites and Assemblages

During the first field season, it became obvious that some of the most fundamental questions concerning the nature of most sites could not be readily answered. Were we dealing with quarries or camp sites? Were they single or multi-component sites? Elucidation of such problems is essential in reconstructing settlement patterns and cultural sequences, so various means were attempted.

As noted earlier, the Gaspé archaeological research was a series of salvage operations. Surveys were conducted for inventory purposes, and only sites in danger of destruction were excavated. To minimize this first restriction, efforts were made to uncover large areas rather than isolated test pits in order to obtain a wide body of data in terms of artifact samples and/or undisturbed remains. At other sites, intensive surface collections were made and test pits were occasionally excavated.
The first problem stems from a number of visible associations usually found at stone tool workshops. Most sites were very large, some of them extending for several hundred meters on one or more terraces; all those excavated were in the vicinity of chert outcrops; and they contained large quantities of flakes, preforms, and broken tools. Attempts were thus made to find remains of other activities which could have taken place but left few recognizable traces. Excavations were carefully conducted with trowels to uncover features which might have survived the podzol and, in some cases, the plow. Generally, the exact provenience of artifacts was taken, even at disturbed sites, in the hope of recognizing various activity areas. The edges of flakes and tools were examined through a binocular microscope to distinguish utilized specimens. These studies have shown that all excavated sites were habitation sites where stone tool manufacturing was an important activity. Finally, soil samples were collected from undisturbed sites and analyzed for their phosphate content by the Centre de recherches minérales, ministère des Richesses naturelles, Quebec. Variations in phosphate content appear to be much more complex to interpret than originally thought by Cook and Heizer (1965) as they can be affected by many incontrollable factors. Limbrey (1975:72) notes that phosphate concentrations vary considerably in any normal soil. She also points that:

"... variation in mobility of phosphate according to conditions of acidity and presence of complexing substances make interpretation of phosphate levels impossible without other detailed chemical data and a survey of the general level of phosphate content in the surrounding soil" (1975:330).
Success of phosphate studies thus seem to depend on evidence which is lacking, especially since no off-site soil samples were collected. Nevertheless, at all sampled Gaspesian sites, vestiges which indicate a living area or hearth are constantly associated with high phosphate levels, and these data seem to support our site function interpretation.

The second problem is mainly related to the apparent absence of soil accumulation at most sites. As seen above, artifacts from any number of occupations would end up in the same soil horizons and be stratigraphically indistinguishable. To recognize the presence of several components, indirect means such as horizontal distributions and classification of artifacts are used. The study of other variables, patina and raw material in particular, can be revealing in other contexts but is usually not applicable in this case for reasons outlined in the section dealing with raw materials. Among the excavated sites, only the two stations of Cap-au-Renard seem to exhibit two or more components, a conclusion also supported by the lack of alternate terraces suitable for human establishments at this locality.

With few exceptions, artifact assemblages are restricted to lithic remains. Each site's stone industry is analyzed according to a classification which takes into account morphological, technological and, when possible, functional attributes.

The term "artifact", one of the basic items of prehistory, is still understood differently by archaeologists (for example, Dunnell 1971:117-121; Hole and Heizer 1973:87-88; Rouse 1972:40-41). Here, an artifact is any object recognizably made or in any way altered by man in
his manufacturing activities. In the Gaspesian context, it includes cores and flakes (debitage), tools (whether utilized or not), and manuports (iron pyrite nodules): natural objects which were altered in the sense they were "... artificially introduced to the site" (Leakey 1967:420).

For each artifact sample, a first distinction is made between unaltered man-made objects (flaking detritus), and altered objects (mainly tools). Iron pyrites have been identified above, and their occurrence is noted at each site (Plate 44j-m).

Although a great wealth of information can be gained from their study, flakes have not been analyzed. Such studies would require a good first-hand knowledge of the flaking properties of the local materials and a few years of analysis. Thus, only their number and distribution at each site are presented. Nevertheless, the following preliminary observations should be made: (1) at all sites, flakes are made of the same material as tools; (2) the great majority were obtained from the preparation of bifacial tools; (3) all samples, except from Marsoui Quarry and Ruisseau A, contain a very low percentage of primary, cortex-bearing specimens; (4) the absence of blade cores - most cores are bifacial, possibly biface preforms - indicates that the few rare blades found were obtained accidentally; (5) flakes from older sites are on the average larger and relatively thinner than those from more recent sites; and (6) only flakes or flake fragments carrying the striking platform were counted; they usually represent one-third to three quarters of the flaking detritus, depending on whether sites were plowed or in situ.
Tools are subdivided into categories: projectile points, drills, bifaces, flake tools, and others, the latter including the few ceramic fragments found. Thus, whereas the first two categories are functional, the others are mainly technological. When applicable, each category is further divided into groups which include specimens sharing a similar morphology, technology, and, in many cases, probably a similar function. In some instances, subgroups were also defined in accordance with additional common features. Although this classification may have some typological value, it is not intended as a typology: groups generally contain too few specimens, and variation cannot be properly assessed, some groups even lacking complete specimens. Thus, groups and subgroups are descriptive units.

For each group, the common features are presented and the particularities of some specimens are noted. Each description generally includes: the number of specimens; the shape of the outline and transverse section; the average maximum dimensions (length x width x thickness); the nature and position of the retouch; the average edge angle measured with a series of notched gauges; the occurrence of use-marks. The mode of description utilized is that generally followed by most Quebec archaeologists and presented by Leroi-Gourhan (1966:245-269) and Bordes (1961). Attempts were sometimes made to evaluate the dimensions of groups of tools represented by fragments, and to determine the function and manufacturing techniques of some. Finally, the descriptions are completed by the mention of similar tools found at other sites, and the photographic illustration of some specimens from each group.
SAINTE-ANNE-DES-MONTS, DgDo-4

The Sainte-Anne-des-Monts site, also referred to as Ste-Anne or its designation DgDo-4, is situated approximately at the center of the north coast of the peninsula, 120 km south of Sept-Îles. It is located south of the village of Ste-Anne-des-Monts, one kilometer inland on the 38-45 m terrace, the highest paleobeach of any importance in this locality (Plate 1).

For the last century, this terrace has known a variety of construction work which disturbed and scattered a great proportion of the underlying prehistoric remains. It was logged and cleared of vegetation by the first settlers, and plowed repeatedly for hay and potato cultivation. For about thirty years, however, and especially since the late sixties, these fields have been exploited for their sand and gravel subsoil, with the result that most of the site has been removed and dispersed. Almost every village along the coast has one or more such gravel quarries utilized for road maintenance and construction, and several of these pits are situated on prehistoric sites. Furthermore, a gravel road leading inland crosses the site, probably covering and protecting a rich part of the cultural deposits.

Today, the gravel pit extends for about 800 m from east to west, but mainly east of the gravel road; it covers most of the terrace's width, and is still expanding yearly (Figure 7). Soil has been extracted to a maximum depth of 8 m and bedrock was rarely reached. Surface collecting and test-pitting have shown that the site spreads, at least sporadically on the entire length of this surface and further west along the terrace, but the majority of the remains appear to concentrate close to the road.
Figure 7. Ste-Anne-des-Monts, DgDo-4 (from a map by the ministère des Terres et Forêts, Quebec)
Originally, the site lay on a gently sloping terrace which decreased by approximately four degrees toward the north. The terrace was around 100 m wide; it is wider east of the site, and much narrower (25 to 60 m) west of the loose surface road where the site extends for at least 300 m. To the north, toward the present shoreline, the elevation drops abruptly to the next and much wider terrace; to the south, the site is bordered by the quasi-plateau which rapidly rises in altitude to 300 m, two kilometers inland. On the plateau, and particularly along a recently opened logging road, bedrock outcrops frequently. In many cases, these outcrops contain the various grades of chert utilized at the site and may have been a determining factor in the choice of the site.

Today, a few streams descend the slopes of the quasi-plateau, their waters permeating the site's gravelly surface. Near the main excavations, an unnamed stream flows through the deep ditches on each side of the road.

The Ste-Anne site was discovered in 1970 by Ghyslain Lebeau, a member of the Société d'Archéologie de la Gaspésie (Provost and Ross 1972:22), who had noticed a number of cultural remains on the surface, brought to light by gravel extraction activities. Part of the material was then collected and in 1972, the author spent a few days surveying at the site in order to evaluate the damage and define the areas spared by the bulldozers. The material recovered from the surface of the gravel pit and a dozen test excavations, 77 tools and more than 4500 flakes, has been described in a preliminary report (Benmouyal 1973:63-104). The following year, salvage operations were conducted for three weeks, new
material on the surface was collected, a few more test pits were opened, but more time was spent on large scale excavations. Immediately between the edge of the gravel pit and the fence which borders the road, in an area 15 m long and 2 to 3.5 m wide, some 39 m² were excavated (Figure 8). This restricted strip of land, which a test had shown to be particularly rich in cultural remains, had been spared from destruction because of its proximity to the road, and probably because of the thick bed of sandy-silt which covers the sand and gravel strata in this region. At this point, the excavations could not proceed in three directions: north and south was the gravel pit and to the west, the road. The area to the south was not in immediate danger of destruction; furthermore, the almost sterile south pits and water oozing from the south wall would have made further work in that direction time consuming and, probably, unrewarding. For these reasons, it was decided to test the area on the west side of the road, south of an old gravel pit. In this region, Section B (Figure 42), 25 m² mainly arranged to form two perpendicular trenches were opened. As the stratification and some of the remains from this section are markedly different from those on the other side of the road, in Section A, they will be treated separately.

At the end of the 1974 field season, eight more days were devoted to Section A. A 31 m² area, two meters southeast of the trench and limited to the north by the gravel pit, was exposed (Figure 8).

Finally, more material was collected from the surface, a few meters east of the previous excavations, during a brief visit in 1975. This section of the site, while it was in the process of being protected
Figure 8. Main Excavations at Ste-Anne-des-Monts A
and classified under the Cultural Property Act of Quebec, was completely bulldozed and leveled by road and house constructions.

Section A

STRATIGRAPHY (Plate 2; Figure 9)

Two types of soils are observable at the site. On most of the terrace, the profile is that of a podzol which has been disturbed and mixed by plowing in the upper 20 - 30 cm. This soil, described above, is readily noticeable along most banks of the gravel pit and was met in the majority of test pits.

Close to the back of the terrace, especially in the vicinity of the road and main excavations, the sand and gravel beach deposits are covered by strata of sandy-clayish silt, forming a second type of soil profile. This silt varies greatly in thickness: it is close to 70 cm thick at the south, of the trench and gradually thins out 14 m to the north where the podzol appears. This silt horizon is presumably more important further south. The stratigraphic units met in Section A, from lowest to highest, were as follows:

Unit one: Well sorted stratified sand and gravel deposits of the Goldthwait Sea, generally more than 8 m thick, lie on top of the bedrock. The uppermost layer is composed of beach sand. Generally, this sand is yellowish brown and contains thin (ca. 5 mm) irregular bands and nodules: sand solidified by orange (iron oxide) and black (manganese oxide) concretions. These oxides seem to have leached from above and may be due to seasonal waterlogging. The superior portion of this sand layer, for
about 5 - 10 cm, contains various proportions of silt, which composes most of the strata above. This silty sand is usually lighter in colour, rather grayish-beige; it is a zone of eluviation which probably indicates podzolization processes had begun before the deposition of the next unit (P.P. David, pers. comm.).

Archaeological excavations penetrated the deposits of sand and gravel for about 30 - 50 cm but the prehistoric remains were mostly confined to the silty sand, and very rarely, if ever, were found much below the mineral concretions. When the latter formed a depression, material was sometimes concentrated in the pockets so formed, but this was not a consistent occurrence. Generally, the material was lying flat, on top of, or in the silty sand. A small proportion, slightly less than 10% was recovered to an additional maximum depth of 15 cm, and throughout the culture-bearing deposit, around 20% of the remains were in an oblique or even vertical position.

Unit two. A mixture of unstructured fine sand, clay and mainly silt covered most of the excavated area in Section A. As noted before, it was most important at the south of the trench where it reached a thickness of 0,7 m, and disappeared in the northern part (Figure 9). This silt was very compact and damp, and its removal by shovel required a great expense of energy. It varied in colour from beige-brown, sometimes slightly orangy, to grayish-brown; when dry, it was rather uniformly light brown. Immediately above the cultural remains, in particular in the trench along the road, it was dark dray, slightly bluish, for an average thickness of 12 cm (from 0 to 20 cm). Evidences of plowing was sometimes present in the upper part of this deposit, but this horizon was completely sterile of cultural
material except on the very bottom where artifacts on the silty sand came in contact with it.

The origin of this stratum of silt was the subject of much speculation during the 1973-74 field seasons. Its localised aspect and the existence of a nearby stream had been recognized, and it was thought to have resulted from a land slide, or to be a deposit of the stream or a marshy part of it. In 1975, the visit of Dr. Peter P. David, geologist at the University of Montreal currently working on the Quaternary geology of the Gaspé, seems to have settled the problem. This silt horizon comes from the south; apparently, it is a slope deposit, a product of very slow and gradual mass movement caused by continuous water seepage following the occupation of the site. This deposit is generally confined to the very back of the terrace, and its presence was also noted at other sites bordering the quasi-plateau. At this locality, the ravine-like relief of the plateau along which runs the gravel road explains the greater extent of silt around the excavations.

Unit three. Immediately along the road, and on top of the trench, a last layer of deposits was observed. Up to 30 cm of gravel - road fill - covered the silt or the plowed podzol further north. This recent deposit was also sterile.

Assuming that the material from Section A is the expression of deposits of a single culture, as suggested by its distribution and classification, one may attempt to retrace the depositional history at the site.
Some time after the retreat of the Goldthwait Sea from the terrace, human groups left traces of their passage on top of the beach sand. The formation of this terrace has been dated at 11,700 ± 190 B.P. (Lebuis and David 1977:287), while the only charcoal sample associated with archaeological material was dated around 6000 B.P. In the interval, vegetation had ample time to invade the site and, possibly, silt moving down the terrace had reached the area of excavation. The sand in which remains were found was partly mixed with silt, and human disturbance may have helped in this process. However, the initial deposition of silt may be post-occupational, and natural processes can easily account for this admixture. During the interval, podzolization had probably started, as shown by the bleached aspect of the silty sand, and eventually was interrupted by the growing deposition of silt. This leaching process generally requires acidic water, such as found in coniferous forests (Butzer 1966:80), and we may postulate a similar vegetational community at the time. Following the site's occupation, various factors may have caused vertical and probably some horizontal movements of the remains. Among these are seasonal ground freezing, water erosion, animal burrows (some have been noticed at the site but none in the excavations), and, most important, vegetation. With the passing of time, more and more silt accumulated on part of the terrace, sealing and thus protecting the remains on part on the terrace.
Figure 9. Example of Stratigraphy at Ste-Anne-des-Monts A
MATERIAL DISTRIBUTION AND FEATURES

The main excavations of Section A, 70 m² in area, have yielded 355 tools and close to 14,000 flakes. These and other features are illustrated on Figure 8. Of this material, 98.7% of the tools and 98.6% of the flakes were found under the silt horizon. The remaining 201 flakes and 4 tools, among which is a Plano point fragment, were found in the plowed zone in the northern part of the excavations. In this area, the silt layer being thin or absent, the material lay close to the surface and was within the reach of modern agricultural equipment.

These remains were very unevenly scattered, some 1 m² pits yielding as little as two chips or no tools, while others contained more than 1500 flakes and 15 tools.

The most numerous material, flaking detritus, formed five clusters containing more than half (62%) of the flakes, a good proportion of the preforms and few utilized tools. They can be interpreted as tool manufacturing and/or maintenance areas. The largest cluster, at the south of the trench, is a 20 cm deep depression which held more than 3000 flakes, the great majority made of black chert, and two dozen preforms and unutilized tools also of the same raw material. This cluster seems to represent a relatively short manufacturing session during which lanceolate, oval and triangular bifaces and a Plano point preform were made. All are of black chert, a material rarely or exceptionally used for other tools. As no cores were found in this area, and the flakes are generally secondary removals, it appears that material was brought in the form of bifaces, probably trimmed at the source near the back of the terrace.
Of the 24 tools made up of fitting fragments found more than 20 cm from each other, twenty are associated with flake clusters. Being mainly unfinished or unutilized, they also testify to the importance of tool making at the site. This dispersion of fitting pieces, which average 1.14 m in linear distance, is mostly attributed to prehistoric human activity, while fragments found close together were chiefly broken by natural action.

Other data indicate that more than tool making took place at the site. First are finished and utilized artifacts, and specifically retouched flakes, tools easily fashioned, probably for immediate use, and discarded. Even more convincing, for they have little use at a stone tool workshop, are utilized flakes and spalls which amount to 27 in the excavated area. Utilized flakes were probably used for domestic activities where cutting soft materials was involved.

Secondly, 13 postmolds were noted in the 1973 excavations, most of them close to the western limit of the trench. In diameter, they varied between 5 and 10 cm, some tapering at the bottom and extending for 5 to 20 cm in depth. These traces, plotted on Figure 8, started in the silty sand or immediately beneath, and were therefore closely associated with the cultural remains; one was bordered at the top by six flakes. They were filled with silt or silty sand and, in one case, the outline was marked by a dark humic soil. Except in two cases, one of which was associated with a rock, these traces were grouped by two or three, but due to the extent of the excavated area, it is not possible to identify the structure(s) these vestiges may have supported.
Thirdly, in the vicinity of the postmolds, rocks of varying sizes were uncovered. They may have contributed to the mentioned structure, or a hearth, for traces of charcoal were noticed near one cluster of rocks. Another cluster was noted in the 1974 excavation, associated with a larger charcoal concentration which was sampled and dated. Thus, although the postmolds and rocks do not define a recognizable house structure or shelter, they indicate the presence of camping activities. Here, it should be stressed that the presence of rocks in this horizon is aberrant, and can best be explained by the presence of man.

A last group of data, the phosphate content of the subsoil, indicate a prolonged use of the site. In 1974, soil samples were collected and analyzed for their phosphorous pentoxide ($P_2O_5$), calcium oxide (CaO), and acidity (pH). Samples were taken from most excavation units dug that year, generally from the culture-bearing strata and the sterile sand 5 to 15 cm below. The mean phosphate value for both these depths, in the same units, is essentially the same (0.169 and 0.177 respectively).

No control (off-site) samples were collected as every attempts showed we were still within the site's limits. This problem was encountered at most sites, and only intra-site variability is considered to determine intensive living areas. At Ste-Anne, phosphate values range between 0.08 and 3% ($\bar{x} 0.15$). The highest percentages are situated around the hearth (Figure 10), and this non-random distribution also indicates that we are dealing with a living site. On the other hand, calcium values were found to vary independently of phosphate but this seems to be a normal occurrence.
Figure 10. Phosphate Content at Ste-Anne-des-Monts A
under certain conditions; as Cook and Heizer state (1965:19), calcium is much less stable than phosphate, being highly influenced by rainfall and soil acidity. The latter was found to vary between 5.70 and 6.65 (± 6.10).

In summary, a number of features indicate this site was a stone tool manufacturing area, while others show we are dealing with a camp site. Pointing to the first alternative are the presence of raw material at the back of the site; the large quantity of flaking detritus, a good part of it found in clusters; the large proportion of unfinished and seemingly unutilized tools, some of them broken during their preparation; and, evidently the absence of obvious house structure and food remains. The last two items can be explained by the excavation's configuration, soil acidity and age of the site, and therefore do not bear on the problem of site function.

Supporting the campsite possibility are the small number of cores which, combined with the most common type of flakes – secondary biface preparation waste – shows that trimmed cores were brought to the site; the presence of finished and utilized tools (projectile points, thin bifaces...), and particularly retouched and utilized flakes, most of which were found outside the flaking areas; the number and pattern formed by the postmolds; the occurrence of rocks transported to the site, their association with postmolds or charcoal fragments, interpreted as structure or hearth vestiges; finally, the quantity of phosphate in the soil and its non-random distribution around the hearth.
We may conclude from the above discussion that the excavated area was a camp site at which stone tool manufacturing was an important activity; and a major factor in the selection of the site was the raw material outcropping at the south of the terrace. Furthermore, the general non-overlapping distribution of finished and utilized tools with the areas of tool preparation favours the hypothesis that the materials recovered are the remains of a single season or possibly two consecutive seasons of occupation.

RADIOCARBON DATING

Although minute fragments of charcoal were noted in various areas at Ste-Anne, only one sample could be recovered from the 1974 excavations (Figure 8). This sample was scattered in the silty sand cultural layer, under the silt horizon, at depths of 59 to 65 cm. It was associated with cultural material, mainly flakes, and rocks interpreted as the remains of a hearth. It contained 1.7 g of carbon and, like all other samples submitted, it was pretreated with sodium hydroxide (1%) and hydrochloric acid (5%) solutions. This sample was counted for 4520 minutes and a date of 5960 ± 100 B.P. (QU-347) was obtained.

Because this date estimate is based on a single carbon sample which, furthermore, contained some rootlets, it should be used with circumspection as it does seem rather recent for a late Paleo-Indian manifestation. However, this sample appears to be associated with a hearth and, until other dates are available, the approximate figure of 6000 B.P. may be taken as the minimum age of this site's occupation.
ARTIFACT DESCRIPTION

The total sample from Section A includes 378 tools classified in Table 3. Of these, 355 (93.9%) were recovered from the 1973 and 1974 excavations (Figure 8), and the remainder from the site's surface and various test pits. Except for three nodules of iron pyrite, the assemblage is made of stone. Chert, which outcrops near the site, is by far the most common material, and only ten specimens - mainly utilized spalls - are of quartzite. The black variety of chert seems to have been preferred to make most small lanceolate bifaces and about a third of the triangular and oval ones, whereas it was rarely or never chosen for the other tools. This selection may be accidental or, possibly, related to the different flaking pattern of each variety of chert.

Projectile Points

Excavations at Section A of the Ste-Anne site have yielded three forms of projectile points, all of which exhibit fine transverse pressure flaking on both faces. By far the most common form, represented by ten fragments and a probable preform fragment, is a long parallel-sided point quite similar to those from Thompson's Island, on Lac St. Francis, Quebec (see Ritchie 1969:17-18), which, for the moment, we shall call "Plano" points. The other forms are each exemplified by one specimen, one complete and a fragment. It should be noted here that thin sections were taken from a Thompson's Island point and a chert sample which outcrops south of the Ste-Anne site. These sections were studied morphologically and grain, shape, opacity, matrix, strain, grain boundaries, quartz grain distribution and percentage, pattern, colour polarized and sorting were
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examined. They were found to be essentially similar (J.V. Wright, pers. comm.), a subject discussed later.

**PLANO POINTS** (Plate 10a-k)

From the 7 base fragments, 2 tips and the mid-section, it seems that complete points were very similar in shape and slightly varied in metric attributes. They were symmetrical, lanceolate in outline, with rather parallel sides from the base to mid-length and converging, slightly convex sides above. Tips are pointed and the bases are 'slightly concave' (3), straight (3), or slightly convex (1). Complete maximum width measurements range from 17 to 23 mm, each extreme being represented by one specimen; the remaining vary from 19 to 21 mm (x 20 mm). In five cases, maximum breadth is at approximately a third of the length, the base being 1 - 4 mm narrower. On the other two fragments, maximum width is at the base with a 1 mm difference 40 to 50 mm above. Maximum thickness, around the center, varies from 4 to 6 mm (x 5 mm) and complete length measurement is estimated to have been around 125 mm in average. Thus, complete points were relatively long and slender and averaged 125 x 20 x 5 mm.

All are bifacially flaked, both faces being covered by parallel transverse flake scars, obviously obtained by pressure. Bases are always bifacially thinned by a few short flakes removed longitudinally. The upper half of these points has further been retouched by marginal pressure flaking in order to eliminate the slightly sinuous edges caused by the initial pressure flaking. This resulted in more regular and sharper edges near the tip. Cross-section is lenticular and edge angles
range from 25 to 30°. Finally, no edge grinding or other hafting preparation is visible.

The probable preform fragment (72 x 25 x 11 mm) has parallel sides and a somewhat rounded base. It was probably discarded when it broke because of hinge fractures on one face. It is bifacially flaked by flat and rather wide removals probably obtained by soft-hammer percussion.

The study of these specimens and those from other sites reveals different stages of manufacture. First, a sufficiently large flake similar to many found at the site, or better, a long blade obtained accidentally, was selected. It was trimmed by soft hammer percussion to the desired shape with dimensions as close as possible to the finished product's. In the process, the base was thinned, probably rounded in outline. Next, all edges were lightly ground to remove any irregularity and prepare platforms on which the pressure flaking tool, possibly a piece of antler, could be applied without slipping. Indeed, microscopic study of the edges reveal evidence of grinding between the flake scars in every case.

The following stage consisted of careful pressure flaking of both faces. The preform being biconvex in cross-section, removals from either edge meet smoothly in the center giving the impression of a single scar. The upper half of the point was further flaked marginally to thin and straighten that important part of the tool. Similarly, the base was thinned and shaped, usually as a final step, and the point was ready for hafting.
From this sample, it seems that breakage seldom occurred during the manufacturing of these tools, except during the first trimming stage. Most fragments appear to have resulted from the actual use of the projectile, after the point had been hafted. The rather long size of six fragments (\(\bar{x} 58\) mm in length) indicates these points were deeply rooted in a shaft, up to about mid-length or slightly below. This, by shortening the active part of the point, strengthened these rather delicate tools and, thus, chances of breakage when hitting a quarry were reduced. Basal thinning and the absence of lateral grinding or use marks near the base strongly suggest these points were not lashed to a shaft, or rather were not in direct contact with a lashing. They may have been simply inserted in a slot at the tip of a shaft, possibly secured with some kind of cementing matter, of vegetal or animal origin, giving them some elasticity which further reduced the chances of breakage. A lashing around the shaft would also have been adequate to hold the point securely; indeed, two small notches on a specimen found at Cap-au-Renard B (Plate 26b) may have resulted from such a device. Finally, the larger proportion of basal fragments (7 out of 10) indicates the shafts were brought back to the site where new points were made and the broken one discarded without any attempt to resharpen them. However, a broken specimen from DgDo-8 (Plate 50a) seems to have been provided with a new tip. One specimen (Plate 10c) shows percussion signs on both faces along the fractured edge which seem to be accidental. Similar unifacial and bifacial features were noted on several projectile points from Agate Basin components at Grant Lake, N.W.T. (Wright 1976: Plates VII,
figs. 3-4, and VIII, figs. 1-3), where broken edges seem to have been thinned intentionally in order to cut narrow slots in bone or wood (ibid.:34-5).

OTHER POINTS (Plate 101-m)

An almost complete specimen (Plate 10m) from which the very tip is missing is rhomboidal in outline (66 x 41 x 7 mm). The blade part shows straight sides which curve near the tip while the stem, which extends on more than a third of the total length and is defined by slight shoulders, has convex sides converging toward the pointed base. Both faces are covered by parallel transverse removals, generally less regular than on the previous points but also obtained by pressure; a few broad scars from the trimming stage are still visible near the center. Cross-section is biconvex; a flatter face indicates this tool was made from a flake.

This specimen is heavily ground along the edges on the blade part while below, the edges are sharp and fresh. This grinding may be interpreted as use marks, indicating we may be dealing with a hafted knife blade. Alternatively, microscopic examination shows it may have been a flaking preparation in view of reshaping this point after the fracture of the tip.

The last specimen (Plate 101) is probably the mesial part of a relatively thick projectile point (40 x 19 x 8 mm). It has straight converging sides and, near a fracture, a slight bilateral shoulder. Bifacial flaking is composed of transverse parallel removals which, due to hinged fractures from one side, do not meet smoothly in the center.
Drills (Plate 10n-o)

One restored drill (Plate 10n) and a mid-section fragment were recovered from the site. The complete specimen (91 x 23 x 9 mm) is bottle-shaped with a long neck, slightly asymmetrical. The proximal part covers half the total length; with its straight thinned base and slightly convex lateral sides, it resembles a Plano point's base. Bilateral shoulders define the active part: a narrow parallel-sided bit with a rounded tip. The fragment seems to come from a similar tool of smaller dimensions (24 x 15 x 6 mm). Retouching is reminiscent of projectile points, but more crude: a few pressure flakes have been removed on both faces but previous removals obtained by percussion are visible at the center and predominate near the bit. Cross-section is biconvex on the lower part, and bulbous above. Ill-defined scar ridges near the base indicate the use of hafting, possibly a short shaft; slight use signs near the tip of the restored drill suggest these tools were used for perforating soft materials such as hide and wood. Perforations' diameter was around 11 mm for the larger tool, and 7 mm for the fragment.

Bifaces

Bifaces, the most common category of tools from Ste-Anne, represent 74.3% of the total tool sample. Although the majority are broken, 190 specimens are divided into five groups according to their morphological, technical, and metric attributes (Table 4). The remaining 91 pieces are too fragmentary to be assigned to a particular group.
LANCEOLATE BIFACES

There are 71 examples of this group, 37% of the classifiable biface sample, most of them fragments broken during their preparation. The maximum length and width dimensions of the complete tools have been plotted on a graph, and the same was done for the width and thickness of the entire sample. Both graphs showed two definite clusters which suggest we are dealing with two varieties of lanceolate bifaces, small and larger ones. Eight preforms and 2 preform fragments of the small variety were also recovered.

Small lanceolate bifaces (Plate 11)

A total of 35 examples includes 7 complete specimens which average 87 x 36 x 12 mm, and 7 tip, 4 mid-section and 17 basal fragments. In outline, they present convex sides, sometimes almost straight towards the pointed tip, and a maximum breadth at a third of the length. The base varies from well-rounded to straight with rounded corners, and cross-section is generally biconvex, or irregular because of hinge fractures on some specimens. Bifacial flaking covers both faces and thins all edges; it mostly consists of squarish to elongated flakes removed perpendicularly from each side, and it seems that both hard and soft percussion were used. Marginal flaking is mostly sporadic and irregular but 4 fragments show some parallel flake scars probably obtained by pressure. Consequently, edges are rarely straight in profile, but rather slightly sinuous on obvious preform fragments. Most specimen show localized edge grinding interpreted as platform preparation; others seem to be resharpened tools while on a few finished tool fragments, edge
grinding and crushing along the lateral edges seem to result from use. Most examples seem to have been intended as knives but some, especially the narrow and thinner ones, may have been intended to be transformed into projectile points.

Large lanceolate bifaces (Plate 12)

These are essentially larger versions of the previous ones. The sample amounts to 26 examples: 9 complete specimens, each restored from two or three pieces, which average 136 x 45 x 16 mm; and 6 tips, 3 mid-sections and 8 basal fragments. All attributes described for the smaller versions apply also here, except for a bipointed leaf-shaped specimen (Plate 12i). Most are preforms or preform fragments, but one finished example (Plate 12b) is provided with a slightly narrowing base with a ground lateral edge, probably hafting preparations. The mid-section fragment of a restored tool (Plate 12d) was obviously utilized as shown by heavy grinding along an edge. At least one other specimen has been flaked and utilized after it broke.

Other lanceolate preforms (Plate 13)

Six small lanceolate preforms and 2 fragments belong also to this group of bifaces. Complete specimens average 114 x 45 x 23 mm in dimensions. Most seem to have been discarded because of some features - fragmentation during the manufacturing, thick edges, or pronounced hinge fractures - which made further trimming impractical, if not impossible. They are bifacially flaked by both hard and soft hammer percussion and marginal retouching is very limited. Edges are sinuous or curved,
cross-section is irregular and often bulbous. Edge angles are variable, from 30 to 90° (x ca. 50°) and some edges remain unmodified. Localized marginal grinding, probably platform preparation, is present on most surfaces.

Finally, two complete restored preforms, probably abandoned when they broke, may be unfinished lanceolate bifaces. They are crescent-shaped, one side being slightly concave and the other convex, with the extremities rounded or pointed (Plate 13g-h). These specimens vary in dimensions (154 x 46 x 18 mm and 103 x 32 x 10 mm), but share the same features as the other preforms.

**TRIANGULAR BIFACES** (Plate 14a-d)

This group is represented by 11 fragments, among which are 6 preform fragments, all probably distal parts. They have straight or slightly convex sides which intersect at the tip to form angles of 40 to 50° (x 48°). Complete specimens may have been around 150 mm long and 17 mm thick but the outline of the base is unknown. Flaking is composed of rather long, broad irregular marginal retouch. Both hard and soft percussion seem present, the former mostly visible on preforms. At least three specimens seem to have been utilized along one edge, possibly as knives; another one was heavily used and partly resharpened.

**OVAL BIFACES** (Plate 14e-l)

Eleven rounded extremities, tips or bases, seem to be fragments of oval bifacial knives. They may have been rather long (ca. 150 mm), narrow (ca. 80 mm) and thin (ca. 12 mm) tools. Flaking is similar to the
previous group's, but hard percussion seems absent. Most straight-edged specimens show some polishing and crushing along the margins, probably from use.

In addition, 7 complete specimens, most of them restored, and 7 fragments, are oval bifaces at an early stage of preparation. Complete ones average 122 x 60 x 23 mm in dimensions, and are oval or sub-oval in outline. One, made from a large cortical flake, is partially flaked; in other features, they offer the same aspects as the lanceolate preforms.

THIN BIFACES

A total of 57 fragments from very thin bifaces were recovered. None is complete although some were restored from up to 4 pieces; their shape and dimensions must be inferred from the various fragments and other finds. In outline, they appear to be oval, or leaf-shaped in some cases. Mid-sections and end fragments generally have convex sides but some lateral sides are straight or even concave or a combination of both outlines, which indicates an asymmetrical shape in some cases. Tips and bases are most commonly narrow and rounded but two examples, one of them a reworked fragment, have a pointed extremity. Cross-section is biconvex or plano-convex, and rarely irregular.

Another characteristic attribute is the nature of the bifacial retouch composed of relatively large elongated thin removals, some of which cover the full width of the tool. Bulb of percussion imprints are diffuse and hinge fractures rare. Edges are sharp (about 30° in average) and generally straight in profile, although marginal retouching is sporadic and rarely continuous. It seems that soft percussion was mainly, if not
only used, and the support was a large flake or a core for some of the larger specimens. Most show some grinding or crushing along the edges, a result of platform preparation or utilization as cutting tools. One example is intensively ground along one edge and striations are visible on an adjacent surface. Many specimens seem resharpened and some fragments reshaped. Except for 12 edge fragments too incomplete to be measured, metric attributes form three clusters.

Small thin bifaces (Plate 15a-c)

Eleven examples, 5 extremities and 6 mid-sections, belong to long oval tools which measured around 150 x 50 x 9 mm. They are symmetrical and carry the maximum breadth around the middle.

Large thin bifaces (Plate 15d-g)

Fifteen extremities and a single mid-section are estimated to have measured, when complete, some 200 x 95 x 10 mm. Maximum width is generally below the middle and some specimens may have been provided with a narrowing straight-sided handle.

Very large thin bifaces (Plate 15h-i)

The largest variety of knives which could average 250 x 120 x 15 mm is exemplified by 14 extremities and 4 mid-sections. In outline, they resemble the previous ones, or a complete preform found at the same site during the 1972 survey (Benmouyal 1973, Plates XVI-XVIA).
LARGE THICK BIFACES

There are 26 examples of this group which include 10 complete specimens, most of them restored, and various fragments. These bifaces are oval or ovate in outline, some of them slightly asymmetrical with one side more convex than the other. Generally, both extremities are rounded, but the distal end is sometimes pointed, and the base irregular and partially flaked. In more than half the specimens, the cross-section is plano-convex rather than biconvex suggesting that large flakes were frequently used as a support. Both faces are always retouched, generally by large thin expanding flakes with diffuse bulb of percussion; preforms or preform fragments, however, show deep flake scars indicating the use of hard percussion at an early stage of preparation. Marginal flaking, short broad removals, is often discontinuous and hinge-fractured; in some cases, it may be due to use. In profile, edges are often sinuous or curved, rarely straight, and their angle varies from 30 to 80° (± 45-50°). Slight polishing on protruding edges indicate platform preparation, and most specimens show extensive lateral edge grinding and/or crushing which suggest utilization as heavy-duty knives or axes. Microscopic examination reveals both parallel and perpendicular edge striation which never extends to the faces. A few preform fragments have sharp and fresh cutting edges; two of them have been reshaped or utilized along the fractured edges. Depending mainly on their dimensions, these bifaces can be separated into two sub-groups.
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* Complete tools average measurements or estimates
Narrow thick bifaces (Plate 16)

Seven complete or nearly complete specimens, one tip, 3 basal fragments and a mid-section include 4 asymmetrical tools and 3 preform fragments. Complete measurements average 199 x 75 x 24 mm, the maximum width being at mid-length in all cases.

Wide thick bifaces (Plate 17)

Three complete examples and a badly broken biface beyond repair, 7 extremities and 3 mid-sections are wider and thicker than the previous ones. Their measurements average 207 x 103 x 30 mm with the maximum width at the centre or below. These bifaces generally show more evidence of edge battering than the narrower ones; one of them exhibits a little polishing on its edges and may be a preform for a thin large biface.

OTHER BIFACE FRAGMENTS

The collection counts 91 examples with bifacial retouch, unclassifiable because of their fragmentary nature. They include 38 extremities, tips or basal fragments, 34 edge fragments, and 19 mid-sections. Seven edge fragments, actually flakes which carry a large part of a biface's edge, show a rather straight utilized edge; they may have been purposely flaked off to resharpen a tool. The remaining are mostly preform fragments of various dimensions, broken during tool manufacturing. No obvious new forms of biface can be extrapolated from these fragments which seem to come from one or another of the groups described above.
Flake tools

A total of 82 flakes and spalls (21.7% of the tool sample) show intentional flaking and/or use marks along one or more edges. They are, furthermore, grouped according to the angle of the working edges which probably indicate functional variations.

SIDE SCRAPERS (Plate 18a-c)

A total of 8 rather thick elongated flakes are modified by oblique to abrupt (x 61°) continuous marginal flaking along one lateral side or, in one case, both sides. One of them is of quartzite, a material from which large spalls have been detached and utilized. Tools average 99 x 70 x 24 mm in dimensions, and working edges 96 mm in length. Scraping edges are convex or straight, and concave on one margin of the double-tool. Retouching is usually dorsal, partly ventral on three specimens, and only ventral on one. Two examples, triangular in outline, have been fractured along the main axis providing them with a good backing (Plate 18b). Fine edge crushing and polishing shows that most scrapers have been utilized; scalar retouch on a few examples indicates resharpening.

FLAKE KNIVES (Plate 18d-m)

A total sample of 39 flakes are modified by very oblique to oblique retouching (x ca. 40°) on one or most of one margin, rarely two margins. Flaking is continuous and generally marginal but in a third of the specimens, it covers only the edge. It is mainly dorsal, rarely ventral or bifacial; working edges are straight or convex, sinuous on a blade, and seldom concave in outline. In all cases the longest edge or
edges have been selected for preparation; other edges have sometimes been utilized with little or no preparation. Thirteen relatively wide flakes ($\overline{69} \times 99 \times 12$ mm) present a unique working edge opposite to the striking platform, and three of them are ulu-shaped (for example Plate 18d). Twelve elongated flakes ($\overline{83} \times 62 \times 11$ mm) are retouched along the right and/or left lateral side, in all cases the longest and/or most appropriate. Four blades (Plate 18i,k) or blade fragments ($\overline{88} \times 27 \times 8$ mm) have both lateral sides retouched on their full length. The remaining ten specimens are too fragmentary to be classified. At least half the working edges have been utilized, as shown by edge polishing and crushing, while the others appear to be fresh.

**UTILIZED FLAKES AND SPALLS** (Plates 18n-q; 19)

Twenty-six flakes and flake fragments are mainly modified by use: discontinuous edge crushing and/or polishing is visible on one or all suitable edges. Generally, rather large flakes ($\overline{81} \times 86 \times 16$ mm) were selected; among them three are ulu-shaped, and one is a small blade. Use marks are mostly concentrated on convex or straight edges, often on a short distance, and utilized edges are sharp indicating these tools were temporarily used as knives.

In addition, the collection counts 9 cortex-bearing spalls’ (Plate 19) detached from large pebbles of quartzite. These are large and thick flakes ($\overline{108} \times 116 \times 47$ mm) which have been utilized with little or no preparation on one or all edges. Use marks take the form of edge crushing which may result from pounding and hammering hard matters such as bone.
Section B

On the other side of the gravel road, some 20 m from the previous excavations, two cultural levels were brought to light in a somewhat different soil profile (Figure 11).

STRATIGRAPHY

Unit one. The sand and gravel deposits of the Goldthwait Sea were essentially similar. However, the upper part of these deposits was mainly composed of sand, containing little silt, and was lighter in color than in Section A, which indicates it was exposed for a longer time before its burial under the silt. Below, for about 25 cm, and as much as 60 cm in one area, was a thick layer of grayish-brown sand which contained no mineral concretions, suggesting a better drainage in this part of the site.

Fifty-seven tools and 2015 flakes were found in this sand-horizon. The majority of these were in the light eluviated zone, and a small percentage in the grayish-brown sand, sometimes buried quite deeply in pockets. This occurrence of material below the level of deposition is probably due to vegetation, and to a large extent to animal action. Some forty rather cylindrical holes, 3 to 15 cm in diameter and up to 80 cm deep were found to form three clusters. Most were slanted, but vertical or almost horizontal ones were noted, and a few communicated with each other. These features are thus interpreted as old galleries dug by burrowing animals.
Unit two. Here also, a layer of sandy and clayish silt covered the culture-bearing sand. It was however only 10 to 40 cm thick and disappeared a few meters north of the excavations - it was absent in the banks of the gravel pit and in the western test pits. This light brown horizon of compact silt was sterile of cultural remains.

Unit three. A rather thick plowed and disturbed zone composed of gravel, sand, and silt, covered the previous layer. This uppermost zone, 20 to 37 cm thick, also contained lenses of gravel and decomposing vegetation. Apart from recent material (glass, bottle, porcelain fragments and nails), this disturbed soil contained some 60 flakes, three bifaces and a uniface fragment, a complete projectile point, and a cluster of pottery sherds.

Evidently, we are dealing with two prehistoric components: an old one below the sterile silt horizon, and a much more recent one in the disturbed third unit. However, the distinction between these two groups of remains is complicated by the stratigraphy north and west of the excavations, where the silt layer is absent. In these parts of the site, the older remains are found near the surface and plowing could easily spread some of the old material in the excavated area. Thus, unit three may contain an admixture of material. With the exception of the projectile point, the lithic remains in the plowed zone seem to belong to the older component: they are made of the same chert, carry the same patina, and, except for the uniface, share the same morphological and technological attributes. On the other hand, the projectile point is of a fine-grained greenish chert, which is common at other recent sites but unique at Ste-Anne, and therefore was probably associated with the pottery sherds.
Figure 11. Example of Stratigraphy at Ste-Anne-des-Monts B
In conclusion, the prehistoric remains from this section of the site belong to two cultural depositions. The material found under the silt and most of the remains from the plowed surface would belong to a first occupation (Ste-Anne I), probably contemporaneous with that of Section A. The pottery and the projectile point constitute the traces, however thin, of a much later occupation (Ste-Anne II) following the silt deposition.

Ste-Anne I

From the 25 m² exposed in Section B, 57 tools and 2015 flakes were recovered from the sand strata below the silt (Figure 12). In addition, 60 flakes and 4 tool fragments from the plowed zone seem to belong to this component. No features generally associated with human habitation were found, but the pattern formed by the remains, and the types of remains suggest an occupation similar to Section A: a campsite where tool manufacturing was an important activity. Thus, although the excavations covered a restricted area, most interpretations drawn from Section A seem to apply here.

ARTIFACT DESCRIPTION (Plate 20)

The material found in unit one is essentially similar in both shape and technology to the larger sample from Section A. It was in the same stratigraphic context, in the sand layer below the silt horizon, at a depth varying between 41 and 95 cm (x 63) below the surface. Among the 57 specimens, classified in Table 5, only 2 preforms are complete: a lanceolate and a narrow thick biface (Plates 20h-i). Only 19 specimens,
Figure 12. Main Excavations at Ste-Anne-des-Monts B
including the flake tools, seem to have been utilized; a few others (for example, Plate 20f) may belong to finished tools but the remainder are probably preform fragments.

Two of the projectile points (Plate 20a, c) are probably Plano point preforms which were abandoned when they broke. The last projectile point (Plate 20b) is at a more advanced stage of preparation; it is very thin (66 x 29 x 6 mm), partly pressure-flaked, but remains rather wide in comparison with the Plano points.

The 4 specimens from the plowed zone, assigned to this component, comprise 3 unclassifiable biface fragments which show recent fractures. Two are pointed tips (60 x 51 x 12 mm), one from an unfinished tool, and the other showing battered edges. The third one is an edge fragment (71 x 37 x 8 mm) which may be part of a thin biface. The last specimen (100 x 76 x 13 mm) resembles the extremity of a large thin biface (Plate 20j), but one face, the ventral part of the flake support, is only retouched marginally, a feature unknown among the other tools from this site.

Ste-Anne II

Above the silt horizon, two definitely late groups of artifacts were found: a stemmed projectile point and a cluster of pottery sherds (Figure 12).

**Artifact Description (Plate 21)**

The projectile point, similar to a specimen from Cap-Chat, radiocarbon dated at A.D. 580 (Barré 1975: Figure 36 no 2), is short (47 x 23 x 6 mm). Its blade is triangular with convex sides, and the
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contracted stem which covers a quarter of the total length has concave sides and a rounded base.

Compared to the finished points from Section A, flaking is crude; it is composed of short expanding deep removals some of which hinge-fractured, and on one face, a small part of the ventral support flake is visible. Along the margins are similar but smaller removals. Cross-section is plano-convex to biconvex, generally irregular because of hinged fractures, and the upper edges of the stem are dulled, a result of hafting.

Some 27 cm below the surface, in the plowed zone, a ceramic vase, or rather a large part of one, fragmented in hundreds of sherds was located. All parts of the vessel are represented: 8 rims, 20 neck and shoulder sherds, and 15 body fragments being larger than 18 mm in dimensions (or larger than a dime). The largest sherds which could be fitted are illustrated on Plate 21a-c.

The pottery is sand-tempered, very fragile and has a tendency to split. It has a dark beige outside colouring, and the interior surface of the body sherds are generally black.

The vessel is relatively large, with an opening around 30 cm in diameter. It is collarless, has a rather long concave neck (ca. 75 mm), and shows at least one slight rounded (Marois 1978:146) or convex (Trudeau 1971) castellation. The thickness varies between 8 and 9 mm, 10 mm at the shoulder.

It is decorated by incisions on the interior rim, lip, lip-rim angle, exterior rim, neck and shoulder, and by stamped impressions on the upper part of the body (vessel terminology from Trudeau 1971; Marois 1975).

The interior rim (Plate 21b) is incised by two parallel horizontal
lines. The flat rim shows slightly irregular, oblique parallel lines oriented from right to left. The lip-rim angle (Plate 21a) is similarly decorated by short incisions. On the exterior rim are four parallel horizontal lines. (All above motifs also apply to the castellation). The neck and shoulder (Plate 21c) show triangular motifs filled with parallel oblique or horizontal lines, with at least one side framed by a series of short parallel lines oriented obliquely or transversally; this motif was also encountered by Trudeau (1971:71). Finally, the upper part of the body has series of dentate stamped impressions; these are regularly spaced and seem to be decorations rather than surface treatment resulting from modelling with a check-stamped paddle, as defined by Girouard (1975:57).

The cultural affinities of this pottery vessel seem to lie downriver, with the Late Woodland, and most particularly with "Iroquois" and "Iroquoian" groups whose ceramics display very similar shape and decorations (see, for example Pendergast 1966, 1973; Trudeau 1971; Girouard 1975; Marois 1978). More precise cultural and temporal comparisons cannot be made, "Iroquois" and "Iroquoian" culture sites displaying a wide range of variation which can become meaningful only when large samples are compared.

Concerning this problem, the projectile point described above provides little additional information; points from these sites are often triangular, concave-based or side-notched, but sometimes stemmed (for example, Marois 1978, Plate 1, fig. 2, XXII, fig. 6).

Finally, the presence of these recent artifacts on the 45 m terrace, one kilometer inland is unexplained but could be related to the chert outcrops in this area.
ST-JOACHIM, DgDo-6

The St-Joachim site (DgDo-6) is situated 4 km east of Ste-Anne, in Grande-Tourelle, locally known as St-Joachim. It is on the 43 - 46 m terrace, about 400 m inland, west of the Grande Tourelle stream. From surface finds, the site seems to extend, at least sporadically, on this gently sloping terrace, between a secondary road to the west, and the edge of the deep V-shaped stream valley to the east, an area about 50 000 m² (Figure 13, Plate 3).

Since the region was settled, this terrace has known the same disturbances as the Ste-Anne site. It has been logged, plowed and partly converted into a gravel pit. Thus, an unknown quantity of material has been removed from the site, and the remaining cultural deposits have been disturbed by agricultural activities.

The site was discovered in 1971 by members of the local amateur society (Provost and Ross 1972:16-17) and the following year, the author spent a few days surface collecting and testing (Benmouyal 1973:105-124). In view of the expanding gravel pit, excavations were made on a larger scale for three weeks in 1973. The area chosen for excavation was at the east corner of the terrace, in a small abandoned field overlooking the St. Lawrence and the Grande Tourelle Estuary. Test pits showed this region was particularly rich in cultural remains but as the gravel pit was spreading eastward, this part of the terrace has now been completely destroyed. The rest of the site, divided into three larger fields, is cultivated for potatoes and hay, an activity which periodically brings material to light.

Except for a small portion from the surface or test pits throughout the site, the material reported here was recovered from the 1973 excavations.
Figure 13. St-Joachim, DgDo-6 (from a map by the ministère des Terres et Forêts, Quebec)
Stratigraphy

Everywhere at DgDo-6, the soil profile was that of a podzol truncated by repeated plowing. On top of the dozen meters of well-sorted sand and gravel strata, deposits of the Goldthwait Sea, is the orangy-brown B horizon of sand and gravel. The latter is usually overlaid by the eluvial Ae horizon, gray white sand and gravel, which in turn is covered by the plowed zone, a grayish-brown mixture of soil incorporating humus, and a part of the Ae and B horizons. The plowed surface layer, 15 to 30 cm (± 21) thick, contained 52.6 and 57% of the excavated tools and flakes respectively (Table 6). The remaining material was found in the undisturbed sand, mainly in the Ae horizon, to a maximum depth of 55 cm. As at most sites, where a well developed podzol was encountered, the material is generally deeply patinated to a light gray colour, which was acquired by prolonged contact with the eluvial zone. Some material, especially that found deep in the B horizon, has retained the original colour of the raw material, indicating it was buried soon after its deposition by natural processes, perhaps by roots.

Material distribution and features

The main excavation at St-Joachim covers a 70.75 m² area (Figures 14 and 15). It mainly consists of two perpendicular trenches which were later enlarged, and ten smaller test pits. This mode of exposure was chosen in order to unearth some features indicating the types of activities which took place at the site. Traces of a possible living area, three rocks at the south of the excavations, were uncovered.
They were associated with charcoal fragments which proved insufficient for dating purposes. Other scattered rocks were found; if nothing definite can be inferred from their distribution it seems established they were brought to the site. No soil samples were collected since any unusual concentration of phosphate would have been inconclusive, this terrace having been repeatedly fertilized and grazed by cattle.

The original material distribution has greatly suffered from recent tillage, and more than half the remains were in the plowed zone (Figures 14 and 15). The distribution of the artifacts shows the importance of tool making - clusters of flakes and unfinished broken tools - but other types of activities are also indicated by the occurrence of finished and utilized tools. They amount to about 55, two-thirds of them being retouched and/or utilized flakes. No cores were found in the excavations, but a large number of chert nodules were noted on the surface of the plowed fields. The small proportion of primary flakes, and the corresponding large frequency of biface preparation waste, indicates that trimmed cores and preforms were brought to the site.

Thus it appears that stone tool manufacturing was an important function, but the occurrence of rocks, charcoal, and utilized tools indicate that other activities, possibly domestic, also took place at the site. In the absence of stratigraphic indications, the homogeneity of the remains suggests that vestiges of a single occupation were recovered.
Figure 14. Main Excavations at St-Joachim, Level 1
Figure 15. Main Excavations at St-Joachim, Level 2 (legend on Figure 14)
Artifact description

The tool sample, classified on Table 6, amounts to 349 specimens, of which 88% were excavated, and the remainder collected from the surface. Except for one iron pyrite nodule and a quartzite side scraper, this material is of dark gray chert, generally deeply patinated to a light gray colour. No chert outcrops were noted near the site, but nodules and tabular pieces of material were brought to light by plowing in the nearby fields.

The great majority of the artifacts were found broken but, apparently, recent agricultural activities are not a major cause. Tools found under the plowed zone were as frequently fragmented as those found in the plowed zone and on the surface. And, significantly, the only complete remains are the most delicate ones: flakes, flake tools, and a projectile point preform. Thus, most artifacts seem to have been broken during their preparation and, in fact, a small proportion seem to have been completed and utilized as tools.

PROJECTILE POINTS

From a sample of 48 specimens, fragments and preforms, among which 41 are unclassifiable, two forms of projectile points have been recognized.

Plano points (Plate 22a-b)

They are represented by a tip fragment and a complete preform similar to those from Ste-Anne. The long preform (103 x 23 x 14 mm) has parallel sides, converging near the tip, and a straight base (Plate 22a).
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It was probably discarded because of a series of hinge-fractured removals which hindered further thinning. Bifacial flaking is composed of flat rather wide removals; and several parallel transverse flakes, probably detached by pressure, straighten one edge.

The small tip fragment (20 x 10 x 3 mm) shows similar parallel flaking (Plate 22b). It is identical with one specimen from Ste-Anne (Plate 10i), and seems to come from a completed tool.

Small lanceolate points (Plate 22c-g)

Five fragments, among which are 3 tips, a mid-section and a base, come from relatively long and narrow points. In outline, they present straight converging sides and a rounded, slightly tapered base. Estimated measurements average 75 x 14 x 5 mm. Bifacial flaking is mainly composed of subparallel flat removals, and similar marginal retouching is visible on a finished specimen. The remainder have sinuous or curved edges, and appear unfinished.

Other points (Plate 22h-r)

The projectile point sample includes 2 complete preforms and 39 fragments. One complete restored specimen (63 x 19 x 5 mm) is lanceolate in outline, with convex sides and a straight thinned base (Plate 22h); it is very similar in both dimensions and shape to a specimen from Cap-au-Renard B (Plate 26e). The second preform (Plate 22i) is oval, rounded at both ends (88 x 29 x 7 mm).
Among the fragments is a rather wide (45 x 29 x 5 mm), thin and concave-based point with expanding, slightly convex lateral sides (Plate 221). It is bifacially retouched by irregular and subparallel removals, and a few parallel pressure flakes along the margins. The base is bifacially thinned by the removal of a few vertical flakes, but shows no edge grinding.

The remaining fragmentary points include 8 tips, 14 mid-sections, 12 bases, and 4 edges. Except for 8 specimens, all seem unfinished, although they are narrow (x 21 mm) and thin (x 5 mm). They show bifacial, generally flat irregular removals, and a few are marginally retouched. Three examples exhibit parallel transverse retouching and four fragments show light to heavy edge grinding. Although these 38 fragments are unclassifiable, most seem to belong to the groups of points described above.

**DRILLS (Plate 22s-x)**

Of the 11 fragments, the 6 proximal examples indicate the drills were provided with an oval base tapering off toward the working end, both parts being of approximately the same length. However, a long (79 mm) tip fragment with parallel but irregular sides probably had a different type of base. Complete tools could have averaged around 80 x 16 x 6 mm, and cross-sections vary from biconvex near the base to diamond-shaped above. Bifacial flaking is irregular; marginal retouching, common along the active edges, is discontinuous, often hinge-fractured, and straightens most edges. No use-mark is visible on these tools, but piercing soft materials would leave few traces.
BIFACES

Bifaces represent more than 70% of the tool sample, but among the 253 specimens none is complete. Except for 57 unclassifiable fragments, they have nevertheless been divided into four groups also commonly found at Ste-Anne. Sharp sinuous or curved edges, general absence of marginal retouching and use marks indicate we are mainly dealing with unfinished broken tools.

Lanceolate bifaces (Plate 23a-h)

A total sample of 78 fragments, most of them unutilized preforms, seem to belong to lanceolate bifaces. An almost complete unfinished specimen (124 x 36 x 18 mm) has rather straight sides converging toward the tip and the broken base, and maximum width and thickness measurements around the center. The other fragments - 23 tips, 28 mid-sections, 21 bases and 5 edge fragments - vary from 23 to 45 mm (x 36) in width and 5 to 24 mm (x 11) in thickness. Finished specimens seem to have been similar to the lanceolate bifaces from Ste-Anne; in this case, however, we are dealing with only one size of tools: the maximum width and thickness distributions are unimodal, the mode being equal to the average in each case. Complete tools may have averaged 130 x 40 x 12 mm, and bases are rounded (15) or straight (6). Most examples are bifacially flaked by thin and wide removals; seven are partially flaked on one face, showing the ventral face of the flake support. Marginal retouch is rare, often discontinuous and irregular, and edges are generally sinuous or curved. One specimen has definite use marks along a convex fractured edge, and seven others with some edge grinding may have been utilized.
Thin bifaces (Plate 23i-1)

Twelve fragments, one of which is restored from two pieces, present the same characteristics as the thin bifaces from Ste-Anne. The sample includes 4 tips, 2 mid-sections, 2 rounded basal and 4 edge fragments, all too fragmentary to reveal the outline of these knives. They are symmetrical and thin (x 7 mm), and appear to belong to the small variety of thin bifaces. A few specimens seem to be fragments of finished tools but none show definite use marks.

Oval and triangular bifaces (Plate 24a-g)

A total of 90 fragments seem to belong to rather symmetrical oval or triangular bifaces. The sample includes 26 tips, 24 mid-sections, 32 basal fragments, and 8 edge fragments. Only 6 examples show fine edge polishing, possibly resulting from use, and 7 others could belong to finished tools. The remainder seem to be preform fragments. Complete bifaces are estimated to have measured around 150 x 65 x 15 mm, the lateral sides being convex (57) or straight (21), the base rounded (25) or straight (7), and the tip pointed. The great majority have been bifacially flaked by flat and wide removals, probably prepared from large flakes. Marginal retouching is generally irregular and sporadic, leaving sinuous or curved edges. Similar tools have been found at Ste-Anne but in smaller numbers.

Large thick bifaces (Plate 24h)

A sample of 16 preform fragments (2 tips, 6 mid-sections, 2 bases and 6 edge fragments) of variable dimensions, are similar to both subgroups of large thick bifaces from Ste-Anne. None show any use marks,
and most specimens seem to have broken during their preparation.

Other biface fragments

Excavation and surface collecting at St-Joachim have also given 57 bifacially flaked fragments, too incomplete to be classified. A few examples carry possible use marks but the great majority are preform fragments.

FLAKE TOOLS

Only 37 flakes (10.6% of the tool sample) show marginal retouching and/or use signs on one or more edges. With the possible hearth remains, and the few other utilized tools, they constitute the main indication that activities other than stone tool manufacturing were conducted at the site.

Side scrapers (Plate 25a-b)

Five thick \( (x \ 85 \times 55 \times 23 \ \text{mm}) \) flakes or flake fragments are provided with an oblique to abrupt \( (x \ 65^\circ) \) scraping edge on one of the longer straight or convex lateral sides. Marginal retouching is dorsal on three specimens, and bifacial or ventral on the remaining tools. Working edges are generally sinuous in profile, but edge crushing or polishing indicate they have been utilized. As at Ste-Anne, one example is of quartzite.

Flake knives (Plate 25c-d)

A total sample of 27 flakes, twenty of them fragments, are modified along the longest and most regular edge by continuous oblique \( (x \ 38^\circ) \) removals. Complete tools average \( 56 \times 64 \times 8 \ \text{mm} \) in dimensions,
and four of them are ulu-shaped, a preference also noted at Ste-Anne.
Retouching is mainly dorsal (22) and rarely ventral or bifacial; it is
marginal (11), scalar (7) or limited to the edge (8), and in one case it
is unifacial. Convex working edges (20) predominate over straight ones;
and one specimen is provided with a short shallow notch. Most specimens
have been utilized, probably as knives; some, in particular those with
scalar retouch may have been resharpened.

Utilized flakes

Five flakes of various shapes and dimensions (x 74 x 62 x 12 mm)
show fine irregular edge crushing on one or more edges, indicating they
have been used as cutting tools. Working edges are generally straight,
rarely convex, and sharp (x 32°).

CAP-AU-RENARD, DhDn-1

The Cap-au-Renard sites (DhDn-1) are situated in Cap-au-Renard,
a small village partly built on the top of a cliff which overlooks the
St. Lawrence, 18 km east of Ste-Anne and 5 km west of La Martre. The
main site (Cap-au-Renard B) is located some 50 m from the edge of the
cliff at a 53 m average altitude, in the vicinity of M. Joachim Vallée's
house and the local chapel. In this area, a paleo-beach of the Goldthwait
Sea, the terrain slopes down gently toward the west, then more abruptly
to the next lower terrace (Cap-au-Renard A), and eventually to the
present beach (Figure 16, Plate 4).
At least three features make this site a choice location: drinking water is provided by a small recurrent stream flowing 100 m to the west; an excellent view over the St. Lawrence is offered at the edge of the cliff (Plate 5); and in the same area, chert outcrops. On the other hand, this location is particularly exposed to north and northwest winds, a situation probably lessened by protective forest cover in the past.

Located in the center of the village, the site has known a number of disturbances which have greatly shifted the cultural remains. The area of the site has been cleared of trees and plowed. Houses have been built, foundations dug, and route 6 crosses the site a few meters south of Mr. Vallée's house. House building and subsequent occupation have been especially disruptive: wells have been dug, drainage pipes and garbage buried, animals (pigs and dogs) kept... all these factors have contributed to the admixture of the soil and the cultural deposits which lie close to the surface.

The site was first discovered by members of the local amateur archaeological society (Provost and Ross 1972:40-41). In 1972, Mr. J. Vallée undertook to add a cellar to his house which was built on supporting beams placed directly on the ground. In the process, he unearthed lithic remains which his son, a member of the S.A.C., recognized as cultural. These were brought to our attention during the 1972 survey, and ten days were spent on a small salvage operation. Eleven square meters, the remaining area Mr. Vallée intended to excavate that year, were dug under the house and the material reported (Benmouyal 1973:7-63).
Figure 16. Cap-au-Renard, DhDn-1 (drawn from a map by the ministère des Terres et Forêts, Quebec)
As more work was planned, with the intention of enlarging the
cellar, three weeks and a larger crew were devoted to salvaging the
site in 1973. An area of about 17 m², the southern part of the cellar,
was opened; 46 m² were excavated outside the house to the north and
east; a narrow trench south of the house, in which concrete was to be
poured, was exposed; and various test pits were undertaken to evaluate
the extent of the site.

In 1975, the cellar was to be further enlarged toward the north,
so excavations were resumed. In eight days, the remainder of the
basement, some 40 m², was excavated, a border along the outside supporting
beams being left for safety reasons (Figure 17).

During the last field season, it was noted that the next lower
terrace, (Cap-au-Renard A) had been bulldozed. A small wood-mill built
near the edge of the cliff was brought back into operation and, apparently,
ground leveling was required. Most of the terrace was stripped to a
depth of about 40 cm, and the soil pushed over the cliff. The little
material remaining on the surface was collected, and a small area spared
by the bulldozer was tested. In three days, fifteen square meters were
excavated and a relatively large sample of material recovered.

The data presented here are those recovered in 1973 and 1975 field
seasons; the material from each terrace is studied separately.
Cap-au-Renard B

STRATIGRAPHY

Due to the recent disturbances mentioned above, the top layers of the podzol were mixed. Almost everywhere, the soil had been plowed, mixing part or all of the humic, Ae and B horizons. To the north, excavations revealed a large quantity of buried garbage (broken dishes and bottles, pieces of wood, nails, household and clothing articles, food remains...) mixed with prehistoric remains. East of the house, digging of holes and trenches had displaced most of the artifacts, and also a large number of rounded rocks, possibly traces of some features. In the northern part of the cellar, remains were rarely found in their primary context, as the earth had been turned upside down by various excavations, one of which was a deep well.

The only portion of the site left relatively untouched was the southern area of the cellar, under the older part of the house. Here, under a layer of gravel fill and the decomposing humic layer, cultural remains were mostly situated in the upper part of the Ae horizon, as at other undisturbed sites where a podzol was encountered. A few holes had been dug recently, however, and could be followed in the soil profile.

Over half the cultural remains (54%) were either in secondary position in the plowed and disturbed zones (level 1), or on the surface. The remainder was found in the Ae and B horizons (level 2) where they had been buried by natural action.
MATERIAL DISTRIBUTION AND FEATURES

The main excavation under and around the Vallée house, a surface of about 106 m², yielded 276 tools, 6 cores and 9284 flakes, or 99% of the total sample. This material is mapped on Figure 17 where, it can be noted, a large number of artifacts are in approximate position; most were found in secondary position or under the house where their exact provenience was difficult to ascertain.

Although a relatively large area was excavated, it is difficult to define different activity areas. The great majority of the material and possible feature remains had been displaced and, for obvious reasons, soil samples were not analysed. Nevertheless, separate concentrations of flaking detritus and artifact-flake ratios indicate tool making was important, a fact also supported by the chert outcrops at the site.

On the other hand, domestic activities are also well documented by the high frequency of utilized tools, the most obvious of them, retouched and utilized flakes, accounting for 55% of the tool sample. These tools were more common to the north and east of the house, two areas which, contrary to the other sites, also contained the highest quantity of flaking detritus. This apparent overlapping distribution of material from different activities can be interpreted in several ways. One interpretation is supported by the seeming heterogeneous nature of the remains, the projectile points in particular: Plano and side-notched points were found together, an unknown association at other excavated sites in this region. Thus, it would appear that we may be dealing with a multi-component site where flaking areas were utilized for other
Figure 17. Main Excavations at Cap-au-Renard B
activities during different occupations. Excavations and various test pits have revealed material for at least 2100 m².

In conclusion, it appears that Cap-au-Renard was a multi-component living site probably utilized by people of two or more cultural traditions. The repeated preference for this location was possibly related to the natural features described above, to which the absence of alternatives must be added: other than the lower and much smaller terrace (Station 1), and the present beach, this locality offers no other suitable living surface. As at most Gaspesian sites, stone tool manufacturing was an important activity, and the occurrence of chert outcrops at the site was probably another important factor in camp location.

ARTIFACT DESCRIPTION

The sample recovered from this terrace amounts to 280 lithic tools. The great majority (97.9%) are made of deeply patinated chert which outcrops at the site, and the remainder are of coarse quartzite or sandstone. Most tools were found in the main excavations and only four were collected from the surface or test pits (Table 7).

As at most other sites, a large number of the remains were fragmented during manufacturing and utilization. Here again, it is significant that the more slender artifacts (projectile points and flake tools) as opposed to the heavier specimens (bifaces and cores) were more frequently found in their entirety; thus recent disturbances have contributed little toward breakage.
|                              | Excavations | Tests and surface | Total |  |
|------------------------------|-------------|-------------------|-------|
| **Projectile points**        |             |                   |       |
| Plano                        | 11          |                   | 11    | 3.9 |
| Side-notched                 | 2           |                   | 2     | 18.2|
| Lanceolate                   | 2           |                   | 2     | 18.2|
| Other fragments              | 5           |                   | 5     | 45.5|
| **Bifaces**                  |             |                   |       |
| Lanceolate                   | 105         | 2                 | 107   | 38.2|
| Triangular and oval          | 18          |                   | 18    | 16.8|
| Thin                         | 41          | 1                 | 42    | 39.3|
| Large thick                  | 9           |                   | 9     | 8.4 |
| Fragments                    | 32          | 1                 | 33    | 30.8|
| **Flake tools**              |             |                   |       |
| End scrapers                 | 156         | 2                 | 158   | 56.4|
| Side scrapers                | 2           |                   | 2     | 1.3 |
| Flake knives                 | 3           |                   | 3     | 1.9 |
| Utilized flakes              | 28          | 2                 | 30    | 19.0|
|                              | 123         | 1                 | 123   | 77.8|
| **Other tools**              |             |                   |       |
|                              | 4           |                   | 4     | 1.4 |
| **TOTAL**                    | 276         |                   | 280   | 99.9|

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<td><strong>Flakes</strong></td>
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<td>83</td>
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Projectile Points

The sample of 11 specimens includes three very different forms of projectile points, each represented by two examples: Plano, side-notched and lanceolate points. In addition, of the five remaining fragments, four appear to belong to another form of points best represented on the lower terrace.

**PLANO POINTS** (Plate 26a-b)

Two basal fragments exhibit the same transverse parallel flaking as the Plano points from Ste-Anne, but each shows a peculiar feature. One (36 x 19 x 5 mm) has a slightly concave base and straight converging sides; this narrowing, a 3 mm difference between the base and the fractured end, is more prominent than on any of the specimens from Ste-Anne which tend to have parallel sides. The second example (29 x 19 x 6 mm) has a straight base and straight parallel sides. Its unique feature is tiny bilateral notches 3 mm above the base. As these notches are about 1 mm deep and were caused by one removal - each from a different face of the point - they are interpreted as accidental, probably a result of a tight lashing.

**SIDE-NOTCHED POINTS** (Plate 26c-d)

Two complete specimens are bilaterally notched some 8 mm above the base but, otherwise, are somewhat distinct from one another. The first example (64 x 28 x 8 mm), made of an unidentifiable deeply patinated material, is triangular with convex sides and a rounded thinned base. The notches are small, semi-circular, about 2 mm deep, one being deformed
by an impurity in the material. Bifacial flaking is difficult to define but some marginal retouches are parallel, probably pressure-flaked. A burin spall detached from the tip along one edge seems likely due to use.

The second specimen (59 x 24 x 7 mm) has a concave, thinned and narrowing base, parallel lateral sides, and a rounded, probably resharpened tip. The notches are small and square, about 2 mm deep. Flaking is mainly composed of parallel and subparallel wide removals, but some previous flake scars are visible around the center. Use marks are composed of ill-defined ridges between the removals and slight basal edge grinding in the notches and below.

LANCEOLATE POINTS (Plate 26e-f)

Two complete points, one of them unfinished (x 67 x 22 x 8 mm), show a straight thinned base, convex lateral sides, and a maximum width at a third of the length. The finished specimen (67 x 20 x 5 mm) is retouched by subparallel wide removals and similar, but smaller, marginal removals near the tip. The preform's flaking is sometimes hinge-fractured, but near the tip it includes pressure-flaked scars.

OTHER POINT FRAGMENTS (Plate 26g-j)

The sample also comprises 4 basal fragments, including 2 from unfinished points, and a preform from which the tip is missing. The first fragments are identical with the corresponding parts of the diamond-shaped points from Station A of the same site (Plate 29a) and from another site (Plate 51a). These fragments have a straight or slightly rounded base, straight or lightly convex expanding lateral sides,
and light to heavy grinding on their edges. They resemble a thin biface fragment (Plate 27c), but their dimensions (x 32 x 28 x 8 mm) are within the range of the projectile points mentioned.

The last specimen (79 x 32 x 9 mm) is an oval preform thickest at its fracture. It shows some parallel and subparallel removals, but cortex is still present on a face, the edges are somewhat curved, and the base unfinished. Judging from its dimensions and shape, it could be a lanceolate or side-notched point preform.

Bifaces

Bifaces represent only 38.2% of the tool sample. Although all are fragmented, 73 pieces can be classified and seem to belong to the same groups recognized at Ste-Anne. Except for the thin specimens, most are unfinished or unutilized specimens.

LANCEOLATE BIFACES (Plate 27a-b)

Five examples, 3 mid-sections and 2 basal fragments (x 88 x 44 x 14 mm), are essentially similar to the larger variety of lanceolate bifaces from Ste-Anne which average 137 x 45 x 16 mm in dimensions. All are preforms as can be seen from the sinuous unutilized edges.

TRIANGULAR AND OVAL BIFACES

This bifacial sample regroups 18 fragments; all probably preforms, which show similar flaking and estimated dimensions (x 150 x 75 x 15 mm) as the triangular and oval bifaces from Ste-Anne and St-Joachim. None show any use marks and marginal flaking is sporadic and irregular. Among the 15 tips and bases are at least 3 straight-sided fragments, probably from triangular tools.
THIN BIFACES

As can be inferred from the various parts, 42 fragments resemble in both outline and technology the thin bifaces from the Ste-Anne site. They are oval or leaf-shaped with the maximum width around the center; the tips are generally pointed, and the bases narrow and rounded. Depending on their dimensions, 18 fragments form two clusters; the remainder, mostly edge fragments, are unclassifiable.

**Small thin bifaces (Plate 27c-h)**

This subgroup includes 5 tips, 3 mid-sections and a basal fragment, whose estimated measurements ($x \ 160 \times 42 \times 8$ mm) are similar to the smallest specimens from Ste-Anne. Five examples show use marks along one edge or at the tip, mainly fine polishing associated in two cases with fine perpendicular striation on an adjacent face. The basal fragment is well ground on both edges, indicating that these tools were used as hafted knives.

**Wide thin bifaces (Plate 27i-k)**

Nine specimens - tips, mid-sections and bases - are rather similar to the previous ones but belonged to wider tools estimated at $170 \times 60 \times 11$ mm. Edge grinding seems restricted to platform preparation and close examination revealed no definite traces of use.

**LARGE THICK BIFACES (Plate 27l)**

This group includes only preform fragments - 3 tips, 4 mid-sections, an edge and a basal fragment - which resemble the wide variety of thick bifaces from Ste-Anne. Two examples showing cortex on both faces are
made from tabular cores, while some of the remainder may have been made from flakes. The 1972 excavations at this site have given a gigantic biface (385 x 132 x 31 mm) and a similar fragment which could exemplify this group of tools (Benmouyal 1973:27-30).

OTHER FRAGMENTS

In addition, the sample includes 33 bifacial tool fragments, edges for the great majority, which may be part of any of the groups defined above. Eight examples show utilization signs in the form of edge polishing, but most others are preform fragments.

FLAKE TOOLS

The most common category of tools (56.4% of the sample) is represented by flakes which have been utilized without modification or prepared along one or more margins, and used as cutting or scraping tools. Only one specimen shows unifacial flaking; this tool and another fragment are the only end scrapers associated with Plano points in the Gaspé, a combination which also indicates we are dealing with a multi-component site.

END SCRAPERS (Plate 261-m)

One complete specimen and a fragment are the only end scrapers recovered from this site. The first example (64 x 35 x 13 mm) is a well made fan-shaped keeled scraper made on a curved flake whose butt is in distal position. Flaking is unifacial: the semi-circular scraping edge is retouched by lamellar removals; the rest of the face by rather long and wide removals, detached from both lateral sides and the base, probably a hafting preparation. Edge angle varies between 55° at
the working end and 20° along the other sides. Utilization marks - edge polishing and adjacent scars - are concentrated on the working edge.

The fragment (35 x 37 x 6 mm) is the distal part of an end scraper whose semi-circular tip and one edge are retouched by oblique (45°) short removals. Made on a flat laterally-ridged flake, this specimen shows use marks similar to the previous example.

SIDE SCRAPERS (Plate 28a-b)

Three rectanguloid thick flakes (x 90 x 79 x 14 mm) are provided with an abrupt (x 65°) scraping edge, convex in outline; which covers one of the longer sides. Preparation includes marginal or scalar dorsal retouching and, in two cases, the fracture of the opposite margin for a backing. One specimen is made of quartzite. All show polished working edges and adjacent flake scars.

FLAKE KNIVES (Plate 28c-g)

The tool sample includes 30 flakes, generally retouched on the dorsal face, along one of the longer margins. Edge angle varies from very oblique to oblique (x 38°), edges being convex or straight, rarely concave in outline. Four specimens are ulu-shaped flakes (x 69 x 116 x 19 mm), the long margin opposite to the striking platform being prepared. Five squarish or elongated flakes (x 62 x 66 x 10 mm) are retouched on one lateral edge, and 20 examples are fragments retouched along one edge. The last specimen (63 x 42 x 12 mm) is a small tranchet prepared on the support's ventral face by short retouch along the convex bit, and by irregular marginal removals on the lateral edges (Plate 28g).
UTILIZED FLAKES (Plate 28h-l)

Flakes utilized on one, less frequently two or even three edges are by far the most common tools. The sample amounts to 123 specimens which average 61 x 66 x 10 mm in dimensions. They are generally squarish in outline, but vary from elongated to wide, 12 of them being ulu-shaped. Utilized edges are mainly straight or convex, rarely concave or irregular, and the great majority are straight in profile. Use signs, slight edge polishing and crushing, cover a short distance or the full length of a sharp (ca. 30° - 40°) edge, or a steep (ca. 60°) edge in four cases. These flakes were, therefore, mostly utilized as cutting tools; a strong sharp margin, or more rarely two or three edges (24% of the sample) being used before the flake was abandoned.

Other tools

Finally, excavations on this terrace have produced 5 unique specimens made from slightly retouched cores.

One is an axe-like tool made on a tabular chert fragment obviously selected for its natural features (Plate 28m). This tool (134 x 78 x 20 mm), broken at the proximal end, has a narrow base, expanding lateral sides, and a rounded bit. Preparation is mostly concentrated at the bit which is bifacially retouched by marginal removals, other edges being sporadically flaked and dulled. The working end shows battering and crushing signs, probably resulting from utilization as a hand-held or hafted axe.

Previously, a similar, slightly larger tool had been found at this site (Benmouyal 1973:42).
A pear-shaped maul made from a sandstone pebble, probably pecked into shape, measures 108 mm in length and 75 - 80 mm and 60 - 65 mm in diameter at the distal and proximal end respectively. This maul may have been handheld or, more probably hafted (Plate 28n).

An oval flat pebble (154 x 77 x 48 mm) of sandstone seems to have been utilized at both ends as a hammerstone.

A small quartzite pebble (56 x 43 x 21 mm) shows a few lateral removals and may have been used as a chopper (Plate 28o).

The last specimen is a pink quartzite fragment apparently brought to the site which, however, presents no sign of use.

Cap-aux-Renard A

The lower station of this site is located on a restricted terrace, some 150 m west of the previous one, at an altitude of 40 m. It was discovered and sampled in 1975, after a large part of the terrace's surface had been bulldozed and thrust over the cliff north of the site. Thus, the podzol had been truncated to an average depth of 40 cm, exposing the B horizon and some cultural remains.

At the back of the terrace, among the trees, a small untouched area (Figure 16) was noted and a trench was dug. This 15 m² excavation revealed no recognizable feature, but a surprisingly large number of artifacts (Figure 18). Some 154 tools and 2630 flakes were found under the humic level, mainly in the Ae-horizon or, more rarely, buried in the B horizon by natural processes. In addition, 35 tools and about 350 flakes were collected from the bulldozed surface.
Figure 18. Excavations at Cap-au-Renard A
ARTIFACT DESCRIPTION

The sample from Cap-au-Renard A includes 189 tools (Table 8), all made of chert or coarse quartzite. In addition, 15 cores and 11 iron pyrite nodules were recovered. Here again, tool breakage happened during manufacturing or utilization, and most complete remains - mainly flake tools - show signs of use.

Projectile Points

In a sample of 12 specimens, 8 belong to 5 groups, which differ in outline, dimensions and technology. As each of these groups is also represented at one or several other sites probably belonging to different periods, such variability suggests a multi-component site. The remaining 4 fragments are unclassifiable but seem to belong to the described groups.

DIAMOND-SHAPED POINTS (Plate 29a-c)

This first group of points is represented by 2 complete specimens and a basal fragment. The complete examples measure 75 x 34 x 8 mm and 47 x 25 x 7 mm, while the fragment belongs to an intermediate-sized point. In both shape and technology, they strikingly resemble Lake Mohave points characterized by:

"... long, slender stems, produced by very slight shouldering. The blade portion is usually somewhat smaller than the stem portion, and the maximum breadth is generally slightly above the mid-point. The base is rounded. Some specimens appear to have been flaked by percussion, others have a pressure retouch"

(Wormington 1964:271).
Furthermore, these specimens vary in length within the range of Lake-Mohave points — one and three-quarters and three inches (Wormington 1964:162) — as do other examples found at other Gaspesian sites.

The points show convex sides along the blade, and slightly convex sides below. On the larger specimen, the stem's edges are slightly ground, probably a hafting preparation. Percussion flaking is visible around the center, but most margins show pressure-flaked parallel removals.

LONG DIAMOND-SHAPED POINTS (Plate 29d-e)

Here are included 2 fragments — a restored base (63 x 26 x 6 mm) and a long mid-section (64 x 26 x 5 mm) — resembling in their technological attributes the previous specimens. These, however, are longer — around 90 mm — narrower, and slightly thinner points. They have convex sides on the blade part; below, sides are rather straight and narrowing with ground edges; the base is thinned and straight. Considering their measurements, outline, as well as flaking technique, these points are intermediate between the Plano points from Ste-Anne and the previous diamond-shaped points.

TRIANGULAR SIDE-NOTCHED POINT (Plate 29f)

One restored specimen, triangular with slightly convex sides, shows 6 mm deep bilateral notches. The outline of the base is unknown as both ears below the notches are absent. This point (77 x 27 x 7 mm) is bifacially chipped, its margins retouched by irregular continuous removals. Edges are sharp except in the dulled notches.
### Table 8

Cap-au-Renard A (DhDn-1 A) Assemblage

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</tr>
<tr>
<td>Oval</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fragments</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Triangular and oval</td>
<td>17</td>
<td>4</td>
<td>21</td>
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<tr>
<td>Other fragments</td>
<td>72</td>
<td>20</td>
<td>92</td>
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<tr>
<td>Flake tools</td>
<td>46</td>
<td>6</td>
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<tr>
<td>Flake knives</td>
<td>25</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Utilized flakes and spills</td>
<td>21</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Hammerstone</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>35</strong></td>
<td><strong>189</strong></td>
</tr>
</tbody>
</table>

|                                |             |         |       |
| Cores                          | 12          | 3       | 15    |
| Flakes                         | 2360        | 350     | 2710  |
| Iron pyrite nodules            | 11          |         | 11    |
SMALL STEMMED POINT (Plate 29g)

A triangular stemmed point, very similar in outline to the one associated with the pottery at Ste-Anne, was recovered from this terrace. It is made from a flake and shaped by only marginal retouching on both faces. This point (51 x 22 x 5 mm) is ground along the narrow stem which covers a third of the total length.

LANCEOATE POINT (Plate 29h)

A lanceolate specimen is similar to, though longer (73 x 24 x 10 mm), than the unfinished lanceolate point from Cap-au-Renard B (Plate 26f). Percussion flaking is irregular, often hinge-fractured, and the margins are retouched mainly on one face. Edges and one face show evidence of intensive grinding on the proximal part.

OTHER POINT FRAGMENTS (Plate 29i-1)

The sample includes 4 fragments: 2 tips, a reworked piece and a mid-section. One (Plate 29i), a convex-sided narrow tip (46 x 17 x 4 mm) with parallel pressure-flaked removals could belong to the second group of points. The other tip fragment (71 x 32 x 8 mm), with rather straight edges shows wide subparallel flaking on one face, while the other face is only marginally retouched by irregular wide removals. It may be a triangular side-notched preform fragment (Plate 29j). The third example (41 x 24 x 7 mm) seems to be a reworked point from the first group (Plate 29k). Finally, the mid-section (45 x 29 x 6 mm) may be a preform fragment of the same group of points (Plate 29l).
Bifaces

There are 124 other bifacially flaked tools in the sample from this terrace. The great majority are fragmentary unutilized tools which, along with the large number of flaking detritus, certify to the importance of tool manufacturing at this site. Only 32 specimens are complete enough to be assigned to two groups; the remainder are unclassifiable preform fragments.

**THIN BIFACES**

At least two forms of knives are represented by eleven rather small thin bifaces.

**Thin asymmetrical bifaces (Plate 30a-d)**

Three complete examples and 2 fragments are lunate in outline, one side being more convex than the other and the extremities pointed. The complete ones average 98 x 40 x 10 mm in dimensions, and the maximum width is at mid-length. Both fragments and one restored specimen were broken during their preparation; the remainder were discarded before completion. As these tools were abandoned at different stages, the extent and nature of the retouch vary. Two specimens are bifacially flaked (Plates 30a-b) and show some parallel pressure retouch on one face; the others are unifacially modified and show one thick unretouched edge, while the other face - the ventral side of the flake support - is partially retouched. Only one of these probable knives seem to have been utilized.
Thin oval biface (Plate 30e)

This subgroup is represented by only one complete restored specimen. It has convex sides, a pointed tip and a straight unretouched narrow base. It measures 123 x 61 x 3 mm with the maximum breadth at the center, and was made from a flake. It is bifacially retouched by wide thin removals, and most margins show short irregular flake scars. Edges are sharp (ca. 25°), straight in profile, and show no trace of use.

Other thin bifaces (Plate 30f-g)

Five extremity fragments (x 64 x 40 x 3 mm) with convex sides and a pointed tip are similar to the small thin bifaces from the superior terrace. All appear unfinished and unutilized.

TRIANGULAR AND OVAL BIFACES (Plate 30h-k)

One almost complete example (129 x 69 x 17 mm) and 20 fragments, mostly distal parts, belong to triangular or oval bifaces. Lateral sides vary from slightly convex to convex; tips are generally narrow and rounded. Most are unfinished tool fragments, probably similar in shape and dimensions to those from Cap-au-Renard B. Only five specimens show polishing - probably use marks - along one edge, the fractured edge in a case.

OTHER BIFACE FRAGMENTS

The collection counts 92 unclassifiable biface fragments, all from unutilized and unfinished specimens broken during their preparation. Most seem designed for average-sized bifaces but the distribution of their thickness is trimodal: 13 rather thin (x 11 mm) examples may be thin-biface fragments; 23 specimens (x 17 mm) appear to be triangular or
oval biface fragments; and 21 thicker pieces (x 25 mm) may be parts of similar tools at an early stage of preparation. The remaining 35 are small edge fragments. Retouching is generally crude, composed of large, irregular and deep removals particularly on the thicker specimens.

Flake Tools:

Some 52 flakes have been converted into tools after some marginal retouching or no preparation. All working edges are sharp and breakage frequency (44.2%) is relatively uncommon.

FLAKE KNIVES (Plate 31a-e)

There are 30 flakes, two-thirds of them fragmented (x 73 x 67 x 13 mm), which have one edge, rarely two (4) or three (1) edges, retouched by marginal or scalar removals. This preparation is generally along the longest edge, on the dorsal face or bifacial, the margins being convex or straight in outline. All appear to have been utilized as cutting tools – edge angles average 35° – along the prepared margin and a natural margin in eight cases.

UTILIZED FLAKES (Plate 31f-i)

The sample of flakes utilized with little or no preparation amounts to 22 examples. It includes long flakes, among them 2 blades and 2 quartzite spalls, and 8 squarish or wide flakes of various dimensions selected for their strong regular margins (x 80 x 66 x 19 mm). Generally, the longest convex or straight edges were used: one or both lateral sides on the elongated flakes, and the edge opposite to the striking platform on the others. As the working edges are sharp (x 34°),
these flakes make good cutting tools.

Hammerstone

The last tool in the sample is a hammerstone, a small (57 x 51 x 42 mm) ovoid cobble of quartzite. It shows wear facets, one at each extremity, possibly resulting from stone flaking.

RUISSEAU SITE, DhDn-2

The Ruisseau site (DhDn-2) is situated one kilometer east of the Cap-au-Renard site (DhDn-1) on three terraces at the junction of the Vallée stream mouth and the St. Lawrence. In this locality, terraces are narrow, separated by steep slopes, while the coastline offers the aspect of an irregular cliff (Plate 6). These paleobeaches are therefore, difficult of access, unfavourable to modern cultivation and have known comparatively little disturbance. Due to the proximity of human establishments — the village of Cap-au-Renard stretches west of the stream — they nevertheless exhibit various traces of the passage of man and his machinery.

Archaeological material was first recognized on the middle terrace (Station B) by members of the Société d'Archéologie de la Gaspésie (Provost and Ross 1972:44). In 1973, a brief visit revealed a relatively intact region along a bulldozed path leading to the terrace. In the banks of this trail, an undisturbed soil profile, material was exposed immediately beneath the vegetal and root level. Undisturbed sites being a rare occurrence in the Gaspé, it was decided to sample this station the following year. Furthermore, a salvage aspect also existed:
a large portion of the terrace had been bulldozed for the erection of a power line, and this area and the path were periodically cleared of vegetation with a bulldozer, an activity which could only result in gradually destroying the site.

In 1974, during the excavation at Station B, a survey in the vicinity disclosed more prehistoric remains on two other terraces: the lowest and smallest one (Station A), and the highest one, 45 m above sea level (Station C). Both were also undisturbed, except from logging, and were tested (Figure 19). The data presented here were recovered during the 1974 field season on each of these stations. It should also be noted that two of these stations, A and B, were recently in danger of complete devastation by highway construction. As a result of the survey, the new road was diverted and will follow the present shoreline.

Station A

During the first day of excavation on the second terrace of the Ruisseau site, a small flat wooded area west of the bulldozed path was tested, yielding a large quantity of material. Although no immediate danger of destruction could be foreseen at the time, this terrace was sampled for about three weeks in order to recover more undisturbed data from the site. It was also expected that a sample of chronologically younger material could be obtained, an anticipation which was verified through radiocarbon dating.

Station A is located on a restricted terrace, about 42 m long and 24 m deep, facing the Vallée stream mouth at an elevation of 17 to 18 m.
Figure 19. Ruisseau, DhDn-2 (drawn from a map by the ministère des Terres et Forêts, Quebec)
It is separated by rather steep slopes from the St. Lawrence, about 60 m to the north, and the next higher terrace, Station B, a few meters to the east. Other than logging, this area showed no evidence of human disturbance. Vegetation consisted of well spaced mature trees, mainly birches and aspens, while the ground was covered with fern.

Two test pits were opened and the area between them excavated. The exposed surface, 51.5 m², was sufficiently large to reveal remains of various activities; other small tests showed the site covered the full extent of the terrace.

STRATIGRAPHY

Station A is on a terrace which, because of its position and low elevation, is associated with glaciofluvial action. The 17 - 18 m terrace is not a paleobeach of the Goldthwait Sea, but was formed by the nearby Vallée Stream (Peter P. David, pers. comm.). This origin is indicated, among other features, by the direction of the terrace parallel to the stream mouth, and the occurrence of clay in the profile. This clay hindered water percolation and hence the formation of a podzol. Bad drainage caused the accumulation of slowly decomposing organic matter and, in some places, seasonal waterlogging. Soil stratification, therefore, differed from the usual podzol found at every other site; excavations were in general relatively shallow, rarely exceeding 45 cm in depth (Figure 20).

Unit one. The deepest horizon reached took different forms, depending on the location. In some places, east of the excavations in particular, it was composed of gray clay; elsewhere of fine beige sand, sometimes
incorporating lenses of clay or various proportions of rocks from gravel to boulder size. These rocks have been identified as local (i.e. coastal), or foreign to the area, originating from central Gaspé or the north shore of the St. Lawrence (Peter P. David, pers. comm.). The smaller rocks were generally angular and coarse fragments while the larger ones were well rounded cobbles and boulders. These features also seem to indicate a fluvioglacial origin of the terrace (Butzer 1966:175). Very few cultural remains (5.8% of the total sample) were found in this unit; the only occurrences were situated in the uppermost part of this horizon, probably buried by root action.

Unit two. The culture-bearing stratum, from 5 to 20 cm in thickness, was composed of sand and organic material. It was black, dark gray or dark brown in colour, and, in profile, difficult to differentiate from the overlying humic level. This cultural layer contained the great majority (93.3%) of the remains, lenses of charcoal, clusters of reddened fire-cracked rocks, and traces or fragments of badly decomposed bone. Occasionally, in this stratum, a small lense of beige sand of cultural or natural (from a tree-throw, for example) origin, and fragments of partly decomposed wood were encountered. Vertically, the material was scattered throughout the unit, and no particular distribution could be recognized.

Unit three. Finally, the humic layer — slowly decomposing and living organic matter — formed a 4 to 18 cm thick carpet. While excavating, it could be distinguished from the next unit which contained more sand and cultural remains; otherwise, their predominant content, decaying roots, leaves and wood, were essentially similar. The little material recovered
Figure 20. Example of Stratigraphy at Ruisseau A
from this layer (0.9% of the sample) was found in its lower part, most often on top of the sandy humus.

In conclusion, the material from this terrace was mostly in situ; it appears that post-occupational disturbances can be attributed to root action, and probably a good part to worms which were particularly abundant in this damp micro-environment.

MATERIAL DISTRIBUTION AND FEATURES

A total sample of 270 tools, 34 cores, and some 20-550 flakes was collected from Station A. Most of this material comes from the main excavation which covers 51.5 m², while only 6 tools, 135 flakes, and a core were found in various test pits (3.5 m²). The distribution of these remains, illustrated on Figure 21, shows definite clusters which, in combination with the arrangements of other features, determine areas at which various activities took place. The excavations seem to have partly uncovered a living area (ca. 26.5 m²), including a portion of at least one house structure at the back of the terrace, and a manufacturing area (ca. 25 m²) to the north (Plate 7).

The predominantly living area, at the south of the excavations, yielded the great majority of artifacts, among them the projectile points and various bifacial tools in proportions varying between 77 and 100% (x 88%) of each group. Flake tools were slightly less common, from 62 to 73% of each group (x 65%). Flaking detritus, less abundant to the south (44%), was much more clustered in the manufacturing area which also contained two-thirds of the cores.
A great number of rocks were uncovered on Station A. The important alignment to the east, invisible prior to excavating but whose outline could be followed through the top soil, seems to be mainly natural, probably a bar left by the stream. Some of these rocks, however, may have been placed by man, for artifacts were occasionally found under the smaller ones. Among these rocks were a few fragments of raw material, a light greenish chert which may outcrop on the 45 m terrace. This chert was used at the site and a few definite percussion marks were observed on the large boulder.

This rock formation, much older than the human occupation of this terrace, was probably concealed by a carpet of vegetation, but the inhabitants were very likely aware of its presence. Understandably, they seem to have avoided establishing their shelters on top of this irregular terrain to which they added a few unwanted rocks. However, they selected this area for stone tool making, a fact well-documented by more than 6000 flakes and a dozen cores clustered north of the bar. As for the blocks of chert, they may have been brought down to provide a supply of raw material. It is possible also that this chert fell from the third terrace prior to human occupation and was later discovered and utilized.

Two other arrangements of rocks in the living area are probably of human origin. The first, five more or less equally spaced boulders forming a wide curve, is interpreted as a portion of a house structure, oval or circular in shape and some 6 - 7 m in diameter. Significantly, in the space between these rocks, few cultural remains were found, as would be the case if this space had been occupied by perishable matters also
Figure 21. Main Excavations at Ruisseau A
contributing to this structure. An elongated cluster of material, mainly flakes, crosses the outline defined by these rocks; this and a nearby group of postmolds seem to indicate the location of an entrance to the house. It is noteworthy that most projectile points and a variety of utilized tools were situated inside this structure.

At the front of this structure, west of the space interpreted as an entrance, is a second cluster: four large flat rocks defining a hearth. Associated with it are fragments of charcoal, two samples of which have been collected, bone fragments, fire-cracked rocks, several hundred flakes and a dozen flake tools. It could be speculated that sleeping quarters were to the south where the material becomes scarce, and that some cooking and other activities were performed in the space closer to the entrance. The hearth, at the right of the entrance, was thus protected from the wind, and an opening in the roof could have helped the smoke to escape.

Other clusters of charcoal, fire-cracked rocks, and bone fragments, some of which overlap (Figures 22 - 24), were mainly situated in the southern (i.e. living) part of the site. Some appear to be dumping areas, while others may be traces of other hearths. Another possible sheltered area was uncovered in the southeast, where the excavations were rather limited. This section has given the remains of another hearth containing bone fragments, and three tool fragments matching some from the other side of the stone bar. Thus, we may be dealing with a cooking area utilized by the inhabitants of the first house.
Figure 22. Charcoal Distribution at Ruisseau A

Figure 23. Fire-cracked Rocks at Ruisseau A
The manufacturing area, or at least its eastern portion, was mainly used for stone tool working. The small size of flakes and high proportion of broken preforms indicate that tool finishing and reshaping, rather than tool manufacturing, were the main activities. As noted above, a good proportion of the flake tools (35%) was recovered in the northern part, suggesting that the preparation of other materials such as wood, bone and hide was also conducted in the northern part of the site.

From almost every excavation unit, a soil sample was recovered from the cultural stratum and the horizon below. These samples have been analyzed for their phosphate and calcium contents, both of which correlate at this site. The highest contents of phosphate were consistently found in the culture-bearing level and the results are illustrated on Figure 25. Horizontally, the highest percentages are in the living area, supporting the interpretation drawn from the distribution of the other data. Two other relatively high concentrations of phosphate in the northern area, one of them associated with traces of bone, are more or less in line with the house entrance; they may indicate a path leading to the beach.

Finally, the analysis of 95 soil samples showed the pH values to range on the acid side, between 5.3 and 6.9 ($\bar{x}$ 6.1). This low acidity (27 samples vary between 6.3 and 6.9) has permitted some preservation of bone remains. However, among the nearly neutral areas, not all were associated with bone, and some bone fragments were found in rather acid soil. It appears that bone preservation is also partly due to the recent
Figure 24. Bone Distribution at Ruisseau A

Figure 25. Phosphate Content at Ruisseau A
age of the site rather than variations in soil acidity alone, so that wherever bone occurred, traces of this material were found.

In conclusion, it seems that excavations at this terrace have partly uncovered living and manufacturing areas, both well documented by the distribution of lithic remains, bone, charcoal and fire-cracked rocks. In addition, at least one house structure and a hearth within were located at the back of the terrace, an area which also showed the highest phosphate and calcium concentrations. Lastly, the material distribution and its apparent homogeneity suggest we are dealing with a single component site, though it may have been occupied seasonally over several years.

RADIOCARBON DATING

Of the twelve charcoal samples recovered from this station, four were submitted for radiocarbon dating to the Quebec Department of Natural Resources. Most were very small quantities of wood charcoal mixed with other decaying organic matter. Those selected for analysis were the largest samples, and/or deeply buried in unit two, and/or associated with a variety of cultural remains. As noted earlier, it was difficult to distinguish the limit between the generally sterile humic layer and the culture-bearing stratum; both contained carbonized wood fragments, and it was essential to separate samples of natural and cultural origin.

Radiocarbon estimates and other information are given in Table 9. The first sample, QU-224, the largest quantity of carbon, was dated at ca. 1500 B.P. It was collected from the base of unit 3 or the top of unit 2, and was not associated with any cultural remains, though some
<table>
<thead>
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<th>Sample number</th>
<th>Carbon weight (g)</th>
<th>Time counted (mn)</th>
<th>Date B.P.</th>
<th>Archeological data</th>
</tr>
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<tbody>
<tr>
<td>QU - 224</td>
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<td>1490 ± 210</td>
<td>None (flakes below)</td>
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<td>QU - 374</td>
<td>1.5</td>
<td>1520</td>
<td>1880 ± 110</td>
<td>Tools, flakes, bone, fire-cracked rocks</td>
</tr>
<tr>
<td>QU - 225</td>
<td>0.76</td>
<td>2920</td>
<td>2280 ± 230</td>
<td>Tools, flakes, bone, fire-cracked rocks</td>
</tr>
<tr>
<td>QU - 226</td>
<td>0.35</td>
<td>2840</td>
<td>3030 ± 470</td>
<td>None (under rocks)</td>
</tr>
</tbody>
</table>
were found immediately below. It seems to date a post-occupational event, possibly a forest fire, and is therefore rejected. Another discarded sample (QU-226), dated around 3000 B.P., was found under a rock, at the base of unit 2, with no cultural association. The extremely small sample (0.35 g) had been submitted because of its relative non-contamination.

The last two samples gave intermediate estimates, which probably date the occupation of this site. Both (QU-374 and 225) were within the culture-bearing stratum (unit two), associated with artifacts and fire remains, in the living area of the site. They provided dates of 1880 ± 110 and 2280 ± 230 B.P. which, when one standard deviation is included, almost coincide (1990 and 2050 B.P.), and average 2080 ± 127 B.P. For convenience, the age of 2000 B.P. can be used for this site.

ARTIFACT DESCRIPTION

Station A of the Ruisseau site produced a sample of 270 lithic tools. Although some bone preservation did occur, these remains were in such a state of decomposition and fragmentation that none exceeded 2 - 3 cm in length, and no trace of workmanship was recognizable. Compared to the other sites, more tools were complete (56%) and utilized (74%), and a greater variety of raw material was used. Local chert, here also, is by far the most commonly represented; but finer-grained chert - light green or brownish in colour - was preferably chosen. In addition, vitreous and opaque quartzite, and chalcedony were utilized for end scrapers.

This wider variety of raw materials was also noted at two other relatively late sites, Cap-Chat (Barré 1975:47-48) and DgDr-3, but the origin of
the finer materials is unknown. Finally, sandstone and siltstone commonly
found in the Gaspé, were utilized for abraders and another form of tools.

The lithic sample from this site (Table 10) contains the usual
categories, namely projectile points, bifaces and flake tools, but new
forms of bifacial tools are predominant, and the flake tools include a
much greater range of artifacts.

**Projectile Points**

A total sample of 25 points was recovered from this terrace. Of
these, 15 are fragmentary and one is made up of four pieces. Although
most of them are crude and seem unfinished, on the basis of their
morphology they can be divided into five groups which possibly correspond
to different functions. Only 4 fragments cannot be assigned to any one
of these subdivisions. Metric characteristics are given on Table 11;
with one exception, all points were found in the southern part of the
excavations.

**STEMMED POINTS (Plate 32a-g)**

There are 7 points in this group of which 4 are complete. Five
are preforms or preform fragments; one is a basal part of a finished
specimen, and the last one, a complete small example, exhibits a different
technology, being made on a small flake marginally retouched on both
faces.

In general outline, they have slightly convex sides and a
rectangular or trapezoid stem which measures from a quarter to a third of
the total length. The tip is pointed or rounded; the thinned base is
### Table 10

Ruisseau A (DhDn-2 A) Assemblage

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<th>Category</th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
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<td><strong>Projectile points</strong></td>
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</tr>
<tr>
<td>Stemmed</td>
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<td>28,0</td>
</tr>
<tr>
<td>Lanceolate tanged</td>
<td>7</td>
<td>28,0</td>
</tr>
<tr>
<td>Bipointed</td>
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<td>8,0</td>
</tr>
<tr>
<td>Thick-based oval</td>
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<td>12,0</td>
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<tr>
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<td>8,0</td>
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<td>Other fragments</td>
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<td><strong>Bifaces</strong></td>
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<td>Lanceolate</td>
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<td>Thin broad</td>
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<td>Bif. trimmed flakes</td>
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<td>Flake knives</td>
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<td>End scrapers</td>
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<td>Unshaped</td>
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</tr>
<tr>
<td>Flakes</td>
<td>20,550</td>
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straight or rounded as in the finished basal fragment. The latter shows extensive grinding along the edges which is absent on the preforms. Blade edges are curved or sinuous but straight on finished specimens. All seem to be made from flakes, and most show some cortex or unretouched ventral face. Except for two points made on flakes with marginal retouch, all are bifacially retouched by short broad flake scars with diffuse bulbs of percussion, and often hinge-fractured. Only the finished point fragment is, in addition, retouched marginally. Cross-sections are plano-convex or triangular on the retouched flakes, biconvex on the others, and somewhat irregular on most preforms.

**LANCEOLATE TANGED POINTS (Plate 32h-n)**

Seven specimens are included here. Of these, one is a complete specimen restored from four fragments; three are tip fragments, two mid-sections, and the last one is a basal fragment. All seem to be preforms broken during their preparation.

In outline, they are lanceolate, relatively long and narrow with the maximum width and thickness measurements around the middle. On the complete point a slight bilateral shoulder at the third of the length forms a tang. Below the shoulders, the sides are straight, converging toward a narrow straight base, and one edge is ground. All points are bifacially retouched; flake scars are often short, wide and hinge-fractured resulting in irregular biconvex cross-section. Some cortex remains on a fragment. The general absence of marginal flaking results in sinuous, sometimes battered edges.
<table>
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<th>Thick oval-based</th>
<th>Bipointed</th>
<th>Small oval</th>
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<tr>
<td></td>
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<td>min.</td>
<td>mean</td>
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<td>min.</td>
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</tbody>
</table>

* Complete points only.

- Tanged
- Projectiles Points, Dhdn-2 A

- Stemmed
- Thick oval-based
- Bipointed
- Small oval
BIPONTED POINTS (Plate 32o-p)

Two complete specimens, both possibly preforms, are very similar in shape and dimensions but due to hinge fractures, one is much thicker than the other. Their sides are convex in the upper half, and rather straight toward the base forming a tang. Maximum width and thickness are near the center and cross-section is biconvex. Both are bifacially flaked, sporadically retouched along the edges. These are straight, or sinuous when marginal retouching is absent, and show no grinding.

THICK-BASED OVAL POINTS (Plate 32q-s)

Two complete examples - one probably unfinished - and a smaller one broken along one side and reused as a spokeshave, are included here. They are slightly asymmetrical, one side being more convex than the other, with a short slight narrowing at the base. The latter, probably the butt of the flake support, remains thick and straight, as little attempt was made to thin it. Retouching is bifacial; marginal flaking on the finished tools give them straight edges. Some edge grinding is present near the base in all cases, particularly on the finished ones.

SMALL OVAL POINTS (32t-u)

This group is represented by two complete examples, both preforms, but one is in a more advanced state of completion. They are oval in shape with somewhat pointed ends in one case. Retouching is bifacial; edges are sharp, sometimes straightened by irregular marginal removals. No particular hafting device or anything resulting from hafting is visible.
OTHER POINT FRAGMENTS (Plate 32v-y)

Four fragments are not included in the above grouping. Three are small triangular tips probably from completed points (38 x 24 x 6 mm). Retouching is bifacial and marginal; edges are thin and straight. These specimens could belong to any of the first three groups described above.

The last one, a long rectangular basal fragment (72 x 28 x 9 mm), has a curved profile and rather parallel sides. One edge seems finished, being straight and retouched, and the other is sinuous and dented. The straight base is beveled, its edge ground. Additional grinding and crushing on the finished edge indicate this fragment was reused for cutting or scraping after it broke.

Bifaces

This category of tools amounts to 109 specimens, about 40% of the total sample. On the basis of shape, dimensions and/or technological features, 78 specimens are divided into six groups (Table 12). The remaining examples, 29 fragments and 2 unique specimens, are unclassifiable. The great majority are relatively small and were made from flakes. Similarly, a large proportion seem unfinished or, if utilized, appear to be temporary tools. About half the specimens are completely flaked on both faces while the others, although bifacially retouched, still show some features of the flake preforms. A striking attribute, particularly common in the thick bifaces and bifacially trimmed flakes, is the orientation of these tools: often, the butt of the flake support is in lateral position.
LANCEOLATE BIFACES (Plate 33)

There are 22 examples in this group of which only four are complete, three of them restored from fragments. The remainder include 10 tips, 4 mid-sections and 4 bases; some of them seem to match—they are made of the same material and were found in the same vicinity—but do not fit. A few specimens may be completed tools but most were broken during their preparation. Microscopic examination of the edges, however, reveals no obvious marks of wear.

These relatively long bifaces are lanceolate in shape and generally symmetrical. Tips are pointed in some cases but most often narrow and rounded. Bases are rounded and wide or, in one case, straight with rounded corners. Sides are rather parallel, converging toward the tip, and maximum width and thickness are situated in the lower half, usually at a third of the length. Complete specimens average 139 x 38 x 16 mm.

Retouching is bifacial, often in the form of relatively short, broad, and thin removals. Frequency of hinge fractures varies with the quality of the material but is generally common. Cortex remains on three complete specimens; in one case, it covers a third of the surface and was probably intended as a natural backing (Plate 33c). Two other examples, one of them a fragment, have a similar backing near the tip or base. These cortex surfaces seem to be the natural unretouched striking platform of the flake support. Marginal flaking is irregular, often sporadic, but edges are usually sharp and straight on the completed tools. Cross-section is generally biconvex, rather triangular in four
cases.

These tools may have been hand-held as they show no hint of a hafting device, but rather a backing in some cases. They seem intended to be used as knives and all, except a fragment, were recovered from the living area of the site.

**THIN BROAD BIFACES** (Plate 34a-c)

Two subgroups which vary in size, but are similar in flaking techniques and general shape, are assembled here. These probable knives are oval or triangular in outline, with a broad pointed tip. Bases are straight, with slightly rounded corners on the smaller specimens, and rounded on the larger ones. The bifacial retouch is composed of relatively long, shallow, rarely hinge-fractured flake scars, probably removed by soft percussion. Marginal flaking is irregular and sporadic, but all edges are thin and straight. A complete unfinished specimen is made on a flake whose bulb of percussion, near the tip, has been thinned, but 60% of the ventral faces remain unretouched. Fine polishing and minute flake scars along the edges show that most specimens have been used. 

a. The small variety, represented by a complete restored specimen, the tip and basal fragments of a second one, and two tips, averaged about 93 x 49 x 9 mm in dimensions.

b. The larger variety estimated at ca. 120 x 67 x 13 mm, includes two tips, a mid-section, and a basal fragment. Both varieties of thin bifaces had an easterly distribution at the site.
THICK BIFACES (Plate 34a-k)

The sample of this group amounts to 17 specimens of which 13 are complete, two of which are restored from fragments. The remainder include an almost complete specimen with the tip missing, one mid-section and two basal fragments.

A common feature is that they are made from a large and thick flake with the striking platform in lateral position, generally nearer to the base. In some cases, an attempt was made to remove the striking platform and bulb of percussion, but the flakes hinge-fractured and the result was a battered thick edge. Therefore, a common characteristic is the position of the maximum thickness measurement which, in 14 cases, is at or near one edge.

These bifaces are rather small and thick, averaging 102 x 45 x 23 mm in dimensions. Retouching is mostly bifacial but some cortex, part of the ventral face or the striking platform of the flake support remains in most cases. They tend to be oval and asymmetrical, the side opposite the striking platform being more convex. On most specimens, this convex side is locally flaked along the margin; in profile, this edge is often straight and sharp, and shows some use marks: fine polishing, minute flake scars or intense battering. As the opposite edge is rarely thinned, the convex side seems to have been the main working edge. The tip is trimmed and pointed on only three specimens, while it is roughly curved or left unretouched in most cases. The base is usually amorphous and thick, and intentionally thinned and rounded on four examples. Cross-section varies even in single tools; predominantly it is gibbous
These bifaces seem to have been hand-held along the thicker side, the opposite margin being used as a heavy-duty cutting tool. The battering signs on both edges of some specimens may have resulted from bipolar percussion during their utilization. At the site, they were mainly distributed around the main living area.

**BIFACIALLY TRIMMED FLAKES (Plate 35a-f)**

These bifacial tools, a sample of 24, are also made on large flakes, the thick striking platform in lateral position being opposite to the working edge. In addition, they seem to have been intentionally broken along one or two margins, thus shortening and strengthening the cutting edge.

They are rectanguloid or triangular in outline and average 79 x 45 x 15 mm in dimensions. Retouching covers one face, generally (75%) the dorsal face of the support, and the opposite face is marginally flaked along the working edge, or partially retouched. This preparation is frequently crude and hinge-fractured, and cross-section is rather triangular. Working edges are convex (16), straight (6) or concave (2), and slight notches are present on two straight and both concave-edged tools. In profile, these edges are straight, rarely curved or sinuous; some use-wear is present on most.

In both morphology and technology, this group resembles the previous one. These, however, are smaller and less extensively and carefully retouched. This indicates a temporary type of tool, but functions were probably similar in both cases.
TRIANGULAR BIFACES (Plate 35g-h)

Only one restored tool and probably two tip fragments make up this sample. The complete tool (111 x 54 x 22 mm) is roughly triangular and asymmetrical, both sides making straight angles with the base and one curving toward the rounded tip. Maximum width is at the base which is thinned and straight with rounded corners. In all cases, the maximum thickness is near the tip.

Bifacial retouching, generally composed of relatively wide and shallow flake scars, covers most of the faces. Marginal flaking, concentrated on the distal part and the base, is irregular and frequently hinge-fractured. Edges are rather straight, often battered; cross-section is biconvex. The complete specimen was reused or resharpened as shown by different patinas on both faces. Very fine polishing and transverse microscopic striation at the center, from 2 to 5 cm above the base, are visible on both faces. These striation and battering signs on the edges indicate a heavy-duty hafted tool, probably an axe.

LARGE BIFACES (Plate 36a-c)

This last group of bifaces includes three specimens of which two, found in proximity, are obviously preforms. The third one, a complete restored example made from a tabular core, is semi-circular with rounded ends. It is only marginally flaked by relatively wide, short and shallow flake scars on one or both faces. All edges are heavily battered, probably intentionally along the straight side to form a back, and as a result of use - hammering - along the opposite sharper convex edge.

Dimensions of this tool are 180 x 82 x 23 mm.
### Table 12
Bifaces, DhDn-2 A

<table>
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<tr>
<th>Sample</th>
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<th>Thin broad</th>
<th>Thick</th>
<th>Bifacially trimmed flakes</th>
<th>Triangular</th>
<th>Large</th>
<th>Other</th>
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<td>4</td>
<td>1</td>
<td>-</td>
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<td>3</td>
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<tr>
<td></td>
<td>18</td>
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<td>4</td>
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<table>
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<td>ca. 67</td>
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<td>ca. 54</td>
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<td>23</td>
</tr>
<tr>
<td></td>
<td>mean</td>
<td>16</td>
<td>9</td>
<td>ca. 13</td>
<td>23</td>
<td>15</td>
<td>22</td>
</tr>
</tbody>
</table>

* In millimeters; complete measurements only.
The other two specimens are oval and probably made from tabular cores or very large flakes. Retouching, large and shallow scars, covers one face, the other face showing a large surface of cortex near the base. Some marginal flakes were removed but edges are curved, sinuous or natural. Hinge fractures are frequent. These two specimens seem to have been discarded preforms, but one seems to have been slightly used along one edge. Dimensions average 171 x 101 x 40 mm.

OTHER BIFACES AND FRAGMENTS

This terrace also yielded unclassifiable specimens: two restored bifaces and 29 fragments.

One complete example (102 x 35 x 10 mm) broken during its preparation, is a thin lanceolate biface possibly intended for a projectile point. It has a long and narrow tip portion, and a straight unretouched base. Both facial and marginal retouching are present but the sharp fresh edges remain curved (Plate 36d).

The second restored specimen from which a side margin is missing, is a thin and wide leaf-shaped artifact, possibly a point, with straight converging sides and a broad semi-circular base (77 x 55 x 10 mm). Retouching, present on both faces and all edges, is mainly composed of long and shallow flake scars, rarely hinged. Edges are rather straight and sharp with sporadic microscopic polishing and crushing, probably edge preparation to flaking (Plate 36e).

The fragments include 7 tips, 6 mid-sections, 8 bases and 8 corner fragments. One is made of quartzite, an exception among the bifaces. These specimens are too fragmentary and/or unfinished to be assigned to the groups
described above, but on the basis of dimensions, flaking characteristics and edge angle, they may be assigned to two functional units: light or heavy-duty tools. The former would include 17 specimens, some of which may be lanceolate or thin biface fragments or even point preform fragments. The remaining 12 examples may belong to any of the other biface groups defined or some other forms of thick bifaces. Metric attributes are too incomplete and variable to be meaningful but heavy-duty tools average 19 mm in maximum thickness against 12 mm for the other ones.

- Flakes Tools

About 46% of the tools, 126 specimens, are made on flakes whose features - ventral face, striking platform and/or bulb of percussion - are still present. Most are marginally or edge retouched, or simply utilized, but a few specimens are unifacially or even bifacially modified. The sample is first divided into shaped or unshaped tools, a distinction sometimes inadequate as, obviously, some flakes were selected for certain characteristics and needed little alterations. Nevertheless, this division, unique to this site, seems valid. Shaped tools, those whose morphology is mainly a result of retouch, include various forms of knives and end scrapers. Intensive use marks and the utilization of exotic materials indicate they were relatively durable forms of tools. Unshaped artifacts, whose morphology is mainly defined by the flake perform's outline, comprise a variety of side scrapers, marginally retouched flakes, and utilized flakes. Further subdivisions are made on the basis of the nature and location of the retouch and flake preform features.
SHAPED FLAKE TOOLS (Plate 37)

Flake knives

Oval flake knives. A sample of six tools, of which three are complete, are made on long flakes. They are rather oval, mostly shaped by marginal retouch, with a narrow straight base carrying the striking platform which is partly thinned in one case, and a rounded tip. Bifacial retouching sharpens all edges, but preparation is unifacial in two cases and marginal in the others. Marginal flaking is generally scalar and continuous; it is bifacial on most specimens, mainly dorsal in one. Edges are sharp and straight on finished tools, or slightly curved. Five specimens are rather small, averaging 65 x 33 x 7 mm in dimensions; the last one is larger (94 x 44 x 16 mm) and proportionally thicker (Plate 37a-c).

These flakes seem to have been used as cutting tools; light edge polishing and finer flaking in the upper portion of some examples indicate the use of a haft.

Small triangular flake knives. Only two specimens, one probably unfinished, compose this sample. They are rather short (x 41 x 31 x 10 mm), triangular with a straight base, convex sides and a pointed tip. Both examples are asymmetrical as one side is more convex than the other. Flaking is partial on both faces, one lateral edge - the least curved one - being only marginally retouched. All edges, including the base, are rather sharp and straight. Retouching is scalar, often hinge-fractured on the dorsal face of the preform (Plate 37d-e).

Relatively sharp edge angles tend to indicate these tools were used for cutting; microscopic examination revealed no obvious wear marks.
Unifacial blade-knife. A unique specimen (Plate 37f), exhibiting the finest flaking technique in the collection, is made on a long and narrow (120 x 33 x 12 mm), slightly expanding curved blade. Its base, which consists of the unretouched striking platform, is straight; the lateral sides are convex; the beveled tip rounded. Maximum width and thickness are a little above mid-length. Retouching is unifacial; it consists of relatively wide and shallow, transverse and parallel flake removals. These meet in the middle along a central ridge, probably a feature of the blade support; cross-section is triangular. Occasional edge and marginal flaking straighten the sharp (ca. 30°) edges. The ventral face is completely unretouched except for a few flake scars along the margins probably from having been used.

This tool shows no signs of hafting preparation; its lateral edges are extensively polished on their full length as a result of wear, probably as a cutting tool. Ridges between flake scars are not fresh, and some are slightly polished. This may have been produced by prolonged handling or by storage in a pouch or sheath.

As mentioned, this specimen contrasts with the rest of the material by its flaking features, and testifies to unsuspected flaking control in comparison with the rest of the assemblage. The production of the blade preform was probably accidental, as indicated by the very rare occurrence of blades in the sample recovered, and the absence of blade cores at the site. The fine parallel flaking, although probably obtained by soft-hammer percussion (and not pressure flaking because of the great width of the retouch) as is the case of the majority of the artifacts, shows different and superior flaking control. This would support the hypothesis stated above.
that most tools were made for immediate-and/or temporary use, or are unfinished specimens. The presence of a great number of small flakes, some of them produced in a similar fashion, and the generalcrudeness or unfinished aspect of many artifacts, also corroborate this hypothesis. Alternatively, this blade-knife possibly had some special cultural value, for example as a ceremonial object, which required special attention in its production; one could tentatively support this second hypothesis by its uniqueness at the site. In any case, its presence bears witness to a more controlled and finer flaking ability by at least some individuals. A third hypothesis which would propose this tool to be foreign to the component is somewhat contradicted by two facts. First, it is made of the same chert mainly used at this site and second, similar tools are absent at the other sites.

End scrapers

A total sample of 11 end scrapers was recovered from this terrace. Other than the eighteen specimens from Cap-Chat (Barré 1975:28-30) and the two examples from Cap-au-Renard described above, they are the only end scrapers from north Gaspé. At this site, as at Cap-Chat, a marked preference for fine exotic rocks was manifested: nine examples are of various quartzites and chalcedony, and only two of the usual local chert. Quartzite was used in only two other instances: a biface fragment already mentioned and a retouched flake. Ten specimens can be divided into two groups; a large example is described separately. Metric attributes are presented in Table 13.

Bifacially retouched end scrapers. This group is represented by two specimens, both from the northern part of the excavated area. They are made on expanding flakes, a long and a short one,
to the convex working edge. In both cases, the dorsal face is completely retouched by relatively long and thin flakes removed from the lateral edges. One shows similar retouching on the ventral face, while on the smaller tool, only the bulb of percussion was thinned. Cross-section is plano-convex; maximum width and thickness are at or near the scraping edge whose angle varies from 40 to 75°. Use marks - slight crushing signs - on that edge, bulb removals, and the smaller width of the base (58 and 69% of the maximum width) indicate that some kind of hafting was used (Plate 37g-h).

Unifacial end scrapers. Among the eight specimens, all recovered from the living section, seven show a main convex scraping edge opposite to the flake's butt. The last one, with a straight working edge, is made on a rectangular tabular flake fragment which cannot be oriented. Six are made on expanding flakes: five only modified on the working edge, and one additionally retouched on both lateral edges. As were the previous ones, they also may have been hafted, the width at the base being from 30 to 58% of the maximum breadth which is situated at the working edge. The last example is rectangular with additional straight scraping edges along both lateral sides, and was probably hand-held. Cross-section on two specimens is plano-convex, and triangular on the remainder which carry a dorsal mesial or lateral ridge. Use marks, in the form of slight crushing signs, are visible on all steep edges which vary from 50 to 80° (Plate 37i-p).

Large end scraper. The last specimen, from the northern part of the site, is made on a slightly expanding thick flake. Its maximum width and thickness are at the scraping edge and cross-section is trapezoid. The curved working edge, opposite to the butt, shows scalar retouch; its
### Table 13

End Scrapers, DhDn-2 A

<table>
<thead>
<tr>
<th>Sample</th>
<th>Bifacial</th>
<th>Unifacial</th>
<th>Large</th>
</tr>
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</table>

<table>
<thead>
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<th>Dimensions (mm)</th>
<th>Bifacial</th>
<th>Unifacial</th>
<th>Large</th>
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</thead>
<tbody>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>mean</td>
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<td></td>
</tr>
<tr>
<td>W. max.</td>
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</tr>
<tr>
<td>min.</td>
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<td></td>
</tr>
<tr>
<td>mean</td>
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</tr>
<tr>
<td>T. max.</td>
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</tr>
<tr>
<td>min.</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>W. at base max.</td>
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<td>19</td>
<td>33</td>
</tr>
<tr>
<td>min.</td>
<td>15</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>16</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
angle is abrupt, exceeding 90° in places. Use marks - heavy crushing along the scraping margin - and irregular ventral scars on the lateral edges indicate the use of hafting (Plate 37p).

UNSHAPED FLAKE TOOLS

Side scrapers (Plate 38)

This category of flake tools is mainly defined by generally unifacial oblique to abrupt retouch along one or two edges. In the sample from this terrace, an additional common feature is the occurrence of the working edge along one or two of the longer edges of the support. Secondary common attributes are the marked preference for large and relatively thick flakes, and the extent of the retouch covering the full length of the edge. The sample of 20 complete or almost complete specimens is divided into three groups depending on the position of scraping edges in relation to the orientation of the flake. These groups are furthermore characterized by their particular length/width ratio (Table 14). Six specimens described separately are unclassifiable because of their fragmentary nature.

Transverse scrapers. A total of 10 side scrapers (Plate 38a-d) present a simple working edge opposite from the striking platform. Five are rather symmetrical while the remainder are better described as canted side scrapers. They are made on large wide flakes and average 67 x 92 x 20 mm in dimensions, maximum width being near the working edge. Length/width ratio averages around 2/3. Retouch covers most of the edge (x 69 mm in length); it is continuous and irregular in 9 cases, scalar in
one. It is dorsal on 7 specimens and ventral on the last three, probably because the latter are hinge-fractured. The scraping edge is convex in all cases, only slightly so in two, and one is denticulate. Retouch varies from flat (ca. 30°) to vertical and averages 51°. Slight use marks, particularly edge crushing, are present on most specimens along the working edges, occasionally on a lateral side.

Lateral scrapers. A sample of 6 scrapers (Plate 38e-h) have a working edge along a lateral side of the flake support, and in one case along both sides. Here, rather large and long flakes (x 92 x 58 x 25 mm) with a length/width ratio of about 3/2 were chosen. Edge preparation covers a good part of the lateral edges (x 58 mm in length), and the scraping edge is convex in four cases, straight in the other three. Retouching and edge angle are similar to those of the previous groups. Flaking is dorsal in two cases, dorsal and partly ventral in three, and ventral on two cortex-bearing flakes. Slight edge crushing marks due to use are present in all cases on the scraping edge as well as the others.

Converging scrapers. These smaller double tools (Plate 38i-k) are represented by 4 specimens. They are triangular in shape, the two longer converging edges being retouched, while the base is natural and thick. The latter carries the striking platform of the ridge-backed flake support on 3 specimens; on the last one the striking platform covers the length of a scraping edge. They average 34 x 41 x 15 mm, dimensions being measured with the tip in upper position. The scraping edge (x 68 mm in length) is convex in most cases, straight in one. The continuous and irregular retouch is dorsal (6) or bifacial (2), and edge angles are
### Table 14

Side Scrapers, DhDm-2 A

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
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<th>Lateral</th>
<th>Converging</th>
<th>Fragments</th>
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Mean L:W: ca. 2:3, ca. 3:2, ca. 2:1

Scraping edge: incomplete

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<th>Angle ca. (°)</th>
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</thead>
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<td>90</td>
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<td>30</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>Converging</td>
<td>51</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Fragments</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean L:W: ca. 2:3, ca. 3:2, ca. 2:1
generally smaller ($43^\circ$) than those of the other groups. Slight use marks are present on the prepared edges; wear polish on the central ridge, near the base of one specimen, indicates some form of hafting was used.

**Other scrapers fragments.** Six unclassifiable fragments generally exhibit the same continuous and irregular retouching as the others; two, one of which is denticulate, show scalar retouch probably due to resharpening. Flaking is dorsal in most cases, alternating in one; edges are straight (3), convex (2), or concave (1), their angle averaging $54^\circ$. Use marks are present on most prepared and natural edges.

**Retouched flakes (Plate 39a-c)**

A total of 57 flakes exhibiting various types of continuous and intentional retouching were recovered. Most appear to have been very temporary tools, a flake selected for certain features being lightly retouched, used, rarely resharpened, and discarded. These tools have been ascribed to one of four groups depending on flake support and retouch characteristics; twenty-one other fragments are unclassifiable.

**Wide flake knives.** Thirteen short flakes (Plate 39a-d), semi-circular, oval or sub-rectangular in outline, seem to have been purposely selected for their long and thick butt. They are very wide ($39 \times 76 \times 17$ mm) and the striking platform extends for a good part (75%) of the maximum width, providing them with a good grip. Most are retouched on the opposite edge, and three along one of the short lateral margins. While use marks are present on most of the working edges, retouching covers a short length ($35$ mm). Marginal flaking is continuous, rarely irregular or scalar; it is dorsal (6), bifacial (2), alternating (1),
and ventral on the remaining four which include the three lateral tools. Working edge is convex (6) or straight (4), rarely sinuous (2) or concave (1). Edge angle varies from 25 to 60°, providing them with a generally good cutting edge.

**Notched flakes.** Six elongated flakes or blades (x 83 x 40 x 16 mm) are provided with 1, 2 or 5 notches which average 17 mm in length and 4 mm in depth (Plate 39e-h). Even when multiple, notches are always along one of the lateral edges, generally the left one. Dorsal, ventral and bifacial preparation are equally represented, and both edge and marginal flaking were used to produce the notches. Edge angle is oblique, averaging ca. 50°. Generally, the full length of the retouched edge carries use marks and in only one case are they restricted to the notch. One specimen shows intensive transverse and oblique striation and polishing on the adjoining ventral face, indicating a scraping motion during use. Finally, four examples are also retouched and used along the opposite lateral edge.

**Marginally retouched amorphous flakes.** This group (Plate 39i-n) consists of 16 relatively complete rudimentary tools, often made on small expanding flakes (x 38 x 39 x 7 mm). Marginal retouching along one edge, or two edges in two cases, is continuous and generally extends along most of the edge (x 30 mm in length). It is generally dorsal (9) or ventral (7), rarely bifacial (1) or alternating (1). Similarly, convex working edges are predominant, and concave or straight examples amount to four. There was a marked preference for modifying the left margin rather than the right one or the one opposite the butt, but this seems associated to the suitability of the edge preforms. Use marks are present on most
retouched margins, and 7 specimens were additionally used along another edge, generally an adjacent one. Edge angle and the study of wear marks indicate a longitudinal motion during use, probably as knives, but the scraping motion is obvious on a few specimens.

**Burin.** A unique example (78 x 44 x 15 mm) shows the removal of at least four burin spalls at the distal end of an elongated flake (Plate 39c). The presence of a short truncation near the working corner and slight use marks on the burin angle suggest this preparation was intentional. This tool is also retouched on a concave margin indicating it also functioned as a knife.

**Other retouched flake fragments.** In addition, the collection from this terrace includes 21 retouched flake fragments, 13 of which are comparable in most respects to the amorphous variety. The last 8 examples are relatively large and thick, and four of them show a sinuous crudely retouched margin but no obvious use marks. Generally, the orientation of these tool fragments cannot be determined.

**UTILIZED FLAKES** (Plate 39p-w)

The final and most rudimentary group of flake-tools is represented by 23 specimens, five of which are fragments. These flakes, selected for their naturally sharp and/or thick scraping edge, are mainly modified by use but occasionally, some discontinuous flaking was done to straighten a margin. In one case, the bulb of percussion and striking platform were thinned. Use marks, on most specimens, are on the edge or mainly along the dorsal margin. Working edges are predominantly convex (56%), straight (38%), or rarely sinuous (6%).
From the sample, it appears that two desirable flake sizes were selected, each mainly intended for certain tasks. The first variety of flakes (13) are thin, usually small and sometimes quite delicate, and average 50 x 42 x 8 mm in dimensions. All but two were primarily utilized along a sharp edge, obviously as cutting instruments. Of these, at least four were further used on the other margins, probably as each sharp edge became dull. The two exceptions were only used along a wide-angled edge, a fracture in one case. The second variety includes ten thick and rather large flakes (75 x 90 x 28 mm). Seven were used on one thick oblique to abrupt edge, generally the edge opposite the butt which hinge-fractured in three cases. These flakes were probably used as natural scrapers. The last 3 specimens were mainly utilized along a sharp edge, and two show further use marks on a steep natural or slightly retouched edge.

Other Tools

This final group of artifacts includes a variety of tools made from slightly modified cores. Among them are a unique gouge-edged tool, 5 choppers, 2 abraders, and 2 small pebbles of unknown use.

**Gouge-Edged Tool** (Plate 40a)

This unique specimen is made on a tabular piece of chert (107 x 58 x 26 mm), subtriangular in outline and rectangular in cross-section. The bit is slightly convex, and concave in profile; it is unilaterally beveled by steep crushing marginal retouch. Other preparation consists of sporadic blunting retouch on the lateral edges. The thick pointed
base presents no hammering marks, and no attempt was made to polish any surface. The shape of the proximal end and the crushed bit suggest this tool was hafted and probably used as an adze-blade.

**CHOPPERS (Plate 40b-e)**

Of the 5 choppers, four are of local chert and a large one of sandstone. All are made on cobbles from which a few spalls have been removed unifacially on one of the narrow ends. This preparation provides them with a strong transverse working edge – oblique on a large specimen – of variable convexity. Edge angles vary from 40 to 90°. The three smaller specimens (171 x 56 x 33 mm) exhibit heavy hammering marks on the butt and, in one case, near the working edge. This indicates direct percussion was applied at one end while the bit rested on the material, wood or bone for example, to be broken or crushed. This percussion was strong enough to remove a few flakes from both ends and to fracture the bit in one case. The larger examples (115 x 90 x 49 mm) show no such hammering marks; they may have been hand-held to perform similar tasks.

**ABRADERS (Plate 40f-g)**

Two pebbles exhibit various marks and seem to have been used as abraders. One, a large triangular broken pebble of sandstone, presents a long deep groove, possibly a result of polishing and sharpening a relatively soft material such as bone. The second specimen, a long pebble of siltstone, has its surface covered by long scratch marks. These longitudinal and oblique marks were probably obtained by rubbing a hard and sharp object, possibly by grinding flake tool edges for platform
Finally, two long pebbles ($269 \times 27 \times 16 \text{ mm}$) made of soft material (siltstone), show identical marks which were probably due to human action. Both have a battered end and an opposite beveled transversal edge, apparently produced by bipolar percussion. The use of these possible artifacts cannot be determined: the material used is too soft to sustain heavy percussion; the "cutting" bits too fragile.

Station B

The second terrace of the Ruisseau site, immediately above and east of the previous one, is the most important in the area. At an altitude of 23 to 27 m, it stretches east for 1 km along the St. Lawrence, but is rather narrow ($\times 60 \text{ m}$). Like the lower one, this terrace lies close to the river - some 50 m south - from which it is separated by a steep slope (Figure 19).

This terrace has been subjected to the most disturbance: it has been logged and the stumps pushed to the back in order to install a power line. In the process, to delay a second growth of vegetation, the humic layer and part of the soil below were also removed along the power line. Ruins of house foundations were also noted halfway along the terrace where a small garden was once cultivated, but these recent features are outside the site's limits. Today, thick bushes are invading the treeless corridor. In many places, for about 200 m closer to the Vallée stream, material can be seen on the stripped surface, but a good part of it has
been collected since 1971 by members of the amateur society. The richest area, however, appears to be at the northwest of the terrace, a mostly undisturbed region, where the main excavations took place. From test pits and surface collections, the site was estimated to extend in a sporadic way on a 5000 m² surface.

STRATIGRAPHY

The soil profile encountered on Station B is that of a podzol. As noted, this profile had been truncated by bulldozing a large extent of the site, uncovering the Ae and B horizons. In the undisturbed excavated area, most of the material was situated between the thick vegetal carpet and the eluviated sand, and a smaller portion was found among the roots in the humic level or buried in the sand below. In the latter cases, it had been displaced by natural action such as growing roots and burrowing animals. No remains were observed in the sand and gravel deposits of the Goldthwait Sea; no evidence of the Vallée stream activity was encountered at this altitude.

MATERIAL DISTRIBUTION AND FEATURES

The main area of excavation, about 40 m², east of the bulldozed path, was first cleared of its young vegetation and completely stripped of the thick vegetal carpet. This was done in order to obtain a visual picture of the material distribution and, particularly, of the soil relief which could have revealed the outline of some feature, such as a habitation. However, the surface of the light gray-white sand was found to be uneven, and no abnormal irregularity could be defined; if one did
exist, it has been erased by natural phenomena.

Most of the material and a hearth lay on the stripped surface (Plate 8), and flaking areas could be both recognized and plotted at the site. The material was then collected and each pit dug to the sterile sand and gravel.

Among the features, the most obvious one is a hearth, a nearly semi-circular group of rocks open to the south, among which were a dozen smaller fragments, probably fire-cracked rocks. The soil within and around the hearth was markedly stained with charcoal, of which sub-surface samples were collected. Associated with this feature were three small postmolds, also containing pieces of charred wood, outside and west of the hearth, and a double-notched point (Figure 26).

Other groups of rocks were also brought to light; those accompanied with charcoal are probably also hearth remains, but the interpretation of the others is open to discussion, as is the significance of the other ten "postmolds", some of which were found in clusters. Most of these last features, it must be noted, contained vegetal matter and were possibly traces of decomposed roots.

Another important feature is an oval cluster of flaking detritus, some two meters square, which contained more than half the flakes from this excavation and ten cores or core fragments. This, and another cluster partly destroyed by the path, strongly attest to the importance of stone tool manufacturing at the site. Two rather large flat rocks, found among the eastern flake concentration, were possibly used as anvils or seats by the knappers. No raw material was discovered on this terrace, but chert.
Figure 26. Main Excavations at Ruisseau B
was readily available from the next higher terrace where it outcrops. It is possible that some fallen debris is to be found at the back of this station.

Of the 27 tools from the 40 m² excavation, a dozen are finished specimens, and show traces of utilization. It is significant that most were found outside the flaking areas, which mainly contained cores and unfinished tool fragments. Three flake tools— including both planes— showing heavy use marks, were situated in the northwest edge of the excavated area; they probably indicate a special kind of activity such as skin dressing or woodworking.

Finally, the phosphate content of the soil shows a non-random distribution (Figure 27). Vertically, the highest values are in the B rather than the Ae horizon, a normal result of podzolization (Cook and Heizer 1965:15). Horizontally, high concentrations around the hearth and to the southwest, associated with rocks, scrapers and "postmolds", may indicate intensive living areas. The high soil acidity— ph values range between 3.9 and 5.3 (± 0.5) — must be correlated with the absence of organic remains.

In conclusion, excavations at this undisturbed part of the middle terrace indicate we are dealing with a camp site. Primary factors in site location probably include the proximity of the Vallée stream mouth, and the nearby supply of chert. Finally, the non-overlapping distribution of the remains and their apparent uniformity suggest a single occupation, at least in the excavated area.
Figure 27. Phosphate Content at Ruisseau B
RADIOCARBON DATING

Eleven charcoal samples were collected from the leached (Ae) horizon of Station B (Figure 26). As noted above and by Fitzhugh (1972:73), samples of cultural origin in a podzol are more likely to be found in association with a hearth. At this site, two samples were found in such a feature and their dates, if they coincided, were to be given special weight. In the case the other eventuality prevailed and the dates did not coincide, three other samples - two of which are associated with flaking detritus - were also submitted to the laboratory. The results are presented on Table 15.

Samples associated with the hearth furnished estimates of 3750 ± 180 and 4170 ± 150 B.P., thus almost overlapping dates when the standard deviations are computed. On the other hand, off-hearth samples range between ca. 2500 and 5270 B.P. Although two dates vary around 5000 B.P., they must be rejected and attributed to non-cultural events.

Thus, human occupation at this terrace is fixed around 4000 B.P. Furthermore, the set of dates obtained confirm that samples collected from a podzol must be chosen with circumspection and confined to hearth association.

ARTIFACT DESCRIPTION

Considering the relatively large area excavated - a total of 50 m² including test pits - the tool sample of 55 lithic specimens is small and, as a possible consequence, contains few groups (Table 16). Again, the assemblage is mainly composed of preforms, most of them broken during their preparation. Some 4585 flakes and 24 cores also testify to stone tool
Table 15
Radiocarbon Dates, Ruisseau B

<table>
<thead>
<tr>
<th>Sample number</th>
<th>Carbon weight (g)</th>
<th>Time counted (mn)</th>
<th>Date B.P.</th>
<th>Archeological data</th>
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<tbody>
<tr>
<td>QU - 372</td>
<td>3.2</td>
<td>1463</td>
<td>2500 ± 80</td>
<td>None</td>
</tr>
<tr>
<td>QU - 229</td>
<td>2.2</td>
<td>1960</td>
<td>3750 ± 180</td>
<td>Hearth</td>
</tr>
<tr>
<td>QU - 228</td>
<td>3.2</td>
<td>1200</td>
<td>4170 ± 150</td>
<td>Hearth and flakes</td>
</tr>
<tr>
<td>QU - 227</td>
<td>2.8</td>
<td>1200</td>
<td>4940 ± 170</td>
<td>Flakes</td>
</tr>
<tr>
<td>QU - 373</td>
<td>3.1</td>
<td>1527</td>
<td>5270 ± 90</td>
<td>Flakes</td>
</tr>
</tbody>
</table>

Level
2, upper half
2, upper half
2, upper half
2, center
2, upper half
manufacturing. Except for a sandstone utilized spall, these remains are of local mottled-chert which is now deeply patinated to a light gray colour.

**Projectile Points**

A sample of 13 projectile points, four of which are fragments, was recovered from excavations at the site. They appear to be made from flakes, are rather triangular and exhibit a thinned base. Although we are again mostly dealing with preforms and preform fragments, the sample is divided into three well-defined groups.

**DOUBLE-NOTCHED POINT** (Plate 41a)

A unique finished specimen found near the hearth is small (37 x 20 x 6 mm), triangular in outline with convex sides and a concave base. It is provided with two bilateral semi-circular side notches slightly below mid-length. Bifacial and marginal retouching result in straight sharp edges and a biconvex cross-section. The base is thinned by long lamellar removals on one face and short marginal flaking on the reverse. Slight to heavy grinding is visible in the notches, the basal lateral sides, and the base.

**SMALL LANCEOLATE POINTS** (Plate 41b-c)

An unbroken, unfinished example and the tip fragment of a probably finished similar point make up this sample. They are relatively narrow tools (61 x 22 x 9 mm) with convex sides and a straight base, the maximum breadth being at a third of the length. The complete specimen is bifacially retouched by wide flake scars; its edges are sharp and sinuous,
Table 16

Ruisseau B (DhDn-2 B) Assemblage

<table>
<thead>
<tr>
<th></th>
<th>Main excavations</th>
<th>Test excavations</th>
<th>Total</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Projectile points</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double-notched</td>
<td>6</td>
<td>1</td>
<td>13</td>
<td>1</td>
<td>23.6</td>
</tr>
<tr>
<td>Small lanceolate</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>15.4</td>
<td></td>
</tr>
<tr>
<td>Triangular</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>76.9</td>
<td></td>
</tr>
<tr>
<td><strong>Bifaces</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small triangular</td>
<td>13</td>
<td>9</td>
<td>22</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Large triangular</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>27.3</td>
<td></td>
</tr>
<tr>
<td>Other fragments</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>31.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>9</td>
<td>40.9</td>
<td></td>
</tr>
<tr>
<td><strong>Flake tools</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planes</td>
<td>8</td>
<td>12</td>
<td>20</td>
<td>36.4</td>
<td></td>
</tr>
<tr>
<td>Side scrapers</td>
<td>2</td>
<td>--</td>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Utilized flakes</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>27</td>
<td>28</td>
<td>55</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

|                   |                  |                  |       |    |     |
| **Cores**         | 23               | 1                | 24    |    |     |
| **Flakes**        | 2498             | 2086             | 4584  |    |     |
and cross-section is biconvex. Some marginal flaking is present, mainly along the thinned base; the fragment is marginally retouched along its straight edges.

TRIANGULAR POINTS (Plate 41d-m)

This last group includes 7 complete examples—two of which are restored—7 tips and one basal fragment. All seem to be preforms at various stages of completion, and on the basis of their dimensions, they can be divided into two sub-groups.

a. The smaller points, 4 specimens and 3 fragments, average 68 x 29 x 10 mm. They are triangular, all edges being straight and convex near the tip. Maximum width is at the base which sometimes carries a slight unilateral ear, and maximum thickness is at a third of the length. Retouching is bifacial, generally wide (rarely hinge-fractured), flakes having been removed from all sides. Marginal retouching is sparse except on one specimen. Edges, therefore, are often sinuous and cross-section is biconvex. Microscopic examination revealed no edge grinding.

b. Three specimens recovered from a test pit in a disturbed area of the site are distinguishable by larger dimensions (89 x 33 x 17 mm), a greater occurrence of hinge fractures, and a slightly rounded base on one specimen. Another example, incompletely flaked on one face, is made from a thick ridged flake and has a convexo-triangular cross-section. Other morphological and technological attributes are shared with the previous smaller points.
Bifaces

The sample of 22 bifaces includes only four complete specimens and nine unclassifiable fragments. Only two show some use marks, and the others are more or less unfinished tools or tool fragments. As was the case of projectile points, desirable shape seems to have been triangular and all examples are probably made from flakes. Depending on their dimensions, they fall into two groups.

SMALL TRIANGULAR BIFACES (Plate 42a–e)

Three nearly finished tools – one complete (81 x 40 x 9 mm) and 2 tips – and 3 complete preforms (x 79 x 40 x 18 mm) are included in this sample. Outline is triangular, the maximum width at the base; lateral sides are slightly convex and the straight base is thinned. Most examples are bifacially retouched and the finished tools are, in addition, marginally flaked and offer straight and sharp (ca. 35°) edges. Cross-section is biconvex, irregular on the preforms due to hinge fractures. Edge crushing along one side of a complete specimen indicates a knife function; oblique unifacial striation adjacent to the heavily polished edge of a fragment suggests a scraping motion during use.

LARGE TRIANGULAR BIFACES (plate 42f–g)

A tip and a mid-section from probably finished tools, and 5 preform fragments seem identical to, but larger versions of the previous bifaces. Estimated dimensions are around 150 x 70 x 18 mm and edge angles average 40°. No use marks are visible on these probable knives.
OTHER BIFACE FRAGMENTS

In addition, the site yielded nine small preform fragments, most of them broken at an early stage of manufacturing. These may belong to similar tools as those described above, but at least one example, with a rounded base, indicates the presence at the site of a different variety of bifaces.

Flake Tools

A total of 20 flakes, 36% of the tool sample, are retouched and/or used along one or more edges. More than half are fragmentary, and twelve were recovered from various test pits east of the main excavation area. Two - the planes - have been shaped by unifacial retouch; the others, various generally crude scraping tools, and three sharp-edged utilized flakes, retain the morphology of the flake support.

PLANES (Plate 43a-b)

Two large oval flakes (118 x 61 x 28 mm) present a flat ventral face and a strong cutting (ca. 30°) rounded bit. Both are unifacially flaked, and flat marginal retouch covers 20 and 60% of the ventral face. Cross-section is plano-convex or triangular near the base of one specimen. These tools are heavily polished on part or all of the flat surface; fine striation oblique to the main axis, starting from the left or right distal end, is visible on that face. The adjacent edges however are only slightly polished, possibly because they were resharpened. These features suggest that we are dealing with hand-held planes used for smoothing or scraping flat surfaces of relatively soft materials, wood or hides.
SIDE SCRAPERS (Plate 43c-e)

From these generally broken scrapers, it appears that two flake sizes were selected. Three complete and 4 fragmentary flakes (x 45 x 37 x 6 mm) are marginally retouched on one, 2 or 3 sides. Retouching is generally continuous, dorsal and irregular, or ventral and scalar on two specimens. Working edges, mostly convex or straight in outline, average 44° angles and 26 mm in length, and at least one example presents use marks.

Seven other fragments and only one complete specimen are generally thick, more or less semi-circular, and average about 65 x 70 x 22 mm. Marginal retouch is mostly dorsal, continuous and irregular, scalar in 3 cases. Preparation covers part of a convex or straight edge (x 45 mm in length), in one case two edges, and forms an oblique to abrupt angle (x 53°). Use marks and thick working edges indicate a scraping motion.

UTILIZED FLAKES (Plate 43f)

This last group includes 2 flakes (x 40 x 72 x 17 mm) and a large circular sandstone spall. Unlike the previous tools, these were utilized along sharp, convex or straight cutting edges (x 30°). Use marks consist of minute edge scars, mostly on the ventral face, along every available sharp margin. The spall (119 x 111 x 27 mm) seems mainly utilized on the edge opposite to the butt.
Station C

The presence of cultural remains on both lower terraces at this locality incited an investigation of the last and highest terrace. The artifacts found here also confirmed the passage of prehistoric man.

This terrace is relatively small; it extends for about 500 m at an altitude of 45 m, and averages 20 - 25 m in width, up to 60 m immediately above Station A. Like the latter, it is mainly parallel to the Vallée stream estuary but, in this case, we are dealing with a paleo-beach of the Goldthwait Sea. About 120 m to the north and west are the St. Lawrence and Vallée stream, respectively, distances mainly composed of steep slopes. At the back, the quasi-plateau starts abruptly and reaches altitudes in excess of 200 m half a kilometer inland (Figure 19).

Other than a narrow path running among the trees and a few stumps, evidence of past logging activities, this terrace is much as it was a few centuries ago, covered with generally mature trees, mainly spruces, firs and aspens. Its access is rather difficult, through a steep footpath from Station B, and another path starting near the Vallée stream, in the southwest. Today, another source of drinkable water is provided by a brooklet falling down the quasi-plateau, about 100 m east of the terrace.

Another feature, readily noticeable along the back of the terrace, is an important outcrop of raw material, various qualities of chert. Numerous fallen fragments were noted in the test excavations, and the lithic industry reveals its utilization.

After a series of test pits had revealed the existence and approximate extent of the site, a week was spent test excavating this terrace. As no important cluster of material had been brought to light
by the first tests, a succession of one meter square units were opened some 3 m from the back of the terrace. More pits were dug 4 m further, along another parallel line, yielding little additional material. Finally, a few more pits were excavated toward the front of the terrace; a cluster of remains was discovered and the last two days were devoted to enlarging this area. The aims of this investigation were mainly to obtain data concerning the size and nature of the site, and a good comparative sample of material. The mode of excavations applied provided such information in a relatively short time. In addition to a series of test pits totalizing 5 m², 30 m² were exposed, most of them situated in a 26 by 14 m area near the back of the terrace (Figure 28).

STRATIGRAPHY

The podzol encountered on this third terrace is similar to that of the other sites, except for some particular features. The bleached Ae horizon, which yielded 95% of the remains, and the orangy-brown B horizon below, which gave the remaining material, were mostly made up of sand but, in addition, contained various proportions of slope deposits (Peter P. David: pers. comm.). These included fine particles of silt and clay as well as rock fragments of different sizes, mostly chert which outcrops at the back of the terrace. These deposits were most common at the rear of the terrace where the soil was more compact, and contained an average density of 15 blocks of raw material per square meter, some of boulder dimensions. Toward the front of the terrace, slope deposits, particularly the larger elements, decreased in importance or were completely absent.
Excavations reached an average depth of 45 cm, where fine stratified gravel of the Goldthwait Sea beach was encountered. The orangy-brown horizon sometimes incorporated lenses of bleached sand, probably displaced by tree-falls, and the sterile humic layer was rather thin, averaging 7 cm. The cultural remains were mostly situated in the upper part of the bleached sand and natural action seems to have buried the deeper material.

MATERIAL DISTRIBUTION AND FEATURES

Including the test pits, 35 m² were opened on Station C of the Ruisseau site. Most excavations were concentrated in the back and widest part of the terrace, but other tests to the west and southwest revealed the site to cover at least 2000 m² and, in a sporadic way, probably a larger area.

Samples of 134 tools, 13 cores, and almost 3000 flakes were recovered (Figure 28 illustrates the distribution of some of these remains). Most bifacial tools, still at a preform stage or broken during their preparation, and the large number of flakes and cores testify to the importance of stone tool manufacturing. On the other hand, 68 flakes and a few large bifaces show various signs of utilization, indicating that other activities, probably domestic ones, were also conducted at this station.

Because of the dispersion and the small number of excavation units, the material distribution offers little information about specific activity areas. The largest area excavated yielded a great number of flaking detritus and preforms, some of them in clusters, as well as two dozen
Figure 28. Main Excavations at Ruisseau C
utilized tools and traces of charcoal which indicate a variety of human activities in this region. Here, it appears that stone tool manufacturing and other types of preparations, requiring the use of flake knives and side scrapers, were preformed. They may have been conducted simultaneously by the same group of people, or by successive occupations, a possibility which, in Gaspé podzol, would not be reflected by stratigraphic changes. Some of these remains, however, could have been dumped in this area, explaining this seeming mixture of vestiges. Elsewhere, it appears that a few isolated pits, particularly those yielding only utilized tools, have unearthed a portion of living areas. Such pits are situated in the main area of excavations and further west, toward the front of the terrace.

The phosphate content of the soil is of little use in determining the most intense living areas, again because of the spread of the excavations. Nevertheless, it provides clues for determining the existence of such areas. Phosphate concentrations range between 0,02 and 0,11% ($\bar{x}$ 0,06), a high variability which may be attributed to prehistoric deposition. In all cases, the highest concentrations of phosphate are associated with excavation units which gave utilized tools (Figure 29). Thus, we may conclude that activities other than stone tool manufacturing were conducted on this terrace.

The high soil acidity - pH values vary from 4,5 to 6,6 ($\bar{x}$ 4,9) - probably account for the absence of organic remains, and the independence of the phosphate and calcium contents. Finally, the small pieces of charcoal collected proved to be insufficient for dating purposes.

In conclusion, the high frequency of utilized tools, their association with high concentrations of phosphate, and the occurrence of
Figure 29. Phosphate Content at Ruisseau C
charcoal traces, indicate that this terrace was a habitation site. A major factor in the choice of this location was most certainly the outcropping chert, a source heavily utilized for the preparation of bifaces, few of which, however, seem to have been utilized at the site. The excellent view over the St. Lawrence is probably another factor. Lastly, the overlapping distribution of remains from various activities and the apparent sporadic extent of the material on a large area, as well as its homogeneity, suggest the site to have been occupied successively for relatively short periods of time.

ARTIFACT DESCRIPTION

The material recovered from this station includes a sample of 134 tools classified on Table 17. Except for the 5 iron pyrite nodules, we are again dealing with lithic remains mostly made from chert which outcrops at the back of the terrace. These tools are often fragmented, mainly as a result of manufacturing accidents and, generally, can be divided into the same categories and groups found at Ste-Anne. This and the altitude of the site indicate that we are dealing with a single tradition at both sites.

Projectile Points (Plate 44a-c)

Three preforms, one complete and 2 fragments, were recovered from this terrace. A long restored specimen (114 x 27 x 10 mm) is probably an unfinished Plano point, similar to those found at the Ste-Anne and St-Joachim sites. It seems to have broken during an attempt to remove a protrusion left by hinge-fractured removals. A shorter example (85 x 30 x 10 mm), possibly a tip fragment, may be a preform of a similar point.
### Table 17

**Ruisseau C (DhDn-2 C) Assemblage**

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<td><strong>Iron pyrite nodules</strong></td>
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Both specimens show bifacial percussion flaking, and sporadic pressure retouching - parallel transverse removals - along the margins. The third fragment (23 x 31 x 3 mm) has a straight thinned base and expanding lateral sides. Pressure flaking seems responsible for a few marginal removals, but part of a face is left unretouched. Because of its dimensions, the finished aspect of the preform cannot be recognized.

Drills (Plate 44d-e)

An oval based proximal half and a tip fragment from 2 drills are essentially similar to those from St-Joachim. The base of the first fragment carries the striking platform of its flake support; above, rather fine transverse parallel flaking is visible on one face. Both specimens have sharp, probably unutilized edges.

Bifaces

From a sample of 61 bifaces, at least three groups of tools can be recognized: lanceolate, oval and large thick bifaces, all common forms of tools at Ste-Anne. Of these, only the larger specimens include finished and utilized tools.

LANCEOLATE BIFACES (Plate 44f-i)

This group is represented by 5 more or less unfinished but complete specimens, and 4 tip fragments, one of them of beige fine-grained local chert. Four specimens and 2 fragments are somewhat small (x 97 x 37 x 13 mm) and correspond in all respects to the small variety of lanceolate bifaces from Ste-Anne. A large example (173 x 56 x 26 mm) and 2 fragments are similar to the larger variety from the same site. None show any sign
of utilization; most edges are sinuous and appear unfinished.

OVAL BIFACES (Plate 45a,d,e)

Nine specimens, among which six are restored, and one tip, 3 bases and 2 mid-sections, illustrate this group. Complete tools average 123 x 57 x 16 mm, maximum breadth and thickness being around the center. They are oval with a pointed tip, but still at a preform stage. Except for one which shows some cortex, they are bifacially retouched by wide thin removals; marginal flaking is sporadic and irregular, rarely subparallel. These bifaces often have a flat face and were probably made from large flakes. Cross-section is plano-convex or biconvex, sometimes irregular because of hinge fractures. Definite use marks are absent in most cases; occasional edge-grinding is interpreted as platform preparation.

LARGE THICK BIFACES (Plate 45b-c)

This sample includes 4 complete tools - two of which are restored - 4 tips, mid-sections and bases, and 5 edge fragments. Most fragmentary tools appear to have broken during their preparation but five show signs of utilization. Very similar in technology and morphology to the large thick bifaces from Ste-Anne, these tools are oval or ovate in outline with a narrow rounded tip and a wide-rounded or straight unfinished base. Complete tools average 180 x 94 x 37 mm, the maximum width being at the center or slightly below, and correspond to the wider variety of large bifaces. Most examples are bifacially flaked by, apparently, both hard and soft percussion, while some still bear some cortex. One complete specimen (187 x 105 x 32 mm) is particular: made on a large flake, the
butt in proximal position, one face is completely retouched while the ventral face of the support remains unprepared, except for wide marginal removals. A few blunt edges associated with crushing marks suggest these bifaces were heavy-duty tools, probably axes.

OTHER FRAGMENTS

A total of 16 examples, too fragmentary to be classified, are also bifacially flaked. Only one specimen shows scalar marginal retouch along a straight, probably utilized edge; the remainder are various preform fragments. Two of these, relatively large and flat, are probably thin biface preforms similar to those found at Ste-Anne, a group which otherwise, is absent from this site's sample.

Flake Tools

Amounting to 68, flake tools represent almost half the total sample. They include side scrapers, utilized flakes, and flake knives, among which is a particular form of cutting tool provided with a handle.

SIDE SCRAPERS (Plate 45f-h)

Four thick flakes, a piece of tabular core, and a small flake fragment are modified on the longest edge, in one case on all edges (Plate 45f), by marginal or scalar dorsal retouch. These tools average 110 x 81 x 24 mm in dimensions, and a 58° working angle. Retouching covers all or most of generally convex edges. Use marks - edge crushing or polishing - are visible on most specimens; two examples, including the core tool, are fractured opposite to the scraping edge, providing them with a backing.
**FLAKE KNIVES** (Plate 46a-f)

The sample includes 27 flakes modified on one of the longest edges by marginal (23) or edge (4) retouching. Edge angles vary from ca. 30 to 60° (x 42°), flaking being dorsal (13), bifacial (7) or ventral (6), and alternating in one case. In the same proportions, edges are convex, concave, straight, or denticulate. Except for 7 fragments, these tools can be divided into three subgroups, also found at Ste-Anne, depending on the relative dimensions of the flake supports. Four thick and wide flakes (x 98 x 40 x 11 mm) have one or both of the longer edges retouched. All but 3 modified edges have been utilized, probably as knives, and a few tools show additional use marks on another edge.

Two other tools, one of them fragmentary, merit a particular mention for their unique features. The complete specimen (260 x 52 x 20 mm) is made from a very large thick flake, broken along a longer edge to form a thick back. The opposite edge is broken in the same manner at the proximal end, thereby forming a handle. Above, this edge is beveled by one removal, its 30° edge modified by marginal irregular retouch (Plate 46d). This tool, probably a handled knife, shows various use marks: edge polishing and crushing, and parallel striation on one adjacent face along the working edge. The other specimen shows similar characteristics, but its blade portion is fragmented.

**UTILIZED FLAKES** (Plate 46g-j)

Flakes which exhibit various types of utilization signs, generally discontinuous crushing marks along part of one or two edges, amount to 33
specimens, including 4 blades. These flakes have been selected for their rather large dimensions (X 79 x 67 x 14 mm), and generally were slightly used on a straight, convex or concave margin. In some cases, serrated margins, caused by the tearing of some flakes from the core, were utilized. Sharp (X 34°) edges indicate we are mainly dealing with knives; one very thick specimen (116 x 74 x 42 mm) shows heavy hammering and edge crushing signs along all margins.

Unexcavated Sites and Assemblages

Parts of the 1973 and 1975 field seasons were devoted to intensive surveys between Les Méchins and Marsouí, and 27 other sites were sampled. The survey technique consisted in walking along all terraces at 5, 10, or a maximum of 20 m intervals. Recently plowed fields could be rapidly examined while small test pits were excavated about every 10 m in areas covered with vegetation. Special attention was given to the vicinity of streams and rivers where locations higher than paleobeaches were also investigated.

At the sites discovered through the reconnaissance, all surface material was collected and usually a few test pits were dug. This was done in order to evaluate the extent of the sites and to remove surface remains rather than to recover large numbers of artifacts. Thus, the collected samples vary greatly and in some cases cultural affiliation cannot be identified, but maximum age limits can usually be established on the basis of site elevations.
Although some sites add little information in terms of artifacts, all provide some data concerning their locations, and the types of sites which can be found in north Gaspé. For these reasons, all sampled sites are presented. In the following section, each site and pertaining data are briefly described (Tables 18 - 20). They have been arbitrarily ordered from east to west (Figure 2).

BOUDOUL SITE, DhDm-4

This site is situated in the village of Marsoui, on the 32 m terrace which follows the east bank of the Marsoui River. About 250 m inland, it stretches to an area at least 2000 m², covering the full width of this narrow (≈ 25 m) paleobeach. Until now, this terrace has known little disturbances, mostly because of its altitude and relatively small size; it has never been plowed and mature trees cover the site.

The material recovered comes mainly from three test pits (1.75 m²) dug both in the front and back of the terrace. The artifacts were found in the Ae horizon of the undisturbed podzol and include 2 projectile point fragments (Plate 47a-b) probably from a single specimen; 23 bifaces, the majority unclassifiable fragments; six retouched flake knives; a utilized flake; a quartzite spall; three cores and 412 flakes including one of quartz. Among the 33 tools, at least 11 seem utilized and most of the remainder seem to represent broken preforms. Two chert outcrops were noted a few hundred meters north and west of the site.

Interpretation. Although no features were uncovered, the proportion of utilized tools indicates a living site which, considering its extent,
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was probably visited several times. In the absence of diagnostic artifacts, elevation would relate these occupations to the Late Paleo-Indian stage.

MARSOUI QUARRY SITE, DhDm-5

On the west side of, and parallel to the Marsoui River is a very narrow terrace, some 30 m in altitude. It is difficult to reach for, to the north, it is separated from the present beach by a cliff and, to the east, from the river valley by abrupt slopes. This terrace is backed by a steep slope which rapidly reaches an altitude of 225 m. In several places, particularly to the north, this slope is clear of vegetation but covered with fallen debris, rock fragments of various dimensions among which is a large quantity of chert. Obviously, this chert outcrops higher on the hill, and a great number of tabular pieces were available for knapping on the terrace. Other than logging activities and the presence of a footpath, this terrace shows no evidence of human disturbance.

The clearing of the profile, a podzol, at the northern edge of the terrace produced a large number of naturally broken chert fragments, and among them 58 pieces of flaking detritus - mainly thick débordement flakes - and two unfinished biface fragments. Similar material was noted in two small tests on the adjacent part of the terrace which is wider and forms a 450 m² gently sloping area.

Interpretation. The relative inaccessibility of this location, the presence of raw material, and the type of flaking detritus indicate that the northern part of the terrace overlooking the St. Lawrence was utilized as a quarry site. Pieces of chert have been trimmed, and the preforms produced were probably taken to be finished elsewhere, at a
living site. This location may have been visited repeatedly but from the meager material recovered, it is impossible to recognize the tradition(s) represented.

VALLEE SITE, DhDn-3

West of the Vallée Stream, across from Station C of the Ruisseau Site (DhDn-2) and also on the 45 m terrace, meager traces of prehistoric activities were noted. This terrace runs parallel to the stream but is separated from it by a steep slope. Some 500 m inland, in a plowed field, two test pits 10 m apart, produced 5 flakes in the plowed zone of a podzol. The dozen other tests spread on this 35 m wide terrace, however, were sterile.

Interpretation. We may be dealing with a small camp site whose cultural affiliation is, evidently, unassignable. Elevation, however, suggests an early occupation.

CASTOR SITE, DhDn-4

The site is situated on the east side of the Castor Creek which flows halfway between Cap-au-Renard and Grande-Tourelle, in the hamlet of Ruisseau-Castor. In this locality, these paleobeaches average between 43 and 20 m in altitude, the last one falling abruptly on the present beach. These terraces are parallel to the St. Lawrence which forms a bight, known as l'Anse à Jean, east of the stream.

Material was found on the plowed surface of each paleobeach. Near the Castor Stream, 14 flakes were recovered from the highest terrace;
some 150 m to the east, 10 more flakes were found on the middle 30 m
terrace; and the lowest one, 400 m further east, yielded 2 cores. These
remains were scattered between 250 and 140 m from the St. Lawrence.
Numerous test pits were dug in the podzol surrounding each group of finds
but no other remains were to be discovered.

Interpretation. The material is too scarce to warrant any comparison.

LEPAGE SITE, DhDo-1

Across from the previous site, on the west bank of the Castor
Creek, traces of human occupation were also found. They were concentrated
in a small potato field, an area 50 by 30 m, on the 45 m terrace, some
200 m inland. This terrace is a narrow fossil beach of the Gaultthwait
Sea running parallel to the river.

From the furrows of the field, 10 tools and 51 flakes were
recovered. Tools consist of 4 thin biface fragments, 3 of them from
finished and utilized knives; three thick biface fragments (Plate 47c);
and 3 flake knives one of which is ulu-shaped (Plate 47d). No excavations
could be made within the field, but a small test immediately to the north
showed a few chips in a podzol. Other tests on the terrace were sterile.

Interpretation. The Lepage site is probably a camp site; its restricted
extent and elevation suggest a single occupation related to the Late
Paleo-Indian stage, a conclusion somewhat confirmed by the frequency of
thin bifaces and the ulu-shaped tools.
PETITE-TOURELLE SITE (DhDo-2)

At the eastern limit of Petite-Tourelle, a hamlet between Ruisseau-Castor and Grande-Tourelle, a site was discovered 50 m west of an unnamed though rather important stream. The site is situated 170 m inland, on the 45 m terrace, in an area presently occupied by fields. To the north, after an abrupt drop of 5 m limiting another narrow terrace, the terrain falls steeply onto the present beach. Toward the south, the terrace rises gradually to a 70 m elevation, and beyond that the plateau begins.

In a cultivated field, archaeological remains brought to light by plowing were scattered in a 50 by 20 m area near the front of the terrace. Among the 24 tools recovered in 1975 are 5 projectile point fragments, among them a lanceolate preform and a small diamond-shaped specimen ground along the proximal edges; an oval based pressure-retouched drill fragment; various bifaces; and 8 retouched or utilized flake knives, among which are 3 quartzite spalls. Eleven specimens show traces of utilization. In addition, 2 cores and 156 flakes were collected.

As the site was to be destroyed by road construction, it was the object of a large scale excavation in 1976 (Benmouyal 1976:2-28). Close to 180 m² were opened (ca. 20% of the site's area). The collection, 344 tools, a core and some 7500 flakes, was mainly in the plowed part of a podzol, and no features or charcoal remains had survived agricultural activities. Among the tools are more diamond-shaped and lanceolate points, some showing evidence of pressure flaking; a variety of thin, oval, lanceolate, and thick bifaces, and flake tools, including side scrapers, knives, and quartzite spalls. Except for the latter, all artifacts are
of local chert, and more than half the tools seem to have been utilized. 

**Interpretation.** The categories of tools and the high frequency of utilized artifacts indicate we are dealing with a camp site probably associated with the final Late Paleo-Indian stage.

**SKATING-RINK SITE, DgDo-13**

In Petite-Tourelle, east of a creek - Ruisseau à la Chute - the Goldthwait Sea has left several terraces, three of which are of interest. The highest one is situated about 75 m from the stream at an altitude ranging from 53 to 60 m; immediately north and averaging 40 m in elevation, is the middle terrace; and to the east, starting about 200 m from the stream, lies the last terrace, 10 m lower. Near the source of drinking water and north of the 30 m terrace, the terrain drops abruptly onto the present beach, while further east intermediate terraces exist. These three paleobeaches, Stations C, B and A, respectively, have recently known various disturbances (agriculture, bulldozing and house-building) which have brought cultural remains to the surface of the podzol.

Station A. On the rather large 30 m terrace, near its western limit, the ground had been leveled for the construction of a skating-rink. Some 200 m from the St. Lawrence, material was found in a 100 by 75 m area, on the truncated surface and dirt heaps. It includes 4 projectile points fragments (Plate 48a-d) similar to other specimens from Moulin (Plate 54c-d) and Petite-Tourelle sites, various biface fragments (Plate 49e), retouched and utilized flakes, and 156 unmodified flakes. Among the 28 generally broken tools, at least 10 have been utilized or seem to belong
to finished tools.

Station B. Fourteen tools and 169 flakes were collected from this small plowed terrace which extends near the stream. This collection comes from the surface and two tests (2.5 m² in area) situated within an area of some 400 m², about 180 m inland. Of the 10 biface fragments and 4 retouched flakes, only the latter seem to have been utilized, the former being mostly broken preforms.

Station C. To the south is the highest terrace which also has been plowed. Sparsely scattered were 2 large biface fragments and a dozen flakes, mainly near the center of the terrace. An exploratory test 1.5 m² in area, near the highest concentration, yielded a basal fragment resembling Plano points—probably a percussion flaked preform (Plate 48f) - 2 thick biface fragments, and 43 flakes.

**Interpretation.** Living sites are postulated in all three cases although the evidence is rather thin. It appears that Station C may represent a Late Paleo-Indian occupation; while Station A seems related to the Early Gaspé Tradition. The middle terrace gave no significant material which would allow cultural affiliation.

**TOURELLE SITE, DgDo-5**

Discovered by the S.A.G. (Provost and Ross 1972:36), this site is located near the Grande Tourelle Stream, across from the St-Joachim site. Undiagnostic material (Table 18) was found on two small terraces parallel to the stream, 30 and 42 m in altitude. These terraces, disturbed by plowing and various constructions, are situated 150 m inland. Judging
from the surface distribution, the site covers two areas about a dozen
meters in diameter, some 60 m from each other. The collection amounts
to 12 tool fragments, one of which shows use marks, a core, and 240 flakes.

**Interpretation.** Apparent site areas could indicate two short occupations
of undetermined ages.

**PATATE SITE, DgDo-10**

East of the Patate Stream, about one km from the previous site,
the land rises rapidly to the altitude of 76 m through a series of narrow
sloping terraces facing the stream mouth. On three of these terraces,
averaging 30, 38 and 65 m in altitude, a total of 75 flakes were recovered
from the surface and three test pits. In addition, 3 biface fragments
(Plate 48g-h) were collected from the highest terrace from which there is
an excellent view over the St. Lawrence. Of these fragments, 2 are large,
probably utilized, specimens. DgDo-10 lies about 200 m inland and is
extensively plowed.

**Interpretation.** Little can be concluded from the material at hand. One
or several occupations may be represented; they probably belong to the
Late Paleo-Indian or Gaspe Tradition stages.

**ROAD-CUT SITE, DgDo-9**

Half a kilometer west of the previous site, near an unnamed brook,
11 flakes were recovered at the front of a rather wide terrace, 38 m in
altitude. This material was concentrated in a road-cut, on a one meter
distance, and several tests revealed no other remains. The terrace near
the site was under cultivation and showed evidence of land leveling which may have displaced other prehistoric material.

**Interpretation.** The material is insufficient to allow any comparison.

**MONT-ALBERT 2 SITE, DgDo-8**

East of Mont-Albert, the eastern limit of Ste-Anne-des-Monts, a series of ancient beaches of the Goldthwait Sea run parallel to the St. Lawrence. In this locality, the main source of drinking water is a small unnamed stream flowing eastward and emptying in the St. Lawrence north of the Ste-Anne site. Mont-Albert 2, the most productive surface collected site, covers an extensive area east of this stream.

The remains were scattered on various paleobeaches ranging between 27 and 61 m above the present sea level. The sample recovered was found to form several horizontal clusters, but at least some flakes were located throughout the site, between the clusters. As these concentrations also vary in elevation and, thus, can be the vestiges of several occupations, they have been grouped into four stations, stations A to D. Furthermore, three clusters on Station B have been distinguished (Figure 30).

The collection, consisting mainly of surface finds unearthed by yearly plowing, was gathered during the 1973-1975 field seasons. It includes 411 tools which, except for most flake tools and some other specimens, are fragmentary and probably unfinished. Most seem to have been broken during their preparation, and only about 5% of the fractures are recent (as can be seen from the different patinas); due to agriculture and grazing animals. In addition, 29 cores and more than 3900 flakes were recovered (Table 29).
Figure 30. Mont-Albert 1 and 2, DgDo-7 and 8 (from a map by the ministère des Terres et Forêts, Quebec)
In general, the material shows a great homogeneity both in the chert utilized - this chert seems to outcrop on the highest terrace - and tool types. Furthermore, it is similar to that found at the neighbouring Ste-Anne site. Tools include 11 projectile points, 4 drills, 353 bifaces of various shapes and dimensions, 25 retouched and 17 utilized flakes, and a hammerstone. Although almost all bifaces are fragmentary, they seem to belong to the same groups found at Ste-Anne. They include lanceolate, triangular and oval ones; all three varieties of thin bifacial knives; and both narrow and wide specimens. Retouched flakes, mainly knives and a few side scrapers, also fall in the range of those from Ste-Anne, but no blade tools were encountered. Some flakes and large quartzite spalls show signs of wear; however, they form a relatively small sample, possibly because of the difficulty in distinguishing use signs from alteration caused by recent disturbances. Cores are similar to those from Ste-Anne, and the hammerstone from Station B-2 shows two use facets. The remaining tool categories, projectile points and drills, and the particularities of each sample are described with each station.

Station A. An important cluster of material is situated on the 27 - 37 m terrace immediately north of the stream, some 375 m inland. A few remains found further north and across the stream of the same elevation are also included here. The sample, some 1265 flakes and 124 tools (Plate 49), includes 4 projectile point fragments: a base and 3 mid-sections. Two narrow and parallel-sided specimens (for example Plate 49a-d) may belong to Plano points, although they show only a few pressure removals. The others are pressure-flaked and are similar to both diamond-shaped groups
from Cap-au-Renard A. Of the 107 fragmentary bifaces, five show use signs and one has been reworked along a fractured edge. One utilized quartzite spall brings the frequency of utilized tools at 17%.

Station B-1. A cluster of material was located east and northeast of the previous one, on the 40 - 45 m terrace. Surface collections yielded some 1000 flakes and 131 tools (Plate 50). The latter include 4 projectile point fragments and the proximal part of 4 drills. One point (Plate 50a), delicately pressure-flaked, is a Plano specimen whose fragmented tip has been roughly rounded. Another base and 2 wider mid-sections (Plate 50b-d) may belong to similar point preforms.

A drill fragment (Plate 50e) is bottle-shaped and similar to a specimen from Ste-Anne except for its concave thinned base forming two ears. The others are oval-based and one of them, made on a flake, the striking platform in proximal position, is only marginally retouched.

Bifaces include a complete-narrow and thick preform and a smaller one (Plate 50m-n). About a dozen bifaces and most retouched flakes, among them an ulu-shaped knife and a side scraper of coarse quartzite, seem to have been utilized. Some 25% of the tools from this station show use marks and appear to be finished specimens.

Station B-2. Also on the 40 - 45 m terrace, northeast of the preceding one, this area is situated near a small swamp, intermittently a pond nourished by two brooks. Mainly at the back of the terrace, a sample of about 1200 flakes and 96 tools (Plate 51) was collected from the furrows of a potato field and a square meter test which revealed the rich potential of this
<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B-1</th>
<th>B-2</th>
<th>B-3</th>
<th>C</th>
<th>N</th>
<th>Total</th>
<th>%</th>
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<td>4</td>
<td>4</td>
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<td>---</td>
<td>1</td>
<td>1</td>
<td>2,7</td>
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<tr>
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<td>2</td>
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<td>1</td>
<td>1</td>
<td>7</td>
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<tr>
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<td>---</td>
<td>---</td>
<td>4</td>
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<td>---</td>
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<tr>
<td>Bifaces</td>
<td>107</td>
<td>108</td>
<td>83</td>
<td>41</td>
<td>14</td>
<td>353</td>
<td>85,9</td>
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<td>8</td>
<td>17</td>
<td>3</td>
<td>---</td>
<td>38</td>
<td>10,8</td>
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<td>Triangular and</td>
<td>26</td>
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<td>4</td>
<td>3</td>
<td>34</td>
<td>9,6</td>
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<tr>
<td>Thin</td>
<td>51</td>
<td>32</td>
<td>28</td>
<td>26</td>
<td>5</td>
<td>142</td>
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<td>7</td>
<td>10</td>
<td>1</td>
<td>34</td>
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<tr>
<td>Large</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>26</td>
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<tr>
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<td>11</td>
<td>9</td>
<td>5</td>
<td>7</td>
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<td>9</td>
<td>7</td>
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<td>49</td>
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<td>17</td>
<td>9</td>
<td>9</td>
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<td>2</td>
<td>59</td>
<td>16,7</td>
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<td>Narrow</td>
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<td>9</td>
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<td>34</td>
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<td>5</td>
<td></td>
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<tr>
<td>Other fragments</td>
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<td>25</td>
<td>18</td>
<td>7</td>
<td>4</td>
<td>80</td>
<td>22,7</td>
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<tr>
<td>Flake tools</td>
<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Side scrapers</td>
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<td>3</td>
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<td>---</td>
<td>3</td>
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<td>52,4</td>
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<td>Utilized flakes</td>
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<td>6</td>
<td>2</td>
<td>17</td>
<td>40,5</td>
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<tr>
<td>Hammerstone</td>
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<td>---</td>
<td>---</td>
<td>1</td>
<td>0,2</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>124</td>
<td>131</td>
<td>96</td>
<td>45</td>
<td>15</td>
<td>411</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td><strong>Cores</strong></td>
<td>15</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flakes</strong></td>
<td>1265</td>
<td>1000</td>
<td>1210</td>
<td>287</td>
<td>131</td>
<td>3893</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The 2 projectile points, both edge-ground along the stem portion, are diamond-shaped (Plate 51a-b), one of them a reworked basal fragment, similar to those recovered from Cap-au-Renard A. Among the remaining tools, none is complete, and except for the flake tools, few show recognizable use marks. A lanceolate biface is provided with a long stem (Plate 51c), and a narrow thick biface is almost complete (Plate 51f).

Utilized tools (15% of the sample) include 3 large quartzite spalls.

Station B-3. Further northeast, three clusters of remains on the same terrace have been grouped. Forty-five artifacts, mainly biface fragments, and 287 flakes were collected from the surface of plowed fields. All flake tools and a biface, 11% of the tool sample, show use marks.

Station C. On a small terrace 53 m in altitude, immediately east of Station B-1, a few test pits and surface collections have yielded 15 tool fragments and 131 flakes. Artifacts include a possible Plano point preform, and biface preforms among which are 3 oval and triangular specimens (Plate 52).

Station D. Finally, in a newly plowed field, 60 m above sea level and east of the previous station, 48 flakes were recovered. They were scattered on the surface, among a great number of broken slabs of chert brought to light by plowing. Several exploratory tests were opened but no additional remains were found.

Interpretation. It appears that the main attraction of this site's location was the presence of chert. Although no outcrops were noted, the situation may have differed during the site's occupation. Agricultural activities
on the highest station brought to light great quantities of chert of the
same type utilized at the site, indicating that bedrock lay close to the
surface and was recently buried by soil formation. A similar condition
seems to have prevailed at the Ste-Anne site, less than one km to the west,
where the construction of a logging road behind the site has exposed
bedrock and chert at the same altitude.

This site appears to have been visited several times; judging
from the number of clusters, at least six times. In most cases, however,
tool manufacturing was not the only activity conducted. The various
frequencies of utilized tools indicate that other activities were conducted,
probably domestic ones. Although the area of the site has been repeatedly
plowed, displacing and altering much of the original data, excavations
would probably provide sufficient information to support this interpretation.

The data at hand suggest that all clusters on Station A and B,
the largest and most productive terraces, are the vestiges of living sites.
This interpretation is based on the frequency of utilized and completed
tools, between 11 and 25% of the tool samples, the highest percentages
being found at those clusters nearer to the stream. On the other hand,
Station C and D have given only preforms and/or flaking detritus—possibly
but improbably sampling discrepancies—and were apparently flaking areas.
These clusters are also on the smaller terraces, nearer to or right at
the source of raw material.

Cultural affiliation can be ascribed to the most productive
regions. Station B-1 and C with their Plano points, and drills in the
first case, clearly belong to the Late Paleo-Indian stage exemplified at
Ste-Anne; similarities in other groups of tools and in site elevation should also be stressed. On the basis of projectile point types, Station B-2 may be compared to the Petite-Tourelle site and one component of Canau-Renard A. These manifestations are not dated by radiocarbon, but seem to mark the end of the Late Paleo-Indian stage in the Gaspé. On Station A, both forms of projectile points were found, and both periods may be represented. The last two clusters of material, B-3 and D, cannot be precisely compared but, presumably, belong within the same time range.

MONT-ALBERT 1 SITE, DgDo-7

The site is situated south of the previous one, on the left side of the unnamed stream, and immediately east of St-Anne's gravel pit, also on the 40 - 45 m terrace (Figure 30). It was discovered during the 1973* survey when recent plowing had brought material to the surface. It was then systematically surface collected, a search which brought 42 tools, mainly preform fragments, 3 cores, and 214 flakes, mostly scattered at the western part of the site.

The following year, as this area was fallow and no material was visible on the surface, exploratory tests were made in the hope of uncovering a larger tool sample. Of the 20 half-meter squares opened, ten were sterile, and the remainder only gave 35 flakes. The boundaries of the site were approximately defined; they include an area of some 6000 m² in which material is sporadically scattered.

The material (Table 20) includes various forms of bifaces among which is a probable bipointed fragment (Plate 53c) similar to a specimen
Table 20
Mont-Albert-1 (DgDo-7) Assemblage

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Projectile points</td>
<td>3</td>
<td>7.1</td>
</tr>
<tr>
<td>Bifaces</td>
<td>37</td>
<td>88.1</td>
</tr>
<tr>
<td>Lanceolate</td>
<td>4</td>
<td>10.8</td>
</tr>
<tr>
<td>Small oval</td>
<td>3</td>
<td>8.1</td>
</tr>
<tr>
<td>Thin</td>
<td>11</td>
<td>29.7</td>
</tr>
<tr>
<td>Small fragments</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Oval</td>
<td>6</td>
<td>16.2</td>
</tr>
<tr>
<td>Other fragments</td>
<td>13</td>
<td>35.1</td>
</tr>
<tr>
<td>Flake tools</td>
<td>2</td>
<td>4.8</td>
</tr>
<tr>
<td>Side scrapers</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Flake knives</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>Cores</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Flakes</td>
<td>249</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>42</td>
<td>100</td>
</tr>
</tbody>
</table>
from the Gagnon site (Plate 55c), and 2 complete oval preforms (Plate 53b). 

Projectile points, a complete finished specimen and the distal part of 
2 preforms, seem to share the same features. The first one (Plate 53a) is 
a long (94 x 29 x 8) lanceolate side-notched point. It has slightly 
convex sides converging to the tip, and a chipped, probably straight base. 
The semi-circular notches, 5 to 6 mm in diameter, are some 15 mm from the 
base; both notches and the edges below are ground. Bifacial flaking 
consists of transverse parallel and subparallel, relatively wide and flat 
removals, some of which were probably pressure-flaked. The margins show 
irregular removals which sharpen and straighten the edges. Other side-
notched forms were found at Cap-au-Renard A and B (Plates 26c-d and 29f). 

Interpretation. It is difficult to recognize the nature and age of the 
site from the inadequate sample. Its location is probably related to the 
chert outcrops nearby, at Ste-Anne and Mont-Albert 2. Flaking activities 
are well documented by the bifaces, generally preforms, and other detritus, 
but other activities should not be eliminated as at least 4 tools show 
signs of utilization. Tentatively, the site is interpreted as a camping 
site of the Early Gaspé Tradition, probably related to the Gagnon site 
and one component of Cap-au-Renard B.

LECLERC SITE, DgDo-2

This site was first discovered and sampled by the S.A.G. (Provost 
and Ross 1972:12). It is situated 1.6 km inland, on the 40 - 45 m 
terrace, south of the village of Ste-Anne-des-Monts. Limited to the north 
and southeast by abrupt slopes, with a recurrent stream running along the
front edge, this 100 m wide fossil beach has also been the scene of plowing.

In 1973, a small field some 25 by 40 m was surface collected. In the collection of 354 flakes, 2 cores, and 34 tools, at least 17% of the latter are utilized or completed. Bifaces include lanceolate and thin specimens similar to Ste-Anne's (Plate 54a-b).

**Interpretation.** The material and elevation of this site suggest a camp site of the Late Paleo-Indian stage.

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STE-ANNE RIVER SITE, DgUp-4

The only polished stone artifact in the collection was found on the right bank of the Ste Anne River, the most important body of water flowing into the St. Lawrence in the area of research. This site is situated on the 15 m terrace overlooking the meandering estuary, 850 m inland. Presently, this locality is witnessing disturbances by a vast housing development, including land leveling and road building, and in several areas the upper part of the podzol has been removed, uncovering the sand and gravel layers of the Goldthwait Sea.

Material was found on the truncated surface in three locations. Three flakes were on the sand at the front of the terrace; the polished stone fragment on a sand road some 150 m south; and a thin biface edge fragment was recovered near the western edge of the terrace. Dozens of test pits were practiced in the remaining undisturbed areas but to no avail.

The polished stone is a pendant or gorget fragment of trapezoid or triangular shape. It is made of banded slate and shows a biconical
perforation 4 mm in diameter (Plate 54e). The perforation is not concentrical and was probably produced with a hand held drill.

**Interpretation.** This small sample does not allow discussions as to the nature of the site. Other polished stone artifacts found on the 6 m terrace further east on the peninsula (Benmouyal 1977:60-67), indicate we are dealing with a relatively recent site of the period following the Gaspé Tradition.

**STE-ANNE CEMETERY SITE, DgDp-3**

This site shares the features of the previous one but is situated on the west side of the Ste Anne River. Here, the 15 m terrace is occupied by a modern cemetery and several fields.

Material - eleven flakes — was found on the leveled surface outside the northeast corner of the cemetery. In addition, a thick retouched flake and a granular quartzite flake were situated some 400 m further south. Several test pits were opened between the two finds with negative results. It appears that if more material exists, it could be situated within the limits of the graveyard.

**Interpretation.** Little can be inferred from this material recovered. The absence of raw material sources in the vicinity, and the small number of remains, suggest that this site was possibly a fishing-hunting station related to the fauna of this estuarial environment. Its elevation indicates a relatively late occupation.
MOULIN SITE, DgDp-2—

West of Ste-Anne-des-Monts and near the Moulin Stream, material was found in a plowed field half a kilometer inland at the altitude of about 38 m. North of this site, the terrain slopes down gently following a series of ancient beach ripples; to the south, the 45 m terrace is marked by an abrupt rise in which bedrock and chert outcrop.

The material was found in a 30 by 60 m area, about 120 m east of the stream, and had been brought to the surface by plowing. The collection includes 7 stone tool fragments, 2 pieces of pottery, and 70 flakes. Two projectile points (Plate 54c-d) are unclassifiable but resemble specimens from the Skating-Rink A site. The first one has very narrow parallel sides and would resemble a drill's mid-section had its mid-section been rhombic rather than biconvex. Three biface preforms and 2 flake knives complete the lithic sample. All flake tools and projectile points appear to have been utilized or completed tools.

The pottery sherds are undecorated body fragments which could belong to the same vessel.

Interpretation. At least two groups, probably attracted by the chert outcrops, seem to have visited the site. A recent occupation is indicated by the pottery fragments; the lithic sample may be related to the Gaspé Tradition.

GAGNON SITE, DgDp-1

The Gagnon site is situated 3.5 km west of the previous one, within the limits of Cap-Chat, near the Gagnon Stream. Some 800 m inland,
material was found on both sides of the stream at an altitude of ca. 35 m. Two main clusters were noted. One, 120 m west of the stream, covered an area about 50 by 30 m in a plowed field; the second one, slightly to the north and 30 m east of the stream, was in a road cut and an adjacent bulldozed surface some 10 m in diameter. Additional finds, mainly flakes, were made further east and west of the stream.

Altogether, the sample recovered from the surface amounts to 25 tools and 260 flakes. The tools, 36% of which show utilization marks, include 4 complete specimens: two points, a leaf-shaped bipointed biface, and a similarly shaped retouched flake (Plate 55).

A projectile point (Plate 55a) from the second cluster has a triangular blade with straight or slightly convex sides, and a long broad narrowing stem with straight sides covering half the total length. Both edges along the stem and the convex base show evidence of grinding. Rather thin and wide expanding removals predominate on both faces, and the margins show irregular sporadic retouching. In outline, this point (62 x 24 x 5 mm) is similar to the long diamond-shaped specimens from Cap-au-Renard A (Plate 29d-e); flaking techniques, however, vary from percussion to pressure in each case.

The second point (Plate 55b) from the first cluster is shorter (63 x 22 x 6 mm), triangular in outline, with parallel sides below mid-length and slightly convex converging sides above. Partly thinned by short marginal removals, the convex base remains thick, and one corner is chipped probably from a thinning attempt. Bifacial flaking is similar to that of the previous point but hinged removals predominate on one face,
and small irregular retouching on the reverse straightens both edges. This point appears unfinished, and was probably intended to be similar to the previous examples.

The leaf-shaped biface (119 x 48 x 11 mm) is bipointed and widest at a third of its length; above, the sides are slightly convex; below, they are straight, one of them being lightly ground. Bifacial flaking is composed of rather wide thin removals, often hinge-fractured on one face, and the margins are thinned by irregular retouching. This biface (Plate 55c) may have been used as a hafted knife but no use marks are visible on the working edges. It somewhat resembles a broken specimen from Cap-au-Renard A (Plate 30e).

One of the retouched flakes (Plate 55d) is shaped like the previous tool but its maximum breadth is at the center (79 x 40 x 3 mm). One side is bifacially retouched along the margins, while the other — possibly the striking platform of the flake support — is marginally thinned around the center, mainly on the ventral face. This knife is similar to a specimen from La Martre's 30 m terrace (Ross n.d.:107).

Among the other bifaces, all of which are fragmentary, a thin specimen shows heavily ground edges. All three remaining flake knives are complete and show use signs along the prepared edges; one of them is ulu-shaped, retouched along the edge opposite the striking platform. Interpretation. The data at hand suggest we are dealing with two camp sites of a similar tradition. This site was probably associated with chert outcrops, although none is visible today in the immediate vicinity. Finally, point types and other tools relate this site most closely to
Cap-au-Renard A and the Gaspé Tradition.

CAP-CHAT 2 SITE, DgDq-3

A single retouched flake of fine-grained local green chert, probably a side scraper, was found in Cap-Chat, on the surface of a plowed field 29 m above sea level and 150 m inland. Intensive research around this find was negative.

Interpretation. It was learned that during the construction of a bridge, soil from the Cap-Chat site was dumped in several parts of the village (see also Provost and Ross 1972:12). This tool appears to have been transported from the same site; its material, common at Cap-Chat, supports this interpretation (Barré 1975:47-48).

SERGERIE SITE, DgDq-2

Almost one km west of the previous site, on the same terrace, another single find was made on a plowed field. This distal end of a projectile point (Plate 56a), made of banded local chert, was found 250 m inland, 32 m in altitude, near a recurrent stream. No other material was found in the vicinity.

Interpretation. A stray point of unknown cultural origin which, however, resembles wide stemmed specimens from Cap-Chat (Barré 1975:Figure 36,4) and is possibly related to this site.

FOURNIER SITE, DgDq-4

This site is situated 1,5 km east of the previous one; southeast
of the Cap Chat Cape, near the Fournier Stream. It covers an area 60 by 30 m in a plowed field, some 400 m west of the stream, at the southern edge of a gravel pit. The site is located 600 m south of the St. Lawrence, approximately 53 m above the present sea level. The collection, 10 tools and 21 flakes, includes a long oval-based drill fragment (Plate 56b), various biface preform fragments, and 3 retouched and utilized flake knives.

Interpretation. The high elevation and drill fragment indicate a camp site of the Late Paleo-Indian stage.

PETITS-CAPUCINS SITE, DgDq-6

In the hamlet of Petits-Capucins, near a stream bearing the same name, remains were found on the 5 - 6 m terrace, some 20 m from the St. Lawrence. Material was located in a cut along road 132 and up to 12 m further south, 25 to 200 m west of the stream. This area had been plowed, leveled and disturbed by the construction of several houses. In a 2 m² test, a cluster of 511 flakes was found in the Ae horizon of a podzol; they include decortication as well as small retouching flakes, indicating the preparation of tools from raw material fragments rather than cores.

From the road cut and the surface, a very small and crudely made bifacial tool (Plate 56c), a preform fragment, a large block of chert, and 109 other flakes were recovered. No outcrops of raw material was noted in this area, but several colors of chert and a few quartz flakes are represented in the sample.

Interpretation. The largest part of the site seems to have been destroyed
by the construction of the road. If this were a living site, as indicated by its position and the absence of chert outcrops, only the stone tool manufacturing area has been preserved. Considering its elevation and the variety of raw material represented, this is a recent site, probably of the Late Gaspé Tradition.

CAPUCINS SITE, DgDq-5

Fifteen flakes were found on the surface of a field some 700 m inland and one km west of the Petit-Capucins Stream. These remains were thinly scattered in an area 50 m in diameter, at the back of the ca. 40 m terrace. No test excavation could be practiced at this site.

Interpretation. Flaking detritus indicates the preparation of bifaces, but other interpretations must await further research.

OUELLET SITE, DgDr-3

This site is situated halfway along the Petits-Méchins Cove, on the 3 - 4 m terrace, 20 m from the St. Lawrence. Some 250 m east, flows an unnamed stream and further, another small stream: the Petits Méchins River. The material - 46 flakes, a point, biface fragments, and 2 flake tools - was recovered from the furrows of a field under cultivation in a 60 m squarish area. A dozen tests opened around the field were sterile; the stratification, under the plow zone, was a series of sand and gravel strata containing shell fragments probably of natural origin.

The projectile point (Plate 56d) is a side-notched basal fragment of dark gray quartzite. The thinned base is slightly concave; the
notches are semi-circular, about 4 mm deep, and ground. The biface, a basal fragment of translucent quartzite (Plate 56e), shows thin and long removals on the faces and irregular scars along the margins. The base and one side are straight, while the opposite side is convex and shows signs of use. The flake knife, prepared on its longest straight margin, is also made of transparent quartzite while the utilized flake is of gray chert. Quartzite is also represented by 20 flakes; the remainder are of local black or gray chert.

Interpretation. The small extent of the site and use marks on all tools suggest a camp site. Its altitude and the presence of quartzite artifacts indicate cultural affinities with the Late Gaspé Tradition, and particularly with Cap-Chat where similar projectile points have been found (Barré 1975: Figure 37).

CAP DES MECHINS SITE, DgDr-2

Material was gathered from the surface, southwest of the Méchins Cape which separates two wide coves. It was scattered on both sides of road 132 for a distance of 800 m and a maximum width of 250 m. In addition to the road, this area is highly disturbed by plowing, leveling and various constructions. The main cluster of material was found south of the cape and north of the highway, in a bulldozed field some 30 m in altitude. Several soundings were practiced but all were sterile.

The surface collection yielded 181 flakes, and 5 tool fragments including a pressure-retouched thin biface (Plate 56f), a flake knife and a side scraper, all of local dark gray chert.
Interpretation. The elevation of the site and the remains could indicate a Gaspé Tradition site.

GRANDS-MÉCHINS SITE, DgDr-4

This site was located one km east of the Grands Méchins River, on the ca. 45 m terrace, and some 800 m from the St. Lawrence. Material was found in a 100 by 50 m area, in a plowed field near a gravel pit. It includes 24 flakes, 2 flake knives, 2 biface fragments and the tip of a projectile point (Plate 56g). The latter is the only tool in the collection made of brownish red chert which outcrops in the north Gaspé, according to a geologist, Serge Biron (pers. comm.).

Interpretation. The thinly scattered material could indicate a small camp site of unknown age.

JULIETTE SITE, DgDr-5

In the Méchins village, at the corner of two streets, a few remains were found in a road cut, on the ca. 15 m terrace overlooking a stream. The material recovered includes 2 flakes and 2 thin biface fragments showing use marks (Plate 56h). The test pits excavated in this area were unfruitful.

Interpretation. The data could be interpreted as a small camp site of the Late Gaspé Tradition.
MECHINS SITE, DfDr-1

This last site, at the western limit of the surveyed area, is located on the 45 m terrace dominating the Grands Méchins River. On the bulldozed and plowed surface, in a 100 m square area at the front of the terrace, 62 flakes and 2 thin biface fragments were found.

Interpretation. Surface leveling seems to have completely destroyed this site. The few remains and their elevation indicate an early manifestation.
Chapter 5

CULTURE HISTORY AND CONCLUSION

The data presented in the previous chapter, especially the material variability, radiocarbon datings, and site elevations, have shown that the Gaspé was inhabited during several prehistoric periods. The information gathered varies considerably from site to site and in most cases, it is limited to a handful of undated surface remains. A few excavated single-component sites, however, have produced sizable tool samples in datable context and, on this basis, two main stages of human settlement can be distinguished. First, a Late Paleo-Indian stage best illustrated at the Ste-Anne-des-Monts site; second, a more recent stage which is here defined as the Gaspé Tradition. They were followed by a Late Prehistoric period during which the area of research was mostly uninhabited.

The initial stage is simply identified as Late Paleo-Indian and is thought to have occurred around 6000 B.P. Terms such as complex, phase, culture or tradition, as usually defined (see Willey and Phillips 1958; Dunnell 1971), have been rejected for they would require data which, it is believed, are presently wanting. In particular, sites assigned to this stage have yielded an assortment of material remains, and some of these, including diagnostic tools such as projectile points, have a distribution
which exceeds the limits of the Gaspé. This stage is chiefly characterized by pressure-flaked lanceolate projectile points and a series of secondary tools. However, presently, no ecological feature seems to distinguish it from the subsequent development.

The following stage, lasting into the beginning of our era, has been tentatively termed the Gaspesian Tradition although additional information is needed to define it adequately. It is, however, represented at a group of sites, showing cultural persistence, and whose material appears to be markedly distinct from that of all other traditions defined in the Northeast. In accord with a decision taken by a group of archaeologists working in New England and the Atlantic Provinces (Sanger, pers. comm.), the "Archaic" concept is avoided, there being no "Woodland" (i.e. no agriculture and no local ceramic industry) in prehistoric Gaspé.

During the last phase of this stage, sites tend to become scarce and show increasing contacts with neighboring areas. Sometime after the sixth century A.D., the Gaspé Tradition seems to vanish and a few finds indicate that the area under investigation was utilized by populations from up-river, probably the St. Lawrence Iroquois. This last period has been termed "Late Prehistoric".

In this final chapter, each of these stages and periods is discussed and related to other northeastern manifestations. The components from each assignable site are compared and arranged chronologically (Figure 31). Until further archaeological and environmental data become available, it is proposed that the model of prehistoric adaptation presented in chapter 3 prevailed in both early stages.
Figure 31. Cultural and site sequence in North Gaspé. Symbols represent the probable cultural units found at each site; black: dated excavated sites; white: undated excavated sites; parallel lines: undated surface sites.
Early Paleo-Indian Stage in the Northeast

Since the discovery of the Williamson site, Virginia (McCary 1951), evidence for Paleo-Indian occupation in the Northeast has accumulated constantly. The pace of discoveries has accelerated so rapidly that regional reviews and bibliographies summarizing the collection of data have appeared periodically in the literature (see Mason 1962; Griffin 1967; MacDonald 1971; Funk 1972, 1978; Storck 1975; Dragoo 1976). In fact, some areas now appear to have been more heavily populated than the American Southwest, where this tradition was originally recognized (Kraft 1973:57).

Most northeastern archaeologists distinguish two periods or stages in the initial human settlement: an Early Paleo-Indian and a Late Paleo-Indian which have been compared to the Clovis-Folsom and Plano hunters of the Plains, respectively. In a few years, as has been attempted in other areas (Kreiger 1964), a third and earlier stage may still have to be added. Presently it is represented mainly at only one site which seems to have yielded some evidence for a pre-Clovis population in the Northeast. This is the Meadowcroft Rockshelter, a deeply stratified, multicomponent site located in the unglaciated Appalachian Plateau of western Pennsylvania (Adovasio et al. 1975, 1977, 1978). The data have not yet been fully reported, but the earliest material includes several hundred pieces of flaking detritus (among them blades and microblades), and a dozen tools: flake knives, unifaces, bifaces, gravers and microgravers, and an unfluted, possibly reworked, lanceolate point. The cultural affiliation of this material is still undetermined, and probably will
remain so until a much larger sample is recovered; a high antiquity for the assemblage—around 16,000 B.P.—has been proposed (Adovasio et al. 1978:638-644), but has been questioned (Haynes 1980; Mead 1980; Adovasio et al. 1980).

The Early Paleo-Indian, on the other hand, is much better documented, though still not well understood. It is well represented at several dozen camp sites, a few quarry sites also serving as hunting camps, and by literally hundreds of small or individual surface finds. Contrary to the western counterparts, kill sites are rare, a situation probably related to various environmental factors including the general absence of bone preservation in the Northeast. In terms of chronology, few sites have been radiocarbon dated and some, such as Dutchess Quarry, New York (Funk, Walters and Ehler 1969), and Bull Brook, Massachusetts (Byers 1959), have given early and late dates which are questionable. In many cases, remains have been correlated with geochronological phenomena and maximum ages could be established, but this lack of precision has created problems in studies dealing with inter-assemblage variations. Nevertheless, a few rare sites have been reliably dated. The best example is Debert, Nova Scotia (Stuckenrath 1966), where thirteen hearth-associated charcoal samples average 10,600 ± 47 B.P. Further south, some areas became unglaciated earlier and it is generally believed that this stage lasted from around 12,500 to 10,000 years ago (Funk 1978).

Evidence for Early Paleo-Indian hunters has been found in almost every region of eastern North America, particularly in the south. Sites have been discovered in most American states from Michigan to Massachusetts
(see Fitting 1975; Ritchie 1969; Funk 1976; Eisenberg 1978; Kraft 1973, 1977; Ritchie 1953, 1957; Robbins and Agogino 1964; Jordan 1960), but across the border, in Canada, they are less common. In Ontario, mainly near the Great Lakes, more than fifty fluted points have been collected (Kidd 1951; Garrad 1971; Storck 1978a), and recently a partly undisturbed site was excavated, yielding, among other lithic remains, over 80 fluted points and knives (Roosa 1977). In the Maritime Provinces, is the Debert site (MacDonald 1968), the most significant manifestation in the Northeast for this period. Surface fluted points were also recovered elsewhere in Nova Scotia, New Brunswick and Prince Edward Island (MacDonald 1968:124; Turnbull 1974, 1978). But in Quebec, no fluted projectile point or any other indication of Clovis-Folsom penetration has yet been found. During this early stage, all of southern Quebec was deglaciated, although partly flooded by the Champlain Sea, and large areas offered environments similar to those exploited further west, south and east. The Reagan site, Vermont, is situated only 10 km south of the province near Missisquoi Bay, on Lake Champlain; the Davis site, a small camp, and other surface finds are associated with old marine terraces on the same lake, further south; and fluted projectile heads are also reported in Maine (Ritchie 1969) and New Hampshire (Sargent 1973). Although the Reagan site seems relatively late, it is proposed that this large gap in Quebec is mainly due to a lack of systematic research in the southern part of the province.

The cultural remains which have survived from this stage are essentially lithic assemblages. Considering the vast area and the long time period they cover, these assemblages, from Michigan to Nova Scotia,
are remarkably uniform except in projectile point forms. In many cases, the variation which exists in the frequency of certain tool types can be attributed to differences in sample size. Other differences have been related to site function (for example, Eisenberg 1978), but other variables including chronology, raw material availability and, to some extent, regional specialization probably also played a role. It should also be mentioned that striking similarities in both tools and dates are also to be observed at western and southern sites (MacDonald 1968:140-146; Stuckenrath 1969:101), indicating a rapid spread of this tradition on this continent.

Tool assemblages from several northeastern sites have been compared by Funk (1972, 1976), Kraft (1973), MacDonald (1968), and others. Here, it is sufficient to mention that, with the exception of the Reagan site, most or all sites share the following: a variety of fluted points; a few bifacial knives and pièces esquillées; a large proportion of end scrapers, a significant number of which present graving spurs; and other unifacially retouched tools including side scrapers, perforators, gravers, flake knives and spokeshaves. Hide, wood and bone technologies have also been inferred (MacDonald 1968:111-114), and parallels made with bone artifacts from Lindenmeier, Colorado (Roberts 1936), Blackwater Draw, New Mexico, and other sites (Cotter 1962).

This homogeneity has been correlated to:

"... a highly conservative way of life, attuned to the requirements of a specialized subsistence pattern dependant on the ubiquitous megafauna of the late Pleistocene environment"
This megafauna, mainly mastodon, mammoth and elk, has left remains overlapping Paleo-Indian sites in chronology and distribution. It has been found in surprisingly large numbers in several areas of the Northeast, particularly in New York State (Ritchie 1969), neighbouring states and the continental shelf (Kraft 1973:59-64). Parallels with the big game Plains hunters, and the synchronous presence of the proboscidea in the Northeast were often noted. This circumstantial evidence was interpreted to mean that extinct large mammals were an important food-source, but no such archaeological association was discovered in the East (Dragoo 1976: 9). The only tangible evidence of subsistence have come from the Holcome site, Michigan (Cleland 1965) and the Dutchess Quarry cave site (Funk et al. 1969), both giving caribou bones, probably those of Barren Ground caribou. Caribou hunting has often been interpreted as being the main food-procurement activity in the Northeast, and this interpretation is supported by the archaeological and environmental data at hand (see Fagan 1978; Gramly and Rutledge 1981), as well as the position of most sites on elevated spots. This reconstruction has led several archaeologists to make further analogies with historic groups in terms of patterns of settlement and subsistence. The groups used are the Barren Ground Eskimo (Fitting 1965) and the Montagnais – Naskapi of northern Quebec–Labrador (MacDonald 1968:129-133), two people known for their dependance on caribou; and the Tuluqmiut, a band of Nunamiut Eskimo of interior Alaska (Funk 1976:226-228), a somewhat less specialized people for whom, nevertheless, caribou hunting played a central role. However, the data
available are much too limited to allow the formulation of testable analogies with any historic group. It may be pointed out that caribou migrations are seasonal and, unless it can be shown that the Early Paleo-Indians followed the herds and generally disregarded all other animals, they had to rely on other resources part of the year. Presently it is reasonable to suggest, as was proposed by Ritchie (1957), that they utilized every food resource available, including small animals and plants (see also Fitting 1968), and that their settlement pattern was more complex than has been proposed. This position is supported by the presence of fish bones and plant remains at the Shawnee-Minisink site, Pennsylvania, and the recent settlement pattern study by Eisenberg (1978). Furthermore, the important association of fluted points with former levels of the Great Lakes and Lake Champlain strongly suggest some maritime orientation.

Late Paleo-Indian Stage in the Northeast

Whereas in most areas, relatively recent sites are more numerous than older sites, the Late Paleo-Indian seems weakly represented in the Northeast. Several archaeologists (Fitting 1968, 1975:57-66; Ritchie 1971:3, and others) have suggested that this situation could be related to environmental restrictions, particularly to the low carrying capacity of pine dominated boreal forest in this time period. In front of the growing data, others have indicated that parts of the Northeast were inhabitable, indeed inhabited, and that the apparent scarcity of people, could be related to small group size, as well as site destroying agents such as fluctuating river and sea levels (Dincauze and Mulholland 1977; Rippetoe 1977; Fagan 1978). In any case, populations subsisting mainly
on resources available in large bodies of water would be little affected by land vegetation and, as we shall see, site distributions indicate that such an adaptation was already prevailing during this period.

This stage's "diagnostic" tools are lanceolate or leaf-shaped projectile points exhibiting parallel flaking, and their occurrence is generally sufficient to relate them to this period. In the Plains, equivalent points are much more common and often associated with extinct species of bison at kill sites (for example, Wheat 1972). They are referred to as "Plano" and have been subdivided into a series of types and complexes, among them Plainview, Agate Bassin, Firstview, Midland, Hell Gap, Angostura, Alberta, Eden Scottsbluff, Cody, Frederick... (Wormington 1964; Irwin and Wormington 1970). These points present a great variety of morphological features. Some resemble unfluted Clovis and Folsom types; others are triangular or parallel-sided, sometimes shouldered, and most archaeologists feel that they have developed from the earlier Clovis or Folsom forms (Willey 1966:44). In the Northeast when similar points are discovered, they are often compared to the western varieties, and few have been found in sufficient number to warrant a new type designation.

Almost twenty years ago, Quimby (1960:41) noted that Plano-like points tend to occur much farther north than fluted points. This observation concerned the Upper Great Lakes but seems to also apply to more easterly regions. In the Northeast, the most significant sites of this period are often distributed along the Great Lakes/St. Lawrence axis or further north, and few manifestations have been found in New England. However, at least some surface specimens have been reported from most
states and provinces.

The greatest density of known Plano sites is concentrated near the Plains and around the Great Lakes, often on strandlines of post glacial lakes. For this reason, Quimby (1960:34-42) proposed the label "Aqua-Plano", while the more specific cultural designation "Satchell complex" is preferred by Fitting (1975:57-63). Site types in this region are also more diversified and include quarries, living sites and burials. Some of the most important sites are Renier, Wisconsin (Mason and Irwin 1960), several sites in Michigan (Fitting 1975); and in Ontario, Lake George (Greenman and Stanley 1940, 1943; Greenman 1948, 1966), Brohm (MacNeish 1952), and Sheguiandah (Lee 1954, 1955, 1956, 1957; Sanford 1971), all of which have yielded an important quartzite industry. In the same area are a number of sites and surface collections reported by Storck (1971, 1972, 1973, 1978a, 1978b) and Deller (1976a, 1976b). Further north, is the Grant Lake site, N.W.T. (Wight 1976). Toward the east, sites are more thinly scattered and mainly occur as isolated finds or problematic manifestations. Plano-like points have been found on Thompson Island, Upper St. Lawrence (Ritchie 1969; Wright 1978), Mistassini-Albanel Lakes, Quebec (Martijn and Rogers 1969:246-248), possibly Tadoussac, Quebec (Wintemberg 1943; Lowther 1965), New Brunswick (Sanger 1973:126), New Hampshire (Ritchie 1969), and New York (Funk and Schambach 1964). Two problematic sites are Reagan, Vermont (Ritchie 1953, 1957), and Plenge, New Jersey (Kraft 1973, 1977). Both have yielded Clovis-like points as well as unfluted and lanceolate specimens, and thus have been interpreted as terminal Early Paleo-Indian or early Late Paleo-Indian. However, these
sites lack stratigraphic context and at Plenge, Woodland and Archaic artifacts are associated with Paleo-Indian remains in the plow zone. The possibility of intermixture, therefore, cannot be excluded. In addition, a group of sites from the Strait of Belle Isle, Labrador, seem to be of Late Paleo-Indian age and to indicate a maritime adaptation. Some of these sites have small triangular projectile points with thinned concave bases, thumbnail scrapers, various bifaces, and pièces esquillées which suggest a connection with Early Paleo-Indian assemblages (Tuck 1975, 1976, 1977; McGee and Tuck 1975).

Finally, what could be considered the most complete, though rather limited, evidence for this stage in this part of the Northeast, has come from the north Gaspé coast. Sites situated between Les Méchins and Marsouï, are discussed below, but similar manifestations have been discovered further east at Grande-Vallée and Rivière-au-Renard (Benmouyal 1977, 1978a).

Late Paleo-Indian Stage in the Gaspé

The archaeological research reported here covers the central coast of northern Gaspé. It involved an extensive survey with salvage excavations at four localities. At the Ste-Anne, St-Joachim Cap-au-Renard, and Ruisseau sites, some of them occupying two or three adjacent terraces, 15 to 106 m² (X 60,9), excavations have yielded sufficient amounts of data to permit some interpretations. The survey covered the central zone between Les Méchins and Marsouï, and 27 additional sites were sampled.

It is believed that the great majority of sites extending 50 m² or more have been discovered, a successful yield due to a number of local circumstances. Among the most important are the facts that (1) the area
of research is composed of relatively narrow, well defined, and accessible terraces; (2) post-occupational soil deposition is generally absent; and (3) most terraces have been plowed or otherwise disturbed, thus bringing artifacts to the surface where they could easily be recognized.

The first conclusion which can be drawn with some confidence is that the investigated terraces were not occupied by Early Paleo-Indians. This is based on the thorough procedures used in the survey which yielded no artifacts related to this stage, and is also supported by our present knowledge of ice retreat in the peninsula. As was seen earlier, the Gaspé was probably uninhabitable until it became ice-free, some 9800 years ago, and probably even later, if a lapse of several centuries is allotted for vegetation and animal re-entries. If the generally accepted age of this stage in the Northeast (i.e. 12 500 to 10 000 B.P.) is accurate, Early Paleo-Indians had disappeared before coastal Gaspé was settled.

The earliest evidence of human penetration in the Gaspé is related to the ensuing stage, the Late Paleo-Indian. All excavated sites and several other sites have given remains pertaining to this stage, but the best manifestation was encountered at Ste-Anne. At this site, the excavated areas were protected from disturbances by slope deposits which sealed the oldest floor from subsequent cultural deposition. Some 95 m$^2$ were opened in Sections A and B and more than 350 apparently homogeneous tools were found below the sterile silt layer. The site also yielded the only and earliest radiocarbon date associated with this stage in Quebec and thus may be regarded as the "type site" in terms of cultural remains. In contrast, all other sites lack stratigraphic control and most have produced
smaller tool samples including a variety of artifacts, possibly the result of two or more occupations.

LITHIC ASSEMBLAGES

The only articles of the material culture which have been preserved are stone artifacts. This and the fact that most recovered tools are broken or unfinished specimens, place serious restrictions on identifying the stone industry of this component. More precise statements would require further excavations at Ste-Anne or another stratified site, and hopefully interior sites where distinct activities should be reflected in the tool assemblages. As it stands now, the total sample from Ste-Anne's Sections A and B1, surface, and test pits, amounts to 449 tools. All are made of local materials, namely various cherts, coarse-grained quartzite and iron pyrite, all of which are available at the site or its vicinity. They have been subdivided in relatively few categories and standardized groups some of which seem to possess diagnostic significance.

Projectile points vary in outline but are consistently pressure flaked. The most common form, represented by ten fragments and a preform, is long and slender, parallel-sided, transverse-flaked, and presents a thinned concave, straight or slightly convex-base (Plate 10a-i). This form of point, previously referred to as "Plano", has been reported elsewhere in the Northeast in undated context, but is most commonly found in the Gaspé, particularly at Ste-Anne. Although no complete specimen has yet been discovered, these points share a sufficient number of distinctive attributes to justify a type designation, and the name "Ste-Anne" is proposed.
Two other forms of points should also be mentioned as possible diagnostic tools; each is illustrated by only one example but this may be due to sampling inadequacies. One is wide, rhomboidal in outline, with a long stem defined by slight shoulders and convex sides converging to a pointed base (Plate 10l). The second one, of uncertain shape, seems to be rather short and thick, with straight converging sides and also a shouldered base (Plate 10m).

Drills are another tool found at early sites. The Ste-Anne component includes two examples; one of them is bottle-shaped, but the other one is fragmentary (Plate 10n-o).

Bifaces are a common category of tools at most sites, but they vary in dimensions, outline, and manufacturing techniques. At Ste-Anne, 210 specimens are classifiable and the most frequent are lanceolate or thin and wide. The lanceolate tools, 73 specimens, can be small or large but all have convex sides and generally a rounded or straight base (Plate 11-13). An equal number of thin biface fragments seem to be oval or leaf-shaped knives. They show excellent workmanship, are 17 to 20 times thinner than their width and are retouched by large flat removals. These tools vary in size from small to very large (Plate 15).

Oval and triangular bifaces, grouped here because they are mostly fragmented and indistinguishable at other sites, include 38 examples (Plate 14). Finally, 28 specimens are very large and thick, oval or ovate, and relatively narrow or wide (Plates 16-17).

Flake tools such as utilized and marginally retouched flakes are not generally considered diagnostic of particular assemblages. However,
the types of flakes selected and the retouching can be characteristic of an industry since they vary with flaking techniques and other cultural habits, as well as raw materials and their availability. The Ste-Anne assemblage counts no true unifaces but only marginally retouched and utilized flakes. These are elongated and thick side scrapers, generally wide and thinner flake knives, a variety of flakes used as knives, and heavy-duty quartzite spalls. No detailed study of flaking detritus has been done, but a particular type of flake seems to have been constantly chosen: these are ulu-shaped flakes utilized or modified along the edge opposite to the butt (Plate 18). Finally, it is noteworthy that end scrapers, generally quite common at other northeastern Paleo-Indian sites, are completely lacking at Ste-Anne.

Other sites have given similar material but none duplicates Ste-Anne's industry. All show some variations which can be due to uncontrolled factors such as cultural admixture, temporal disparity, sample size, and/or site specialization.

The most closely related industry was found at the highest station (C) of the Ruisseau site, also on the 45 m terrace. The rather small sample, 139 tools, fits into the same categories and groups of tools as Ste-Anne. Projectile points include two Ste-Anne point preforms and a wide unfinished basal fragment (Plate 44). Drills were also encountered, but seem to have an oval rather than a bottle-shaped base (Plate 44). Bifaces (Plates 44-45) are essentially similar to, or identical with those from Ste-Anne but thin specimens are sparingly represented, probably a consequence of the predominant activity in the main excavation area: tool
manufacturing. Flake tools also include long side scrapers, various knives, but no quartzite spalls. Finally, two large flake knives are provided with a long handle (Plate 46d), a particularity unknown at Ste-Anne.

Another site of the same tradition is St-Joachim, also 45 m in elevation. Its 352 tools exhibit the same groups as the type site (Plates 23-25) with the single exception of projectile points. From a large sample of 48 specimens, most of them unclassifiable, two groups were recognized: two points belong to the Ste-Anne type, but five others are small lanceolate tools with no evidence of parallel flaking (Plate 22a-g). This diversity in the most diagnostic group of tools could be the result of multiple cultural deposition, for which, however, there is no other evidence. A more probable interpretation is that we are dealing with a late manifestation of the local Plano tradition; in this case oval-based drills, the only variety identified at St-Joachim, should also be a more recent development.

The highest (53 m) terrace of the Cap-au-Renard site also gave artifacts comparable to Ste-Anne's. Among these are two Plano points, all bifaces, side-scrapers, and flake knives including ulu-shaped specimens (Plate 26-28). Only drills are absent in the 352 tools recovered. On the other hand, a group of artifacts seem foreign to this industry. They include two side-notched, two lanceolate and four diamond-shaped projectile points (Plate 26); two end scrapers, among them a true uniface (Plate 261-m); and various tools such as an axe-like artifact, a pear-shaped maul, and a chopper-like tool (Plate 28m50). Other associations of
Late Paleo-Indian and side-notched points have been noted at several northeastern sites (see Wright 1978) where they occur repeatedly. Wright (1978:69-74) convincingly argues that the two-point forms seem to be of comparable antiquity in eastern North America but, in the Gaspé, this overlap was encountered only at Cap-au-Renard. It was not found at Ste-Anne, where some stratigraphic control could be exercised, nor at the other two sites discussed above. The presence of other forms of points, end scrapers, and various core tools in the sample, also indicates that we are dealing with a multicomponent site. This interpretation is further supported by the material's horizontal distribution— which suggests more than one occupation— the rather large range of raw materials utilized, and the limited number of terraces suitable for habitation in this locality. Thus, it may be concluded that Cap-au-Renard B yielded an industry very similar to Ste-Anne's and, in addition, an assortment of remains resulting from subsequent cultural settlements. Finally, since all bifaces essentially duplicate Ste-Anne's, this category of tools seems to have remained unchanged for a relatively long period, although the frequency of some groups of bifaces may have varied.

Several of the surface collected sites appear to be also related to this early tradition, but the evidence is usually more tenuous and difficult to assess. In most cases, samples are inadequate, diagnostic artifacts rare or absent, and in some instances, site elevation must be relied upon.

Standing out among all others is Mont-Albert 2. Located near the type site, it produced 411 tools scattered on three terraces ranging from 27 to 53 m in altitude. The most productive cluster (B-1) on the
middle, 45 m terrace has yielded 131 tools. Among them are a finished and reworked Ste-Anne point, three probable preform fragments, and four oval-based and bottle-shaped drills (Plate 50). Since all other categories and groups of tools also duplicate Ste-Anne's material, it may safely be assumed that both sites were contemporary. The same may apply to the highest cluster at 53 m which yielded a possible Ste-Anne point preform.

The other occupations of the site, however, are more problematic. Station A, at the 32 m average elevation, has produced both Ste-Anne and diamond-shaped points (Plate 49). Cluster B-2, on the 45 m terrace gave only diamond-shaped specimens (Plate 52), and B-3, on the same terrace, counts no diagnostic tools. These material clusters may thus represent multi-component or terminal Late Paleo-Indian occupations.

This conclusion seems also to hold true in two other instances: Petite-Tourelle, and Cap-au-Renard A. The first site, on the 45 m terrace, has also produced diamond-shaped points, as well as pressure-flaked lanceolate fragments, drills, and ulu-shaped retouched flakes indicating a late Plano industry (see also Benmonyal 1976). The lower station (A) of Cap-au-Renard, 40 m in altitude, has yielded a variety of projectile points, among them diamond-shaped specimens (Plate 29), and appears to be multi-component.

Lastly, the small sample from Station C of the Skating-rink site, some 60 m in altitude, probably includes a Ste-Anne point preform suggesting a Plano manifestation (Plate 48f).

Mainly on the basis of their elevation, other sites may be related to this tradition, but larger tool samples are required to support this
They include Boudoul, on the 32 m terrace; Lepage, 45 m; Leclerc, 45 m; Fournier, 53 m, which has yielded a drill fragment; and Metchins, 45 m.

In summary, the Late Paleo-Indian stage in the Gaspé seems to be best represented in the lithic industry from Ste-Anne-des-Monts. This site has given the largest tool sample in undisturbed stratigraphic context. Closely related assemblages from other sites seem to illustrate later or transitional changes in most tool categories. Among the projectile points, Ste-Anne points seem to be replaced by shorter lanceolate varieties showing little or no pressure flaking, but this technique persists in diamond-shaped specimens, a type of point which may have developed from the rhomboidal point from Ste-Anne. Drills are apparently present throughout this early stage but oval-based styles seem to supersede bottle-shaped ones. Changes in other bifacial tools, the biface category, are more difficult to assess as most groups seem to persist. Here, the main variation seems to be in the frequency of some groups, and a decrease in the thin biface frequency is best documented in the sample from St-Joachim. Similarly, flake tools remain rather stable throughout this early stage. They include side scrapers and knives, with a marked preference for ulu-shaped flake supports, as well as large quartzite spalls. End scrapers however are totally absent.

AGE

Two methods can be explored in order to date the earliest human establishments found on coastal Gaspé: site elevation and radiocarbon. Each provides maximum or approximate estimates but no precise and definite
date can be presented.

Ste-Anne-des-Monts and other apparently contemporary sites are situated on the 45 m terrace, or higher where this terrace was not locally developed. As was previously seen, this paleobeach was formed some 11 700 years ago but considering that the peninsula was partly glaciated until 9800 B.P., and allowing several centuries for vegetation and animal reestablishment, it seems reasonable to assume that the Gaspé was not settled until some 9000 years B.P. By then, however, the ca. 20 m terrace was being shaped, and it may be concluded that any terrace above 20 m could have been chosen for human settlements since about 9000 B.P. That all early sites are sensibly higher can be explained by several factors: chert outcrops are mainly to be found at the back of the 45 m terrace; inland settlements, as opposed to beach settlements, are less conspicuous and better strategically situated for some activities, such as hunting marine animals (e.g. sea mammals and birds); and higher terraces offer better protection against inclemencies, particularly the prevailing northern winds. Thus, terrace formation provides a maximum age for their settlement but other ecological factors show that no minimum limit can be fixed.

The radiocarbon method can usually provide more precise age estimates, particularly when several samples are dated and/or the dates obtained are cross-dated by some other means. This method was attempted at three early sites: Ste-Anne-des-Monts, Ruisseau C, and St-Joachin but the samples from the last two were insufficient. Only the sample from Ste-Anne was large enough and the age of 5960 ± 100 B.P. was obtained.
This date does appear to be rather recent for a Late Paleo-Indian occupation and several arguments could be presented in this view. First, the time range of 8,000 B.P. is often proposed for similar traditions in the Northeast (see for example Funk 1972:31-36; 1978:48-19). Second, by 6000 B.P. Archaic populations seem already long established in several parts of this area (see for example Funk 1976, 1978:19-27; Rippeteau 1977; Snow 1977; Wright 1978). Last, the single date from Ste-Anne may be viewed as insufficient and unreliable, especially when inconsistent dates from more recent Gaspesian sites are considered.

One may thus be tempted to reject this date and propose an older age, between 7000 and 9000 B.P., for the earliest Paleo-Indian occupation of the Gaspé, a position somewhat supported by the site's elevation. On the other hand, each of the above arguments is weak and the radiocarbon estimate could ultimately prove to be correct. It may be argued that the early time range generally put forward for the northeastern Plano is mainly based on western and southwestern dates and very few reliable regional estimates. Most dated Plano manifestations in the Northeast are situated around the Great Lakes; their age is controversial and based on single carbon samples (e.g. Sheguiandah), or more commonly on beach formation, the latter being also the case of all easterly sites. Concerning the second point, there is ample evidence showing that, in the Northeast, Late Paleo-Indian and Early Archaic manifestations overlap in time, as was shown by Wright (1978). The third argument is the most valid, for all single radiocarbon dates must be considered suspect. However, the dated sample was found under the sterile silt horizon, 62 cm in depth, and its cultural association is undeniable.
Given the paucity of dated similar manifestations in the Northeast, it seems that there are insufficient grounds for rejecting the ca. 6000 B.P. date obtained from Ste-Anne. Because of the particular environment and, more important, relative isolation of the Gaspé, Late Paleo-Indian populations may have persisted longer here than in other parts of North America. Thus, this age must be accepted, albeit with reservations, until additional data become available.

CULTURAL RELATIONSHIPS

Comparing these Late Paleo-Indian industries to northeastern counterparts is, presently, a most unrewarding task because of the scarcity of similar published material. Most comparable components are made up of very restricted samples, and seemingly contemporary sites have produced rather distinct industries. Nevertheless, some comparisons and general suggestions concerning the origin and relations of these early occupations are possible.

The most strikingly similar material comes from two relatively distant sites. The first, yielding a handfull of fragmentary projectile points, is situated on Thompson's Island, a small and narrow island in the St. Lawrence River near Cornwall, Ontario, some 100 km above Montreal. These tools were excavated by G.N. Gogo from a sandy-clay subsoil, a few feet above river level. They were briefly described and their Paleo-Indian age strongly suspected by Ritchie and Wormington (Ritchie 1969:17-18). Recently, they were beautifully illustrated by Wright (1979:34), and an examination of these points at the Archaeological Survey of Canada, Ottawa, confirmed their close resemblance to Ste-Anne's points. (These points,
however, have not yet been described in detail.) Although some Ste-Anne specimens show better flaking control and more regular removals, both groups seem essentially similar or identical in metric, morphological and flaking attributes. Furthermore, as was noted previously, there are strong indications that at least one of the Thompson's Island points is made of the same material as the mottled chert found in the Gaspé. The geographical distribution of this chert, however, is still undetermined and it possibly extends much further west than presently known.

Similar evidence was found at a second site south of the Gaspé. It consists of two projectile point fragments, surface finds from central New Brunswick, which also seem to share the same features as Ste-Anne points (Sanger 1973:126; pers. comm.).

As both groups of points were unassociated with other cultural remains, their significance is severely limited. We do have, however, these diagnostic tools and their place of discovery. Whether these specimens are made of Gaspesian chert, they are so similar to Ste-Anne points that one can safely propose that they belong to the same time period, general tradition, and possibly population. From the Thompson's Island position two more conclusions may be suggested. First, as was proposed previously (Benmouyal 1978b:60; Wright 1979:24), it appears that these early people possessed the use of a form of watercraft, the most probable means of joining these two areas. This would further support the maritime-oriented ecological model outlined in chapter 3, which is largely based on our knowledge of historical Micmac adaptation and adjusted to Gaspesian environmental conditions. Second, Thompson's Island is situated in a
markedly distinct environment although riverine resources would be available. Thus, if the upper St. Lawrence was part of the exploited territory, the tradition sharing Ste-Anne points had a much more complex pattern of settlement than was suggested in our model. Presently, however, the available data are much too scant to permit further speculation. On the other hand, the New Brunswick find can be easily integrated in the proposed adaptational model; this area is adjacent to the Gaspé; it also offers rather similar resources, and this discovery could be related to a winter hunting camp.

Other possible relations may be seen with a number of sites offering specimens reminiscent of the diamond-shaped projectile points which, in the Gaspé, seem to mark the end of the Late Paleo-Indian stage. Such points have been reported at the Plenge site, New Jersey (Kraft 1973: Plate 5a), the Reagan site, Vermont (Ritchie 1953:Figure 89), possibly in Onondaga County, New York (Funk and Schambach 1964:Plate 1), several sites in Ontario (Storck 1971:24; 1973:Plate 1), and Tadoussac, Quebec (Wintemberg 1943:Plate XXV B; Lowther 1965:30-33). These points have been labelled "Plano-like", "pentagonal", "unfluted lanceolate", and "lozenge or diamond-shaped" as well as "Mohave-like". They vary in outline and dimensions but most, like the Gaspesian specimens, are widest above midpoint; have rather straight polished sides below, and show parallel or subparallel retouch on both faces. Only those from Tadoussac, made of quartz or quartzite, are more roughly flaked. Again, we are dealing with private collections, surface finds, or questionably associated industries, and in all cases undated, although probably old, sites. If comparisons
with the rest of the industries are inconclusive, it seems significant to note that all sites are situated in riverine, lacustrine or maritime environments and, with the exception of the Plenge site, on the Great Lakes/Champlain Lake/St. Lawrence axis. Thus, on the basis of the distribution of this form of projectile point, one may be tempted to postulate some form of cultural relationship. The data, however, are too incomplete; the points themselves show some variation, and it may also be argued that the Gaspesian specimens could have been developed locally from the rhomboidal form, associated with Ste-Anne points at the Ste-Anne-des-Monts site (Plate 101).

Finally, a group of sites and complexes around the Great Lakes should be mentioned. Although none duplicates the Gaspesian industries, they are thought to be of Late-Paleo-Indian age and, at a very general level, show some similarities which could suggest a western origin of the material under study. Among them are the Renier burial site in Wisconsin (Mason and Irwin 1960); the Lakehead Complex, a group of excavated and surface sites on the strandline of Lake Minong near Thunder Bay, Ontario (Fox 1975); the George Lake quarry-camp sites on former beaches of Lake Huron (Greenman 1948, 1966; Greenman and Stanley 1940, 1943); Sheguilandah, a quarry-habitation multi-component site on Manitoulin Island, Ontario (Lee 1954, 1955, 1956, 1957); and the Coates Creek hunting station on an old terrace of glacial Lake Algonquin (Storck 1978b). With one exception, these manifestations are mainly dated on the basis of location and elevation at 6000 to 10,400 years before present. The antiquity of Sheguilandah has been much debated (Sanford 1971:2; Fitting 1975:61-62),
but a simple radiocarbon date estimate of 9130 ± 250 B.P. from a nearby peat deposit could accurately date Level III.

The components from these sites, particularly the Plano projectile points resembling Eden, Scottsbluff, Plainview and Agate Basin forms, indicate close relations with the Plains (see Irwin and Wormington 1970). They also include side-notched specimens which seem to suggest affinities with Early Archaic sites further south (see also Wright 1978). More important, they show an important biface industry, among which are large specimens similar to some Gaspesian groups. Further comparisons, however, cannot be made with profitable results: most components are small or insufficiently described, and most are made of quartzite, a material with flaking properties different from the Gaspesian cherts. Furthermore, drills are lacking except for a unique expanding base specimen from the Cummins site (Fox 1975:45); and all industries include end scrapers or other tools such as gravers or choppers, which are totally lacking at the Gaspé's early sites.

Thus, although contrasts in terms of artifacts are predominant—an expected situation considering the geographical distance, distinct environments, site specializations, and temporal disparity involved—some basic similarities exist. They include a predominant bifacial industry and pressure-flaked projectile points. These and the western distribution of Ste-Anne and diamond-shaped points indicate distant affinities with Great Lake-St. Lawrence manifestations, and an ancestral relationship may be proposed.
In sum, the available evidence suggests the following conclusions:

(1) in the Northeast, Late Paleo-Indians seem to have been mainly concentrated near the Great Lakes-St. Lawrence where they adapted to water resources and probably used watercraft; (2) along the north Gaspesian coast, where marine fauna was presumably more stable and abundant, these populations developed a distinct stone industry among which are a particular form of projectile point herein named "Ste-Anne" points, drills, various bifaces, flake knives, and side scrapers; (3) these populations seem to have persisted until relatively late (ca. 6000 B.P.), in comparative isolation, and their closest affinities seem to lie to the west, around the Great Lakes.

The Gaspé Tradition

The second prehistoric stage which has been distinguished, the Gaspé Tradition, is illustrated by relatively few sites. This situation might be related to a sampling bias — a dozen sites have given inadequate tool samples and could not be affiliated with any particular stage — but the sites are also smaller, and this may indicate a population decline. If this were the case, any attempt to explain why it occurred would presently be futile: there simply are no cultural data to which it can be related. Nor is there any indication of a major environmental change; and if there were, one would have to show why these populations did not and could not adapt to such changes in other ways than by reducing their size in coastal Gaspé.

In any case, after a flourishing Paleo-Indian stage, sites tend to become more scarce, and only two dated components form the basic data
for the following stage. They were excavated from the lower terraces of the Ruisseau site, Stations B and A, which were occupied some 4000 and 2000 years ago, respectively. These components are sufficiently distinct to warrant the subdivision of the Gaspé Tradition into Early and Late periods, each exemplified by one of these manifestations. In addition, several surface collections, and parts of two multi-component sites can be assigned to this tradition and provide valuable supplementary data.

**GASPE TRADITION - EARLY PERIOD**

Sites which have material thought to belong to this period include surface sites: Mont-Albert 1 (DgDo-7); the lowest station of the Skating-rink site (DgDo-13 A), and the Gagnon site (DgDp-1); and three excavated sites: both stations at Cap-au-Renard (DhDn-1 A and B), and the middle terrace of the Ruisseau site (DhDn-2 B). None, however, has yielded sufficient data to qualify as a type site.

The most complete evidence was obtained from Station B of the Ruisseau site. It provided radiocarbon dates associated with a hearth, and the largest sample of undisturbed remains resulting from a single cultural deposition. However, from excavations totaling 50 m², only 55 tools were recovered and discounting non-diagnostic specimens, the sample is even more restricted and obviously unrepresentative of the total stone industry. Furthermore, this terrace yielded very few groups of tools - probably because the excavations were conducted in a restricted and specialized area - while the other sites, some of which seem to represent earlier occupations, have given a wider variety of remains. Compared to
Ruisseau B, the shortcomings at these sites include the lack of radiocarbon dates, small tool samples, and the impossibility of segregating occupations at Cap-au-Repard A and B, two multi-component sites.

Our comprehension of the Early Gaspé Tradition stone industry must thus remain incomplete and provisional. Only one lithic assemblage—a combination of all samples—will be described, although there are indications that these sites are not contemporary.

Lithic assemblages

In comparison with the previous stage, two observations can be made about the Early Gaspé Tradition stone industry. First, the same local raw materials, particularly mottled cherts, are used in tool manufacturing. Second, except for drills, the same tool categories continue to be made, but new forms are introduced while old ones seem to diminish in popularity.

Projectile points are now percussion-flaked and become more diversified. Five groups can be recognized, two of which may have derived from earlier forms. The latter include lanceolate points (Plates 26, 41) identical to specimens from St-Joachim, a site assigned to the terminal Late Paleo-Indian stage; and stemmed points (Plates 29 and 35) reminiscent of the long diamond-shaped specimens of the same period. New introductions include the long triangular points (Plates 41, 55), similarly shaped side-notched tools (Plates 26, 29 and 53), and a unique double-notched point (Plate 41).

Bifaces are still made on flake supports, but tools of very large dimensions, both thin and thick, seem to become rare. (Correspondingly, flakes are smaller on the average.) The most frequent bifaces are oval
or triangular (Plates 30, 42 and 53), but small thin specimens are still common, some of them being bipointed (Plates 30, 53 and 55). Lanceolate forms (Plate 48e) were found only at Mont-Albert 1 and the Skating-rink site, probably the earliest sites of this period.

Flake tools still include side scrapers, flake knives and utilized flakes but more specialized tools appear, a situation more fully expressed in the Late period. They include planes (Plate 43a-b) and possibly end scrapers (Plate 261-m) among which is the earliest true uniface. On the other hand, large spalls and ulu-shaped flake tools, each represented only at the Ruisseau B and Gagnon sites respectively, seem to decline soon after the Late Paleo-Indian stage.

Finally, this period seems to have witnessed the introduction of a number of core tools, among them hammerstones, choppers and mauls, most of which are found only in the mixed collection from Cap-au-Renard B.

Thus, although the data concerning these early industries are ill-defined, they unequivocally demonstrate technological continuity between the Paleo-Indian and Gaspé Tradition. This transition can be seen in persistent use of identical raw materials; manufacturing of essentially the same tool categories and forms; and the selection of the same localities, sites or, when possible, lower terraces of those sites for settlements.

Age

Given the uncertain dating for the Paleo-Indian stage in the Gaspé, the time span of the succeeding Early Gaspé Tradition must also be approximate. The 5960 ± 100 B.P. date from Ste-Anne-des-Monts was discussed.
above, and it was concluded that this radiocarbon estimate correctly dates that site's occupation. This settlement, however, was followed by others also assigned to the Late Paleo-Indian stage, but their precise age could not be determined.

With respect to the Early Gaspé Tradition, we possess a reliable age of 3960 ± 117 B.P., the average of two radiocarbon dates obtained for hearth-associated samples from Station B of the Ruisseau site. This leaves a ca. 2000 year span during which the transition between the two stages took place, and most Early Gaspé Tradition sites seem to belong to this transitional period. This is most clearly the case of Mont-Albert 1, on the 40 - 45 m terrace, and possibly both stations at Cap-au-Renard which also yielded material resembling earlier Paleo-Indian industries. The final two manifestations, the Gagnon and Skating-rink A sites, on the 35 and 30 m terraces, respectively, seem slightly more recent than Mont-Albert 1 but older than the dated site. This chronology, however, is presented with reserve, small tool samples and site elevation being inappropriate for sequence dating.

Thus, somewhat arbitrarily, the date of ca. 5000 B.P. may be assigned to the beginning of the Early Gaspé Tradition, which probably lasted until at least ca. 4000 B.P.

**GASPE TRADITION - LATE PERIOD**

The last period of the Gaspé Tradition is illustrated by several surface collections, and chiefly at two major sites: the lowest station of the Ruisseau site (DhDn-2 A), and Cap-Chat (DgDq-1) excavated and reported by Barré (1975). Among them, the Ruisseau site has given the
most complete body of data - the largest single component tool sample, radiocarbon dates and other undisturbed remains - and may be selected as the most representative site of this period. It is situated on the 17 – 18 m terrace and was inhabited some 2000 years ago, thus when the sea was about 6 m above its present level. The Cap-Chat site yielded a more restricted tool sample from several distinct cultural deposits, all of which are more recent than the Ruisseau site. Two charcoal samples from the oldest cultural levels were dated near the end of the sixth century A.D., an age compatible with the low (4 – 6 m) elevation of the site. At least three additional sites also belong to this period, but each produced few cultural remains.

Lithic assemblages

The study of the 270 tools recovered from the relatively small excavations (55 m²) at Ruisseau A shows the same constancy in raw materials and tool categories which have been previously noted. Although the great majority of tools are still made of local materials, a wider range of cherts were also utilized. In addition to the gray mottled variety, we note a marked preference for finer-grained light green and brown local cherts. For the first time, fine quartzite and chalcedony of unknown origin are introduced and used predominantly for end scrapers. Tools are almost exclusively flaked, and the customary categories include the following forms.

**Projectile points** are relatively frequent and usually more crudely flaked than previously. The most common are stemmed or tanged (Plate 32), and reminiscent of the lanceolate and stemmed points of the earlier period. Novel forms, including bipointed and small oval tools (Plate 32), are each
represented by a few specimens, but side-notched points, common at earlier and later sites, are absent at this one.

Bifaces, as at Early Gaspé Tradition sites, are made from flakes whose features can often be recognized, and show the same trend toward smaller tools. Very large bifaces have now disappeared completely; triangular and thin ones (Plates 34-35) seem to decline in number, while there is a resurgence in the lanceolate groups (Plate 33). Of special interest are thick bifacially trimmed flakes (Plate 35a-f) made from heavy, partially retouched flakes with a large striking platform in lateral position. They are the most frequent bifacial tools at the Ruisseau A site and may be diagnostic of the Late Gaspé Tradition.

Flake tools, accounting for almost half the tool sample, display the widest variation found in the Gaspé. They have been subdivided into shaped tools - only occasionally found during the earlier period (planes and end scrapers) - and unshaped, marginally retouched flakes. The first subcategory includes mainly unifaces shaped into knives: oval, triangular, and a unique blade (Plate 37a-f); and end scrapers (Plate 37g-q), which are another diagnostic trait of this period. Unshaped tools were modified into standardized side scrapers, various knives, notched flakes, and a unique burin, or were simply utilized as knives and scrapers (Plates 38-39). Large spalls are now absent.

Lastly, core tools introduced earlier during this stage now reach a higher popularity. They include choppers, small utilized pebbles, and a single gouge-edged tool.
The Cap-Chat site, on the Micmac (i.e. 6 m) terrace at the mouth of the Cap Chat River, is the most recent dated site in the area of research. The 34 m² excavated by Barré revealed three or four prehistoric cultural levels, probably seasonal camps of the same cultural group (Barré 1975:15). These deposits were separated by sterile sand indicating that the terrace was still being formed when it was settled at the end of the sixth century. In addition to storage pits, hearth remains, and several thousand pieces of debitage, some 240 prehistoric tools were brought to light. The great majority closely resemble Ruisseau A's remains, which indicates we are dealing with vestiges of the terminal Late Caspé Tradition Camps.

At Cap-Chat, we also note the following features: the utilization of a wide range of local cherts (mainly green, brown and gray varieties), and to a smaller extent, quartzite and chalcedony; generally roughly flaked projectile points including stemmed, lanceolate, and bipointed specimens; lanceolate and oval bifaces, and possibly bifacially trimmed flakes (Barré 1975:Figure 41); a large proportion (ca. 75%) of flake tools retouched as side scrapers and knives, notched, or shaped into end scrapers at least half of which are of "exotic" material; finally, a hammerstone and a pyrite nodule.

On the other hand, the site has produced tool forms and even industries unknown at the Ruisseau A site. They include six notched points, a spurred flake, and a pièce esquillée. More importantly, a single pottery sherd was found, and from this discovery, Barré concluded Cap-Chat was a Middle Woodland site. Lastly a few bone tools were
encountered; interestingly, two of them are awls which could explain the absence of stone drills at late sites, presuming both tool forms were functionally the same.

Thus, between the sites of Cap-Chat and Ruisseau A, most traits indicate a definite cultural continuity, and the significance of the tool diversity can be related to various factors. The deficiency of bone tools at the earlier site is obviously due to poor preservation.

Differences in lithic tools may be explained by defective samples and/or temporal disparity but the absence of notched points at Ruisseau A remains perplexing, considering their widespread occurrence in the earlier period. Finally, the single pottery find at Cap-Chat should be seen as a foreign introduction resulting from contacts with other groups, rather than evidence of a local ceramic industry. Therefore, Cap-Chat is clearly a Gaspesian manifestation, and its Woodland affinities are unsustained and incidental.

As noted above, several other sites seem to belong to the Late Gaspé Tradition, but they offer little new information on these late industries. In most cases, site elevation is a key factor, but sometimes artifacts or other circumstances also indicate cultural affiliation.

The Juliette site (DgDr-5) which produced two thin biface fragments (Plate 56h), is probably related to Ruisseau A because of its low (15 m) elevation. Two other sites, Ouellet (DgDr-3) and Petits-Capucins (DgDq-6), some 3 and 5 m in altitude respectively, are obviously late. The first one provided four tools, among which is a quartzite side-notched point (Plate 56d), indicating a close relationship with
Cap-Chat; and the same conclusion applies to Petits-Capucins where no diagnostic tools, but a wide range of raw material was represented.

Finally, Cap-Chat 2 (DgDq-3) and Sergerie (DgDq-2) on much higher terraces, seem to have given remains from or contemporary with Cap-Chat for reasons discussed above.

In conclusion, it appears that the greatest number of innovations were introduced during the Late Gaspé Tradition. New tool forms and raw materials of unknown origin contrast with the conservative industries of earlier periods and suggest, as discussed below, increasing contacts with neighbouring groups. These new traits, however, apply to very few remains and are relatively minor in comparison with the continuity noted in the great majority of tools, raw material, and site locations.

Age

Although it is suggested by two sets of radiocarbon dates, the age of this period is uncertain. At Ruisseau A, two hearth charcoal samples averaging 2080 ± 127 B.P. were found, and at Cap-Chat, samples from the oldest cultural level were dated at 650 ± 115 and 540 ± 115 A.D. (Barré 1975:17-18), or an average of 595 ± 81 A.D. (i.e. 1355 ± 81 B.P.). Considering the sites' elevation, these estimates seem to be accurate but provide little information on the time span of the Late Gaspé Tradition.

The early period is believed to have lasted from about 5000 to at least 4000 B.P., the latter being the approximate age of the Ruisseau B site. This creates a 2000 year gap between the Early and Late periods to which no site can be assigned. The transition may have taken place any
time during this interval and, until data to fill this gap become available, the arbitrary date of 3000 B.P. may be set for the outset of the late period. Its termination is equally as vague. It clearly occurred after the settlements at Cap-Chat, thus, sometime after the sixth century.

CULTURAL RELATIONSHIPS

As was seen, the Gaspé Tradition seems to have lasted some 3500 years during which two periods are discerned. This tradition, however, is imperfectly dated and only tentatively defined. It is characterized by poor preservation of paleoenvironmental data and organic material which explains our reliance on a small number of stone industries for its definition. For the early period, we possess a few surface finds, two mixed multi-component collections and a single-component industry, barely 100 tools altogether. The following period, mainly exemplified by two dated sites, is relatively much better known, but it is preceded by a 2000 year chronological gap to which some of the unassignable sites may belong.

Notwithstanding the restrictive data, three developments may characterize the transition between the regional Late Paleo-Indian and Gaspé Tradition stages. First, is the persistence through time of the great majority of early cultural traits; with, second, a gradual modification of some features; and third, the seemingly abrupt introduction of a few new artifacts.

Traits showing continuity are by far the most prominent, and suggest the local evolution of a conservative economy adjusted to a relatively stable environment and exposed to few outside contacts. This
continuity is best displayed in site locations, raw materials, and stone technology. Concerning the sites, we note a tendency to settle lower terraces, sometimes in the same locality, as sea-levels drop. This is clearly illustrated at the Ruisseau, Cap-au-Renard and Mont-Albert sites, and at several surface sites where successively lower terraces were settled. Proximity to chert outcrops seems to have also been a major factor in site selection, and outcrops were noted near all excavated sites except Cap-Chat. Throughout Gaspesian prehistory, local raw materials were utilized overwhelmingly. Cherts, coarse-grained quartzite, sandstone and iron pyrite make up the great majority of the artifacts, and new materials appear in very small quantity only at the end of the Gaspé Tradition.

Lastly, stone technology shows a definite consistency. Stone tools are exclusively flaked, and never polished; most, possibly all, are made on flake supports; and they always consist of projectile points, bifaces and marginally retouched or utilized flakes.

Concomitantly, we note a number of modifications through time, some of which may be more apparent than real. Few are well documented, and explanations may require data which are presently lacking. However, because these changes appear to be gradual they seem internally produced and suggest local development. One important change is the progressive decrease in site area after the Paleo-Indian stage of settlement. As discussed above, this change may be related to undocumented environmental or historical factors, but a simpler explanation is at hand. It is probable that sites associated with extensive raw material sources are generally larger than related camp sites. In the Gaspé, chert outcrops occur at, or near, the 45 m terrace, the very
surface selected by the Paleo-Indians. Thus, the correspondence between site age and surface area seems accidental, and future research on the Gaspé's early sites should try to distinguish purely manufacturing areas from living areas.

It is believed that a flaking detritus analysis and flaking experiments with local cherts would reveal marked technological modification through time, but presently some easily observable trends may be underlined. In particular, pressure flaking, so finely executed on Ste-Anne points, declines in diamond-shaped specimens, and eventually disappears soon after the Paleo-Indian stage. This deterioration may be related to the coeval disappearance of pressure-flaked drills, and their replacement by bone awls, a type of tool exceptionally preserved at Cap-Chat. At the same time, we note that relatively smaller and thicker flakes are produced. This tendency, which persists during the late period, is probably connected with the disappearance of very large bifaces, particularly the thin ones whose preparation requires the removal of very large flakes. Among the other forms, there seems to be gradual changes in tool frequency and smaller bifaces appear to increase in number but, due to small samples, these changes are difficult to assess with precision. During the Gaspé Tradition, the frequency of bifaces decreases and conversely flake tools become more common. Among them, we note a growing variability of form as some are unifacially shaped. Lastly, a few core tools are developed but remain relatively rare.

The last group of changes, those which seem to occur suddenly in the sequence, include the introduction of notched projectile points, end
scrapers, and pottery. Except for the last item, represented by a single sherd at Cap-Chat, a case for independent local development could be made, particularly if one stresses the lack of firm evidence during the 2000 year gap between the Early and Late Gaspé Tradition. On the other hand, these tools were widely distributed in the Northeast, and this strongly indicates we are dealing with foreign introductions.

Notched projectile points were found at the sites of Mont-Albert 1, Cap-au-Renard A and B, Ruisseau B, Cap-Chat, and Ouellet (Plates 26, 29, 41, 53 and 56; Barré 1975:Figure 37). They thus appear very early during the Gaspé Tradition and persist throughout with a possible break at Ruisseau A. These points vary in size but are generally triangular with convex sides, and are provided with small bilateral side notches, double notches in one case, and corner notches in another. Interestingly, all Early Gaspesian specimens are of local mottled chert while most of the recent ones of fine-grained quartz or quartzite.

When they first appeared in the Gaspé, approximately 5000 years ago at Mont-Albert 1, notched points were already widespread in the Northeast. As was seen they are often associated with Late Paleo-Indian lanceolate points, and in some southern regions, their antiquity goes back 9000 years or more in Early Archaic sites (see Funk 1978:19-27). Later, side and corner-notched points predominate in most environmental zones and associated cultural traditions: in the Lake Forest and Laurentian Archaic Tradition, along the Great Lakes - St. Lawrence drainage system (Tuck 1978; Ritchie 1969); in the Shield Archaic (Wright 1972); and in the Maritime Archaic Tradition of the northern Atlantic Provinces, possibly
south to Maine (Tuck 1971, 1976). Point notching was thus an old practice in all areas surrounding the Gaspé, with the exception of the Maritime area where this custom seems to be more recent.

Morphologically, the four early Gaspesian points from Mont-Albert 1 and Cap-au-RENard A and B, vary in outline but are relatively wide and provided with small side notches. All are finely flaked and, were it not for the local chert used, they could pass unnoticed in other northeastern assemblages, particularly in the Shield. The more recent specimen from Ruisseau B is much smaller and double-notched, a very rare attribute, which was probably developed locally. After an absence documented in the Ruisseau A sample, notched points were probably reintroduced around the sixth century as shown by the Cap-Chat and Ouellet sites samples. These new specimens are generally more crudely made, asymmetrical, and mostly of quartzite. This material may have been available in the peninsula, but its major distribution north of the St. Lawrence indicates a northern relationship. These points are often fragmented; they vary in outline, and the lack of typological classifications of similar tools (see Martijn and Rogers 1969:248) precludes precise comparisons.

End scrapers are also a recent form in the area of research. They are only present in the late period of the Gaspé Tradition where they appear 2000 to 3000 years ago. They were found at Ruisseau A and Cap-Chat. They also show great variation, particularly in their shape and retouching which is bifacial, unifacial or marginal. Again, their makers chose fine "exotic" materials in a majority of cases, a preference especially noteworthy at Ruisseau A where these materials were almost exclusively used for these tools.
Elsewhere in the Northeast, end scrapers were universally used throughout prehistory. They can be found in large numbers at Early Paleo-Indian sites (see for example, MacDonald 1968), and persist in all Archaic and Woodland Traditions in varying proportions and shapes. Few of them have a known diagnostic value and tools similar to the Gaspesian specimens could be found in all neighbouring areas, although quartzite predominates in the north. Again, if the groups responsible for their sudden introduction cannot be determined, their distribution in the Northeast substantiates the isolation of the Gaspé during most of its prehistory.

Finally, the pottery from Cap-Chat has been described by Barré who tends to believe this trait was diffused from southern or western Woodland groups (1975:56). When the site was inhabited, pottery was being made and/or utilized in most areas bordering the Gaspé, but specific comparisons could not be made (see Barré 1975:49-56). In any case, the presence of a single sherd during the period under study suggests this vestige, probably a whole vessel, was acquired by the Late Gaspé Tradition inhabitants of Cap-Chat through contacts with an unknown group.

In conclusion, the Gaspé Tradition evolved out of the local Late Paleo-Indian stage, a relationship clearly shown in the stone industries and location of sites. This tradition, in which an early and a late period have been distinguished, lasted from about 5000 B.P. until sometime after the sixth century. It witnessed a local development with few indications of outside contacts until the end of this stage when new tools and materials were introduced. As these new features were widespread in
the Northeast, the groups which came in contact with the Gaspesian population cannot be identified.

Late Prehistoric Period

A temporal rather than a cultural designation is indicated for the period following the Gaspé Tradition and ending with the time of European contact. All surveys (Duval 1970, 1971; Provost and Ross 1972), and our own intensive reconnaissance have yielded no dated site more recent than the sixth century. Only two small sites on the lowest terrace could be relatively late - Ouellet and Capucins, but as the material retrieved is similar to that taken from Cap-Chat, they must be of about the same age.

As was stressed earlier, Jacques Cartier did not mention the presence of any aboriginal settlement in this area during his voyages and, from other historical accounts, this situation persisted throughout the Euro-Canadian period. Archaeological and historical sources thus suggest that north central Gaspé was uninhabited soon after the sixth century and remained so into the Historic period. What happened to the Gaspé Tradition people and why the coast became deserted, are questions whose answers demand further research in the Gaspé and surrounding areas. Presently, however, several elements suggest a reasonable hypothesis which could eventually be tested.

We saw in the first chapter that when Cartier anchored in the Bay of Gaspé, at the eastern tip of the peninsula, he encountered several hundred people on a summer fishing trip. They had come from upriver, near the present site of Quebec, and were agriculturists generally known as the
St. Lawrence Iroquois. They thus lived in the northernmost limit of maize agriculture and had to rely heavily on river and marine resources, an aspect often underestimated by northeastern ethnographers and archaeologists (see Hoffman 1961:202-211). Furthermore, they regarded these distant fishing grounds as their own territory (Biggar 1924:64-67) although they visited them during short periods yearly. Finally, they were at war with people living south of the Gaspé — most probably the Micmacs, the cause of this warfare most likely originating in territorial discord.

These ethnological factors all point toward one interpretation: the displacement or elimination of the north Gaspesian populations by people from upriver, probably the ancestors of the St. Lawrence Iroquois. More numerous than the Gaspesians (see Clermont 1978:41-42) and eventually adopting agriculture at least by A.D. 1000 (Barré and Girouard 1978), they were skilled at successfully carrying out incursions and raids along this rich coastal environment.

At present, this hypothesis is archaeologically supported in two instances. First by the apparently abrupt introductions of several new traits during the Late Gaspé Tradition, introductions which indicate increasing contacts with outside groups as discussed above. Secondly by a number of undated finds which are foreign to the Gaspesian industries. Among them are the two undecorated pottery sherds from the Moulin site; the polished stone pendant from Ste-Anne River site (Plate 54e); and lastly, the cluster of pottery excavated at Ste-Anne-des-Monts, section B II (Plate 21). While all these artifacts are found at Woodland sites along the St. Lawrence valley and further south (Ritchie 1969), the last
item is of particular significance. The pottery from Ste-Anne, as was seen previously, is typically Iroquoian in its decoration, a fact which substantiates our hypothesis. Further support and confirmation would be gained by the discovery and excavation of purely Woodland and Iroquoian sites in the Bay of Gaspé and along the intervening coast, some of which should date back to about the sixth century. As these would be short term fishing stations and overnight camps, one would not expect to find the full range of Woodland artifacts and house features, but a relatively large quantity of ceramics and fishing related tools. Such sites may already have been discovered on Pointe de Penoufl, a low sand bar in the Bay of Gaspé (Duval 1971; Saint-Pierre and Elie 1972), where Middle Woodland pottery has been reported. Unfortunately, these partly destroyed and looted sites remain unexcavated. Finally, sites in areas surrounding the peninsula should yield artifacts indicating Gaspesian influences, providing the Late Gaspé Tradition people were not exterminated. If some confidence can be placed on the oral tradition concerning the pattern of warfare between the Iroquoians and Micmacs, one could anticipate to find these influences to the south, on both sides of the Chaleur Bay and into New Brunswick.

In conclusion, it appears that during the Late Prehistoric period the coast under investigation became deserted and witnessed the disappearance of the Gaspé Tradition people. The causes of the desertion are still unknown but ethnohistorical accounts show that the Iroquoians exploited this rich environment during summer fishing trips, and archaeological data indicate that their ancestors initiated this pattern sometime after the sixth century.
Summary and Conclusion

The culture history of northern Gaspé can be summarized in the following manner:

1. The area of research was first settled by Late Paleo-Indians who developed a distinct stone industry dominated by various bifaces, flake tools, drills, and pressure-flaked projectile points including Ste-Anne forms. These maritime-adapted populations appear to have persisted until ca. 6000 B.P. in comparative isolation, and their closest affinities can be found around the Great Lakes.

2. The following stage, the Gaspé Tradition (ca. 5000 - 1300 B.P.), is mainly the result of a local evolution from the previous stage. The Early Gaspé Tradition (ca. 5000 - 3000 B.P.) shows a great stability in site location and artifact categories and forms, except for the disappearance of pressure flaking and some tools such as drills and spalls. Through the Late Gaspé Tradition (ca. 3000 - 1300 B.P.), the same continuity subsists but some traits, widespread in the Northeast, are introduced in the sequence indicating increased outside contacts.

3. Soon after the sixth century A.D., the Gaspé Tradition seems to vanish and the area of research becomes almost deserted, as it was at contact. A few prehistoric remains and historical data indicate this coast was seasonally exploited by Iroquoian groups.

This research thus provided the first well documented evidence of Paleo-Indians, and one of the longest regional sequence in Quebec. This chronology is admittedly incomplete and, hopefully, it will be
elaborated upon as new research are conducted. Ideally, undisturbed and stratified multi-component sites should be discovered and excavated, but the chances of meeting with such sites on the Gaspesian terraces seem remote.

Toward the reconstruction of past lifeways, a model of human adaptation on the peninsula has been proposed. On the basis of site location, present environment, ethnographic analogy and meagre bone preservation, it was suggested that prehistoric economics and patterns of settlement were maritime oriented, probably similar to those of the historical Mi'cmacs. To support and improve this general model, future research should include a better knowledge of prehistoric environments and the discovery of well preserved organic remains at sites both along the coast and inland.

Finally, this research and other surveys in this region have failed to uncover dated Gaspé Tradition sites more recent than the sixth century. If our interpretation is correct, Iroquoian and Woodland fishing sites, some of them dating back to the sixth century, should be found along the coast. At approximately the same time, Gaspesian influences should be observed in surrounding areas, probably to the south, providing the Gaspé Tradition people were not eliminated.
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PLATE 1

STE-ANNE-DES-MONTS A

The gravel pit, looking east.
PLATE 2

STE-ANNE-DES-MORTS A

Example of stratigraphy; 1. sand; 2. culture-bearing silty sand; 3. silt.
PLATE 3

ST-JOACHIN

The gravel pit, looking east
PLATE 4

CAP-AU-RENAUD

The Vallée house and chapel, looking northeast.
PLATE 5

CAP-AU-RENAUD

The present beach and the cliff north of the site, looking west.
The three terraces are indicated by arrows; looking northeast.
PLATE 7

RUISSEAU A

Part of excavations, looking south.
Part of excavations; the vegetal carpet has been removed except at corner of pits, looking west.
PLATE 9

PETITS-MÉCHINS COVE

Ouellet site is indicated by arrow; looking west.
PLATE 10

STE-ANNE-DES-MONTS A

PROJECTILE POINTS AND DRILLS

a-i. Plano points
j-k. Plano point preforms
l-m. Other points
n-o. Drills
PLATE 11

STE-ANNE-DES-MONTS A

SMALL LANCEOLATE BIFACES
PLATE 12

STE-ANNE-DES-MONTS A

LARGE LANCEOLATE BIFACES
PLATE 13

STE-ANNE-DES-MONTS A

LANCEOLATE Biface PREFORMS
PLATE 14

STE-ANNE-DES-MONTS A

TRIANGULAR AND OVAL BIFACES

a-d. Triangular bifaces

e-h. Oval bifaces

i-l. Oval biface preforms
PLATE 15

STE-ANNE-D'ES-MONT S A

THIN BIFACES

a-c. Small thin bifaces.

d-g. Large thin bifaces

h-i. Very large thin bifaces.
PLATE 16

STE-ANNE-DES-MONTS A

NARROW THICK BIFACES
PLATE 17

STE-ANNE-DES-MONTS A

WIDE THICK BIFACES
STE-ANNE-DES-MONTS A

FLAKE TOOLS

a-c. Side scrapers

d-m. Flake knives

n-q. Utilized flakes
PLATE 19

STE-ANNE-DES-MONTS A

SPALLS
PLATE 20

STE-ANNE-DES-MONTs B I

VARIOUS TOOLS

a-c. Projectile points

d-g. Large thin bifaces

h. Lanceolate biface preform

i. Narrow thick biface

j. Large thin uniface
STE-ANNE-DES-MONTS B II

POTTERY AND PROJECTILE POINT

a. Exterior rim sherds
b. Interior rim sherds
c. Neck and shoulder sherds
d. Projectile point
PLATE 22

ST-JOACHIM

PROJECTILE POINTS AND DRILLS

a. Plano point preform
b. Plano point fragment
c-g. Small lanceolate points
h-r. Other points
s-x. Drills
PLATE 23

ST-JOACHIM

LANCEOLATE AND THIN BIFACES

a-h. Lanceolate bifaces

i-l. Thin bifaces
PLATE 24

ST-JOACHIM

OTHER BIFACES

a-g. Oval and triangular bifaces

h. Large thick biface
PLATE 25

ST-JOACHIM

FLAKE TOOLS

a-b. Side scrapers

C-d. Flake knives
PLATE 26

CAP-AU-RENAWD B

PROJECTILE POINTS AND END SCRAPERS

a-b. Plano points

C-d. Side-notched points

e-f. Lanceolate points

g-k. Other points

l-m. End scrapers
CAP-AU-RENARD B

BIFACES.

a-b. Lanceolate bifaces

c-h. Small thin bifaces

i-k. Wide thin bifaces

1. Large thick biface
OTHER TOOLS

- a-b. Side scrapers
- c-g. Flake knives
- h-l. Utilized flakes
- m. Axe-like tool
- n. Maul
- o. Chopper
Diamond-shaped points

Long

Triangular side-notched point

Small stemmed point

Lanceolate point

Other points

PLATE 29

CAP-AU-RENARD B

PROJECTILE POINTS

a-c. Diamond-shaped points
d-e. Long diamond-shaped points
f. Triangular side-notched point
g. Small stemmed point
h. Lanceolate point
i-l. Other points
BIFACES

a-d. Thin asymmetrical bifaces

e. Thin oval biface

f-g. Other thin bifaces

h-k. Triangular and oval bifaces
PLATE 31

CAP-AU-RENAUD A

FLAKE TOOLS

a-e. Flake knives

f-i. Utilized flakes
PLATE 22

RUISSEAU A

PROJECTILE POINTS

a-g. Stemmed points
h-n. Lanceolate tanged points
o-p. Bipointed points
q-s. Thick-based oval points
t-u. Small oval points
v-y. Other points
PLATE 33

RUISSEAU A

LANCEOLATE BIFACES
PLATE 34

RUISSEAU A

BIFACES

a–c. Thin broad bifaces

d–k. Thick bifaces
PLATE 35

RUISSEAU A

BIFACES

a-f. Bifacially trimmed flakes

g-h. Triangular bifaces
a-c. Large bifaces

d-e. Other bifaces
PLATE 37

RUISSEAU A

SHAPED FLAKE TOOLS

a-c. Oval flake knives

d-e. Triangular flake knives

f. Unifacial blade-knife

g-h. Bifacial end scraper

i-p. Unifacial end scrapers

q. Large end scraper
PLATE 38

RUISSEAU A

SIDE SCRAPERS

a-d. Transverse scrapers

e-h. Lateral scrapers

i-k. Converging scrapers
PLATE 39

RUISSEAU A

RETOUCHE D AND UTILIZED FLAKES

a-d. Wide flake knives

e-h. Notched flakes

i-n. Marginally retouched amorphous flakes

o. Burin

p-w. Utilized flakes
Plate 40

Ruisseau A

Other Tools

a. Gouge-edged tool
b-e. Choppers
f-g. Abraders
h-i. Utilized pebble
PLATE 41

RUISSEAU B

PROJECTILE POINTS

a. Double-notched point
b-c. Small lanceolate points
d-j. Small triangular points
k-m. Large triangular points
RUISSEAU B

BIFACES

a-e. Small triangular bifaces

f-g. Large triangular bifaces
PLATE 43

RUISSEAU B

FLAKE TOOLS

a-b. Planes

c-e. Side scrapers

f. Utilized flake
PLATE 44

RUISSEAU C

VARIOUS TOOLS

a-c. Projectile points

d-e. Drills

f-i. Lanceolate bifaces

j-m. Iron pyrite nodules
BIFACES AND SIDE SCRAPERS

a, d-e. Oval bifaces
b-c. Large thick bifaces
f-h. Side scrapers
PLATE 46

RUISSEAU C

FLAKE TOOLS

a-f. Flake knives

g-j. Utilized flakes
PLATE 47

BOUDOUL AND LEPAGE

a-b. Boudoul. Projectile points

c. Lepage. Thick biface

d. Lepage. Flake knife
PLATE 48

SKATING-RINK AND PATATE

a-d. Skating-rink A. Projectile points

e. Skating-rink A. Lanceolate biface

f. Skating-rink C. Plano-point

G-h. Patate. Large thick bifaces
PLATE 49

MONT-ALBERT 2A

a-d. Projectile points

e. Thin biface

f-g. Large thick bifaces

h. Large thick biface preform or core

i. Retouched flake
PLATE 50

MONT-ALBERT 2B-1

a-d. Projectile points

e-h. Drills

i-j. Thin bifaces

k-l. Oval bifaces

m-n. Narrow thick bifaces

o-p. Retouched flakes
PLATE 51

MONT-ALBERT 2B-2

a-b. Diamond-shaped projectile points

c. Stemmed biface

d-e. Lanceolate biface

f. Narrow thick biface
PLATE 52

MONT-ALBERT 2C

a-c. Oval and triangular bifaces
PLATE 53

MONT-ALBERT 1

a. Side-notched projectile point
b. Oval biface, préform
c. Bipointed biface
PLATE 54

VARIOUS SITES

a. Leclerc. Large thin biface
b. Leclerc. Narrow thick biface
c-d. Moulin. Projectile points
e. Ste Anne River. Pendant
PLATE 55

GAGNON

a-b. Projectile points

c. Leaf-shaped biface

d. Retouched flake
PLATE 56

VARIOUS SITES

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>a</td>
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<tr>
<td>b</td>
<td>Fournier</td>
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<tr>
<td>c</td>
<td>Petits-Capucins</td>
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<tr>
<td>d</td>
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<tr>
<td>e</td>
<td>Ouelle</td>
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<tr>
<td>f</td>
<td>Cap des Méchins</td>
</tr>
<tr>
<td>g</td>
<td>Grands-Méchins</td>
</tr>
<tr>
<td>h</td>
<td>Juliette</td>
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