Prehistoric Settlement and Subsistence Patterns at Gaserpeau Lake, Kings County, Nova Scotia

by

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Abstract

The initial goal of this project was to document the Archaic Period occupation (9,500 to 2,500 B.P.) at Gaspereau Lake, Kings County, Nova Scotia. After completion of an archaeological survey along its shores and an analysis of several private collections containing archaeological materials, the scope of the project was expanded to include the entire prehistoric occupational sequence for the Gaspereau Lake.

The information amassed from survey and collection analysis documents a continuous occupational sequence for Gaserpeau Lake, from the Paleoindian Period (11,000 to 9,500 B.P.) to Historic times. Furthermore, additional analysis of site locations has revealed the preference for specific areas along the lake shore. Overall, it appears that site were placed according to their proximity to natural resources and, especially for easy access to seasonal anadromous fish runs.

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Finally, I dedicate this to my parents, without whom I would not have been able to carry out this thesis.

Chapter 1 Introduction

This thesis re-examines the prehistoric occupational sequence for Gaspereau Lake, Kings County, Nova Scotia (see Figure 1) and develops a model of prehistoric settlement and subsistence for the area. Private collectors have been drawn to this area for decades, because of the dense cluster of sites near the main highway and the easy collection of prehistoric artifacts along the lake shore. However, to date, little professional archaeological work has been carried out at Gaspereau Lake. In 1965, George MacDonald surveyed and tested near the lake outlet above the Gaspereau River and collected Archaic materials from the beach (MacDonald 1965). Encouraged by this survey and reports from a private collector, avocational archaeologist John Erskine, further surveyed the river outlet vicinity and excavated the multicomponent Erskine Site (BfDd-5) in 1967 (Erskine 1967, 1971, 1998). During the 1980s, Don Watson, a local collector, also accumulated a collection from the area through underwater explorations. More recently, Nash and Stewart (1990, 1991) conducted a survey of the Gaspereau River in conjunction with their excavations at a Ceramic Period village at Melanson. Additional survey work was conducted along the north shore of Gaspereau Lake during the summer of 1989. This resulted in the relocation of five sites, namely Cadet Beach (BfDd-11), Cement Cross (BfDd-12), JL6 (BfDd-13), the Landing (BfDd-14) and Burnt Bone Beach (BfDd-8) (Deal 1989a, 1989b). Recently, the Erskine Site (BfDd-5) artifacts were re-examined in order to verify the presence of an Early/Middle Archaic component (Murphy 1996, 1998). These investigations at Gaspereau Lake have resulted in the discovery of culturally diagnostic lithics ranging from the Paleoindian Period, through the Archaic and into the Ceramic .

Despite the abundant evidence for an extensive prehistoric occupation at Gaspereau Lake, little work has been done at Gaspereau Lake in order to develop a clear cultural chronology. This mirrors the situation for Nova Scotia in general. For example, there are no professionally excavated Archaic sites in Nova Scotia, and no single component Ceramic Period sites have been discovered. Furthermore, additional difficulties have been caused by the destruction of prehistoric sites by coastal subsidence and the alteration of the province's interior through the damming of rivers and lakes. In fact, our understanding of the prehistory of Nova Scotia is based largely on comparison with data collected in New England (Davis 1991a).

1.1. Study Area

Gaspereau Lake (see Figure 2) is part of the Southern Upland of Nova Scotia, which is underlain predominantly by granitic bedrock (Austin-Smith *et al.* 1992:5; Roland 1982:161). The general topography of the area is characterized as "gently to moderately undulating" hills with "well to rapidly drained soils" (Canadian Department of Agriculture 1966). Soils of the Gaspereau Lake area fall into the Gibraltar soil series and are characterized as being fairly shallow and stony with a slope between three and nine percent (Canadian Department of Agriculture 1966; Cann *et al.* 1965:65). Acid content is also very high because of the loss of important minerals through leaching (Austin-Smith *et al.* 1992:5). Although

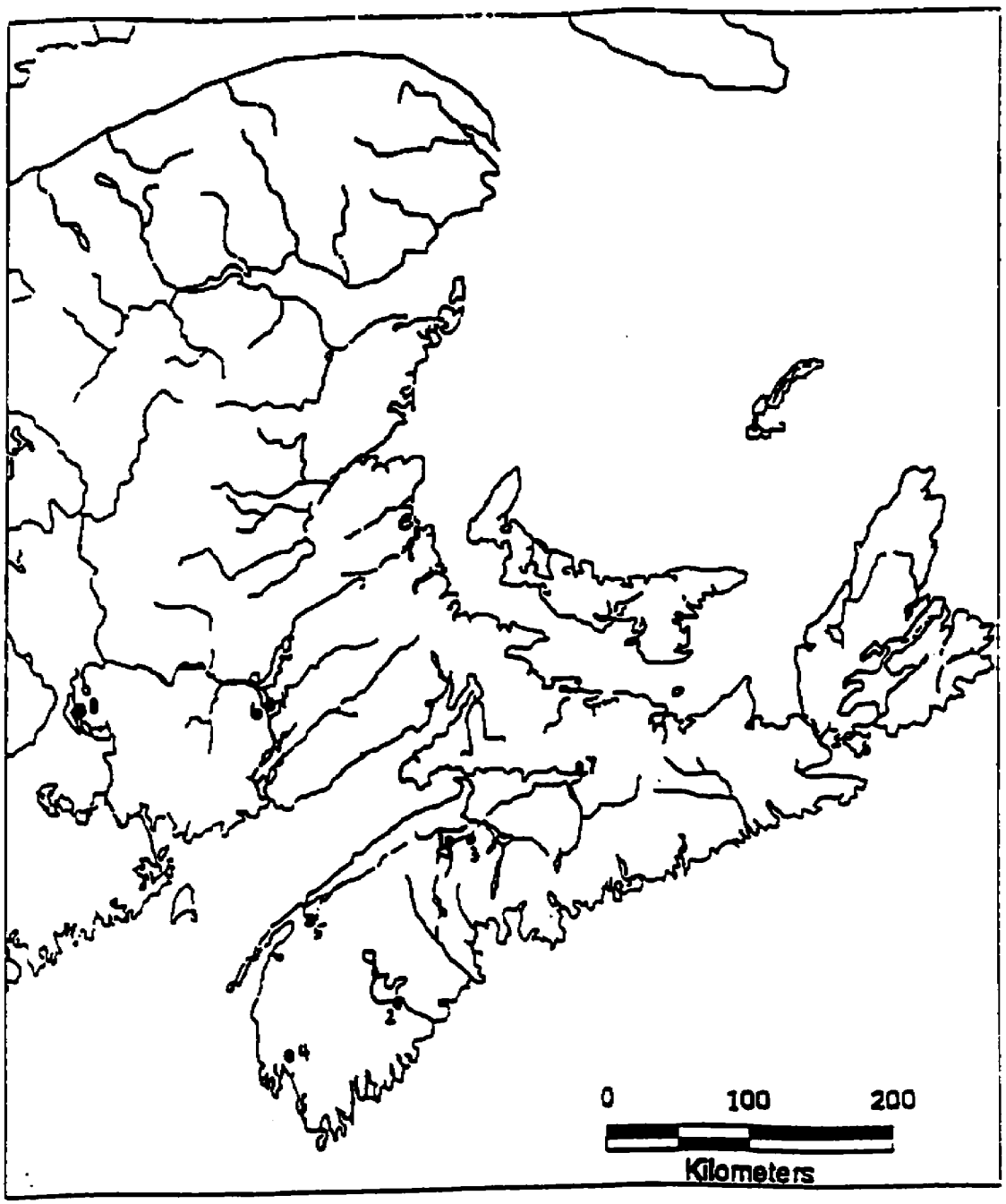


Figure 1: Map of Nova Scotia and New Brunswick indicating various sites mentioned in the text. 1) Gaspereau Lake 2) Lake Rossignol 3) Melanson 4) Tusket Falls 5) Bear River 6) Cow Point 7) Debert 8) Mud Lake Stream

the soils are thin and acidic the slaty soils support a great amount of forest growth (Simmons *et al.* 1984). A mix of hard- and softwood trees occurs, including red spruce (*Picea rubens),* black spruce (*Picea mariana*), white spruce (*Picea glauca*), beech (*Fagus grandifolia*), and yellow birch (*Betula alleganiensis*) (Simmons *et al.* 1984).

Gaspereau Lake is a part of the Gaspereau River watershed. The area has a mean annual temperature of 49 degrees Fahrenheit (10 degrees Celsius), and the annual precipitation is approximately 40 inches (880 millimetres) (Cann *et al.* 1965:91). The surface area of Gaspereau Lake spans approximately 22 square kilometres (Simmons *et al.* 1984:170). The size of the lake varies as a result of hydroelectric damming which can cause "unnatural seasonal water level changes" to occur (Simmons *et al.* 1984:529). It has also been noted that the water levels of the Lake have risen as much as five feet, or one and a half metres, since glacial retreat (Erskine 1998), thus, inundating many archaeological sites.

1.2. Goals and organization

The three major goals of archaeology, as postulated by Binford (1972:81-89) are: 1) the reconstruction of cultural histories, 2) the reconstruction of past lifeways, 3) and the study of cultural processes, or the dynamics of culture change. In a given region, archaeology attempts to establish general time lines for archaeological cultures and interpret changes that occur in prehistoric societies through time. The latter includes adjustments in technology and settlement and subsistence patterning as the surrounding environment itself changed. This research project focuses on the prehistory at Gaspereau Lake and past subsistence patterns

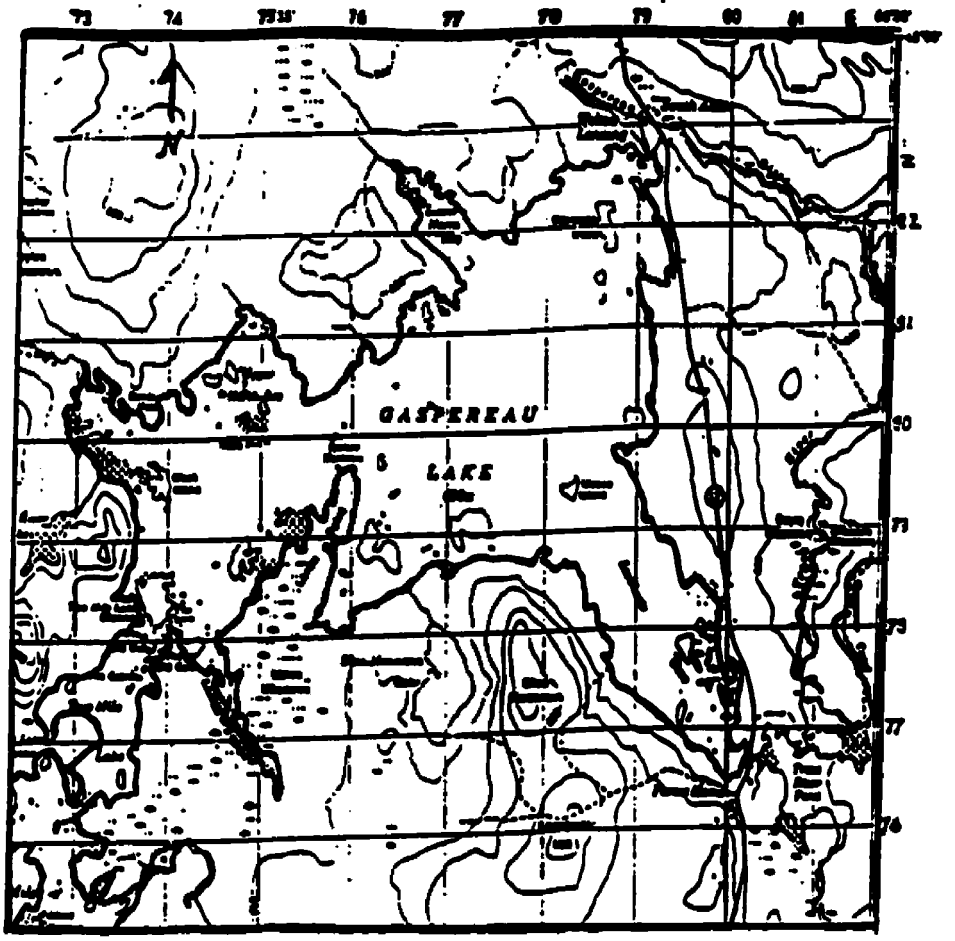


Figure 2. Map of Gaspereau Lake, Nova Scotia (After Energy, Mines and Resources Canada, 1990).

through an environmental reconstruction and associated floral and faunal communities. The specific goals of this research were:

1) to revise our current understanding of the prehistoric occupation at Gasepreau Lake,

2) to reveal site distribution patterning and correlations to ecological zones, and examine temporal variations in land use throughout time, and

3) to develop a model of prehistoric settlement and subsistence for Gaspereau Lake.

This thesis is divided into seven chapters. Chapter 2 outlines the methods used in the archaeological survey of Gaspereau Lake and the study of private collections, how cultural affiliations were established, and techniques used to identify settlement patterns. Chapter 3 reviews the cultural history of the Northeast and describes artifacts which are diagnostic of each time period, while Chapter 4 describes the age, location and cultural materials found at all sites along the shores of Gaspereau Lake. Chapter 5 outlines the environmental development of the area and resources that were available to the prehistoric occupants. A working model for subsistence and site patterning is presented in Chapter 6. Chapter 7 includes a discussion of all occupations identified and the role of the Melanson site in the history of Gaspereau Lake, draws comparisons with data found in Maine and New England, and presents concluding remarks regarding the prehistory of Gaspereau Lake and its significance to the prehistoric record. Appendix A contains examples of the data sheets upon which observations and measurements were recorded. Figures of the attributes that were recorded are also included in this Appendix. Appendix B outlines the cultural

materials found in the private collections viewed during field work.

Chapter 2 Methodology

This chapter outlines the methods used in the collection and analysis of data. Besides published literature, several types of investigation were pursued. Initially, several private collections containing artifacts originating from the shores of Gaspereau Lake were examined. Following this, a pedestrian archaeological survey was completed along the lake shore in an attempt to locate new archaeological sites, as well as to relocate previously recorded ones. Lastly, artifacts from the Erskine Site were re-examined and an analysis of the Archaic archaeological materials recovered from Lake Rossignol were conducted. The following sections outline the methodology used during the survey and procedures used for artifact analysis.

2.1. Survey Methodology

The target area for the archaeological survey was the north shore of Gaspereau Lake and the islands in the vicinity of this shore. The area surveyed included the shore from the Gaspereau River lake outlet (Military Grid 793827) continuing northwest to the lake outlet of the North River (Military Grid 731807). Also surveyed were the shorelines of Stovepipe Island, McNabs Island, Black Island, Moose Island (Military Grid 784794), the unnamed island directly south of Stovepipe Island and several small unnamed islands and rock outcrops which, in the majority of cases, were absent from Gaspereau Lake maps.

In order to simplify the survey strategy, the shoreline and islands were grouped into Units, numbering from one to four (see Figure 3). Unit 1 consisted of the shoreline from the

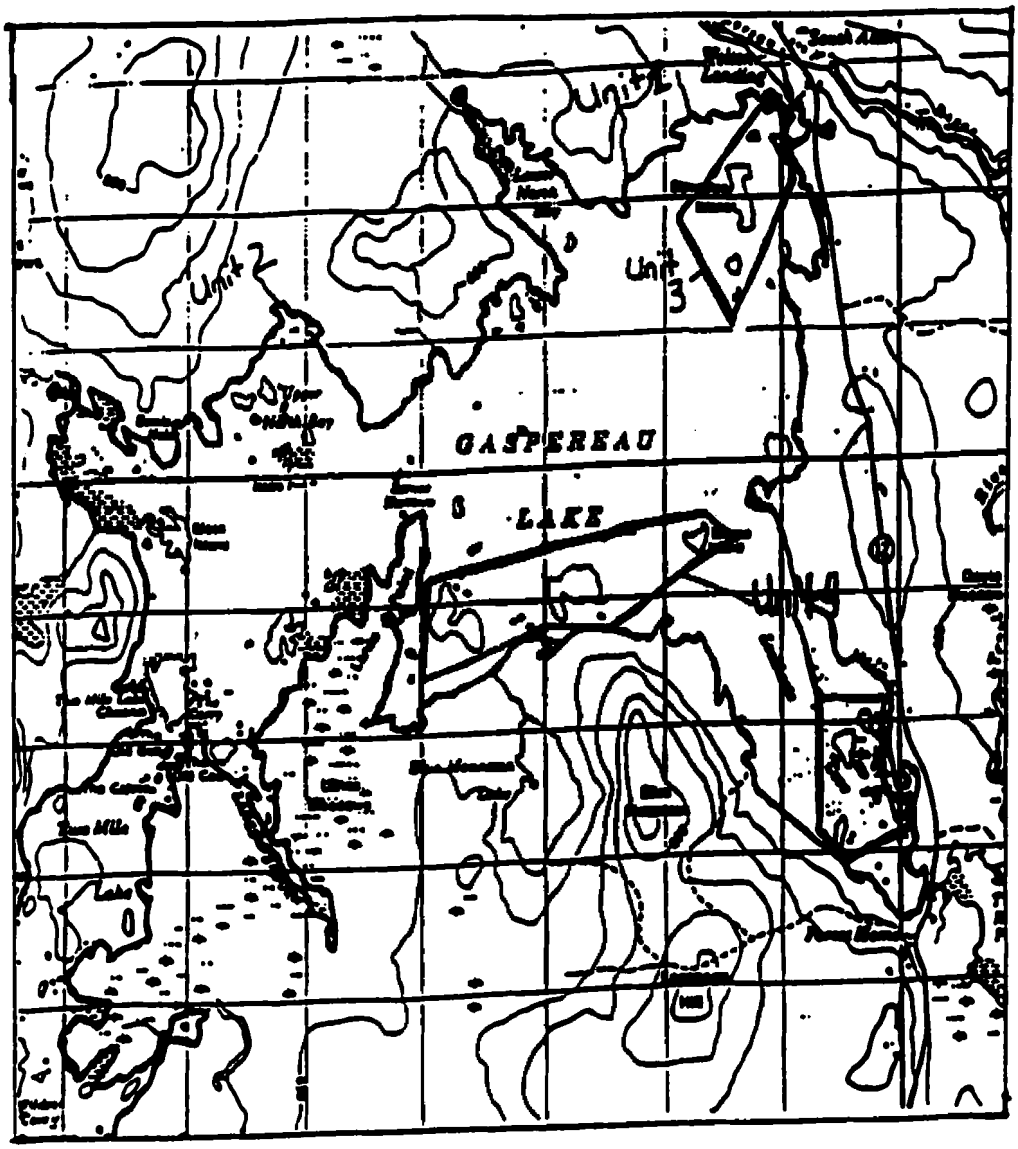


Figure 3. Survey units at Gaspereau Lake (Map After Energy, Mines and Resources Canada, 1990).

Gaspereau Lake Fish Ladder (BfDd-11) (Military Grid 792827), northwest to the mouth of the stream running into Lower North Bay (Military Grid 765827). Unit 2 stretched from the mouth of the Lower North Bay stream to the North River lake outlet (Military Grid 730808). Unit 3 included the islands located in the vicinity of the north shore by Welton Landing and the Fish Ladder. This area included Stovepipe Island and all those to the northeast from there to the mainland. The last Unit, Unit 4, contained Moose Island. Originally two islands to the west of it (Military Grid 773791 and 764790) and several located in Lockhart's Cover were included in this Unit. Unfortunately, time constraints did not allow its completion, and these four islands remain unexamined. Based on the scarcity of cultural materials discovered at other island sites, it is believed that little information was lost by not completing this unit. The survey strategy was judgmental, as opposed to probabilistic (Fladmark 1978:3). A probabilistic survey is when the area to be surveyed is divided into units. The units that will actually be surveyed are then randomly chosen. A judgmental survey "selects units of study on the basis of the researcher's opinion of the relative productivity of different areas" (Fladmark 1978:3). This type of survey is believed to be more cost effective when a large area of land containing diverse topographical and ecological features is intended to be examined (Deal 1988a:24). Furthermore, previous research conducted by professional archaeologists in the area (Deal 1988b; MacDonald 1965) indicated a high potential for locating sites along the lake edge.

Survey methods themselves included surface examination of the lake shore in conjunction with subsurface testing. One researcher was positioned three metres in from the shoreline, while the second researcher was positioned eight metres from the shore. Test pits

were dug every five metres in areas of high potential and every 10 metres in areas believed to possess low site potential. Areas of high site potential were defined as units in which sites had been previously recorded, and areas which would have been conducive to settlement, such as around lake inlet/outlets, low angle beaches and areas offering protection from the weather. Low site potential areas were classified by a lack of recorded sites, and areas in which the location of settlements would have proven unfavourable, such as in swamps, marshes and on slopes of extreme angles.

All sediment derived from test units was sieved using quarter inch geological screens. When examining islands, shorelines were surveyed using the same methods as those on the mainland. When topography and vegetation cover allowed, island interiors were also surveyed. Interiors were examined by crew members walking three to five metres apart, from one side of the island to the other, digging test pits at regular intervals as they walked. When the other side was reached, investigators shifted their positions and continued back to the other side of the island inspecting unexamined territory.

Upon the discovery of a site, several procedures were followed. Surface artifacts were marked and the area five to 10 metres from these artifacts was examined in all cardinal directions in conjunction with subsurface testing. Upon the completion of surface examination and testing, artifacts were mapped, and Maritime Archaeological Inventory Forms were completed. In addition to Inventory Forms, a daily log listing activities, sites found and site sketches were kept by the principle researcher for additional documentation.

When positive test pits were encountered, soil samples were taken from the level in which the cultural materials were found. This soil was analyzed at a later date for the

presence of plant remains in an effort to gather more data on site seasonality and subsistence resources. Unfortunately, only modern seeds were found in these samples and no further information could be gained:

Site assessments were based on the following criteria taken from Deal (1988a).

1. the relative rarity of the site in dating to a given period of occupation,

2. the value of the site for achieving the long term research goals of the investigator,

3. the value of the site for understanding local and regional cultural and, or, environmental history,

4. the threat of destruction of the site by natural or cultural processes.

In conjunction with site assessments, recommendations for future actions towards the preservation of sites found were also made.

2.2. Artifact Analysis

The analytical approach used here is a form of attribute analysis. An 'attribute' is described as a "qualifiable and therefore, quantifiable single feature" (D'Entremont and Moore 1977:65, cited from Wright 1967:99). Both quantitative and qualitative attributes were assigned to artifacts. The measurements and attributes documented were based on two methods. The first is Sanger's (1973) analysis of ground stone artifacts from the Cow Point Cemetery and the second is D'Entremont and Moore's (1977) study of projectile points from Nova Scotia. Following qualitative and quantitative measurement definitions, attribute clusters can be discerned. These descriptions allow the comparison of artifact assemblages on both an intra-site and inter-site level, and on a regional scale (Davis 1986:93).

Attribute analysis is preferred to the typological approach used in the northeastern

United States. "Types" refer to groupings of artifacts with similar features, which have temporal and spatial significance (D'Entremont and Moore 1977:65, cited from Ritchie and MacNeish 1949:98). There are three common problems associated with the use of type names. First, type names are often applied to artifacts originating from locations outside the region in which they were originally defined. When this occurs, often regional variations in tool styles and tool kits are overlooked (Davis 1986:97). Secondly, the use of type analysis "pigeon-holes(s) any attributes which tend to extend beyond the specific features of the type" (D'Entremont and Moore 1977:66). Once again, this contributes to a lack of recognition of regional variations. Thirdly, when new material is discovered and it becomes associated with a type name, type descriptions have to be revised and recreated (D'Entremont and Moore 1977:66).

The benefits of attribute analysis are that it allows for consistency, continuity and accuracy (D'Entremont and Moore 1977:66). The use of specifically defined attributes facilitates comparisons of tool forms between and within sites, as well as between regions and periods, more easily than do type names (Davis 1986:97; D'Entremont and Moore 1977). Furthermore, quantifiable measurements of artifacts allow ranges, means and standard deviations to be created when describing artifacts (Davis 1986:93). Subsequently, measurements allow the use of formulae, which enable a researcher to characterize tool forms through the assignment of a numerical index (Davis 1986:93). By using numerical descriptions additional statistical functions can also be applied to the collected data (Davis 1986:93). An example of a formula is the Neck/Base Width Index. This index indicates the degree of expansion or contraction of the point base, assigning a numerical value (Davis

1986:93) which can be compared to the value derived from other projectile points. This method allows expedient assignment of culture affiliation and age of artifacts used in this study.

Although the application of attribute analysis is preferable to the use of type names, there are two major problems associated with its use. The first is that for application to be effective, a researcher must combine both metric and non-metric characteristics in order to create attribute clusters which have cultural significance and are the result of statistical applications (Sanger 1973:18-19). When viewing private collections, in order to compensate for this difficulty, attributes which were selected for examination were based on those that have been found to be significant by other researchers (see Davis 1986; D'Entremont and Moore 1977; Sanger 1973) and used in their analyses of similar artifact types. The attributes and measurements examined on the different artifact classes (projectile points, bayonets, rods and abraders, abrasive stones, plummets, grooved axes/adzes/celts, gouges and scrapers) are listed in Appendix A. Also included in Appendix A are examples of the data collection sheets used during research and figures illustrating the attributes which were recorded.

The second difficulty associated with attribute analysis is the lack of dated artifacts that have been classified using this method in the Maine/Maritimes Region. Most artifacts that have been established as diagnostic of specific time periods have been classified outside the study area using the type system. Therefore, when attempting to associate artifacts with specific periods in the Canadian Maritimes, one is forced to compare artifacts classified by the two different systems. Although this does lead to some confusion, the attribute system is generally flexible enough to allow for these comparisons. Under the attribute system, broad

groupings are established (e.g., large stemmed projectile points). Types are based on more narrowly defined morphological, geographical and temporal characteristics. Morphological attributes of these artifacts can be compared with the broader groupings used under the attribute system. For example, attribute analysis also distinguishes projectile points according to blade width (e.g., a point can be broad bladed or narrow bladed). Several named types would fit within the broad bladed category, while several others would not, and many of the broad bladed points would not have comparable named types from elsewhere. Through this type of comparison, some artifacts from one area, which possess similar attributes to typed and dated artifacts from another area, might be assigned to a specific time period.

Before artifact attributes and measurements were taken, the sites from which cultural materials originated were determined. Objects were then grouped based on these associations and analysis proceeded site by site. To aid analysis further, each artifact examined was sketched on its data collection sheet. After all artifacts for a site or area had their attributes recorded, they were photographed and the site from which they originated was located on a map. When permission was granted by collection owners, collections were catalogued. Artifacts catalogued were marked with numbers indicating the collector (all were given numbers) the Permit Number under which the survey was conducted, as well as the artifact number in the collection. All artifacts given catalogue numbers had their numbers and a brief description recorded by the researcher. In effect, a permanent record containing both written and pictorial documentation has been established for several collections.

While collecting data on cultural materials in private collections, diagnostic artifacts were focused on. This strategy was necessary because of the overwhelming size of several

collections and time constraints placed on the project. Larger collections often contained a plethora of flakes, point tips and scrapers. Because of these two limitations only a small number of culturally non-diagnostic items, such as scrapers, were examined.

After all accessible private collections and cultural material found during the survey were documented, cultural affiliations were established. This task was accomplished by comparing Nova Scotia tool morphologies, including the selected attributes and measurements, to those of similar artifacts found elsewhere in the Northeast which have been designated as diagnostic of particular time periods. Descriptions, measurements and indices of diagnostic artifacts derived from published literature were used in order to assign cultural affiliations. When measurements and indices were not included with artifact descriptions, pictorial representations were used in comparisons. In addition to these forms of analyses, the dated artifacts within the Erskine Site collection were used as comparative material.

2.3. Settlement Pattern Analysis

To establish the settlement patterns of the peoples who occupied Gaspereau Lake, several methods of investigation were employed. Using survey information, data gathered from collectors, collections and previously conducted survey work site locations were mapped on a 1:10,000 forest type map of Gaspereau Lake. This map was then transferred to a plastic sheet and overlain on another 1:10,000 orthophoto map. The premise for such an exercise was that the forest map was created while water levels were high. The orthophoto map, on the other hand, was created when lake water levels were at 189 metres. Using the superimposed locations, the sites were then mapped onto the orthophoto map. This map illustrating lower water levels presents a more accurate representation of where sites would

have been placed within the landscape prior to the 1929 construction of the dam and the subsequent rise in water levels. These variables: altitude, distance to the mouth of the nearest navigable river (lake outlet), distance to the nearest alternate water source (excluding the lake itself, including streams and ponds), distance between the site and the shore, distance to the nearest neighbour (proximity to closest site) and the relief within 500 metres of the site (highest contour interval found in this range) were noted. After this was accomplished, settlement patterns became evident. Clusters of sites around the lake outlets of the Gaspereau and North Rivers, and a preference for areas providing ready access to a number resource locales.

Chapter 3 Cultural Background

The proceeding discussion outlines the cultural history of the Maine/Maritimes area as it is currently understood. It includes descriptions of diagnostic artifacts for each Period used by the occupants at Gaspereau Lake, and a review of previous research conducted in the Northeast in general and the province of Nova Scotia.

3.1. Paleoindian Period

The earliest evidence of human occupation in Nova Scotia and the Maritimes dates from the Paleoindian Period (11,500 to 9,000 B.P.). It is believed that people migrated from Asia across Beringia, moving southwards through the ice-free corridor that was present, and along the Atlantic Coast, eventually settling in the south and northeast areas of North America (Bonnichsen *et al.* 1991:22). By 12,000 B.P., the majority of the glacial ice had retreated from the provincial boundaries and only relic ice caps remained (Bonnichsen *et al.* 1991:2; Simmons *et al.* 1984:70; Stea and Mott 1989). During the Early Paleoindian Period, ca. 11,500 to 10,000 B.P., the Maritime provinces supported a tundra environment, as did much of Canada, and Paleoindian peoples relied on megafauna and coastal resources for subsistence (Keenlyside 1985; Tuck 1984, 1988).

A cultural sequence of diagnostic Paleoindian projectile points has been established for the Maine/Maritimes region (Bonnichsen *et al.* 1991; Keenlyside 1985; Ritchie 1969a; Tuck 1984, 1988). Shifting projectile point forms mark the temporal boundaries between the Early and Late Paleoindian Periods. Unfortunately, bone and wood artifacts have not been preserved, only lithic artifacts have survived from this time period in the Maritimes because of the great age and acidic soils. The lack of complete Paleoindian tool kit in the

archaeological record has presented a hindrance to gaining a greater understanding of these people and their lifeways.

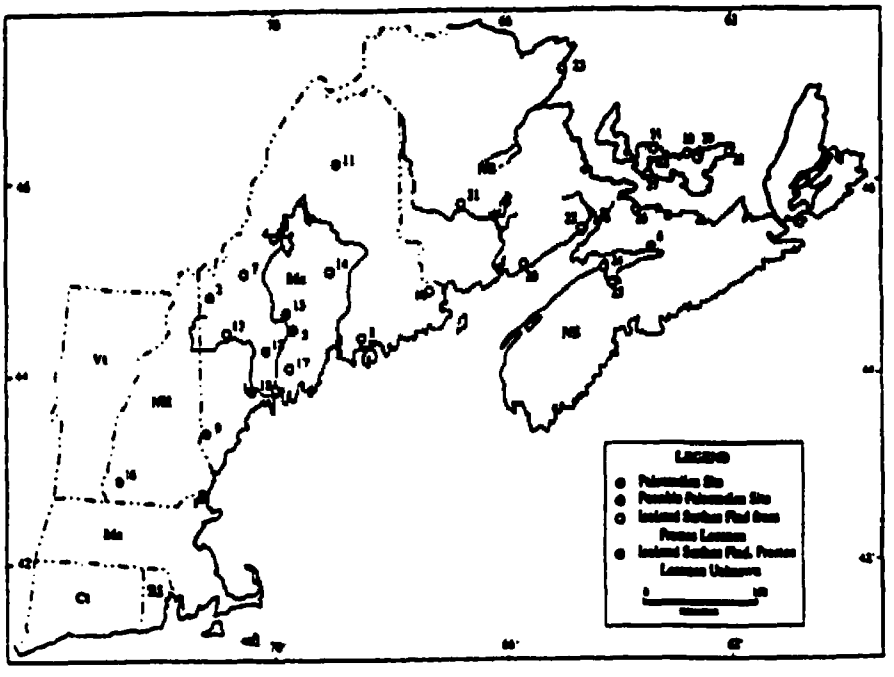
The presence of an Early Paleoindian occupation is documented by Clovis-like fluted points (Ritchie 1969a; Tuck 1984). Typical Early Paleoindian projectile points are large, broad, stemless points with parallel-sided or slightly excurvate blades. Bases are concave and both faces of the points are fluted. Furthermore, the lower edges of the blades are ground (Ritchie 1969a; Tuck 1984). Grinding is believed to have inhibited cutting of the material used to bind the point in place on the spear shaft (Tuck 1984). While there is a great deal of homogeneity among Early Paleoindian points, morphological variations have been documented throughout the Northeast. Ritchie (1969a:3-6) notes three variants of the classic fluted, Early Paleoindian point form. The first variant possesses the Early Paleoindian Clovis-like form, but the blade is constricted just above the base. The second variant is more slender than classic forms, also possessing a constriction just above the base, which creates flaring 'ears'. This point is rare in the Northeast. The third point form is pentagonal in shape and displays fluting. Examples of this type are found predominantly in Vermont.

The Paleoindian points found at Debert, Nova Scotia, are also considered a distinct variant of the classic Early Paleoindian fluted Clovis-like form, possessing deep basal concavities, which create tangs on the lateral margins of the blades (Tuck 1984:8-9). The Vail site in Maine is the only other excavated site to produce projectile points similar to those of Debert, and to date, only a few isolated fluted point discoveries have displayed this type of marked basal treatment (Gramly 1982; Tuck 1975). Additional differences among Early Paleoindian fluted projectile point forms have also been noted at the Debert and Vail

sites, as well as at Michaud, Adkins, Munsungun Lake. Comparisons of projectile point samples illustrate variations in overall size, flute scar lengths and the technology used to create the flutes (Bonnichsen *et al.* 1991:17). Notably, basal flaring, which is infrequently displayed on other fluted points, was common on those from the Michaud site (Bonnichsen *et al.* 1991:17; Spiess and Wilson 1987). In addition to these morphological variations, tool type frequencies (i.e., the fluted points in comparison to the number of scrapers and choppers) were also found to vary between sites.

The Late Paleoindian Period in Eastern North America is characterized by a distinct type of projectile point form, the Plano Point. Plano Points are smaller than Early Paleoindian points and lack fluting (Ritchie 1969a:19). They are "lanceolate [in] form, occasionally [with] small notches or stems and [possess] extremely fine parallel or ribbon surface flaking" (Tuck 1988:20) or collateral flaking (Ritchie 1969a; Tuck 1988). Additional materials found within Late Paleoindian tool kits include fluted and un-fluted drills, bifaces, knives, scrapers, bipolar cores, cutters, hammerstones, anvils, perforators, and abraders (Gramly 1982; Tuck 1988).

Another Late Paleoindian projectile point variant has been documented in eastern New Brunswick and Prince Edward Island. These points exhibit broad, triangular outlines with excurvate edges, deep basal concavities, and basal thinning on one or both sides. Specimens from these two provinces also exhibit "bifacial thinning flake platforms" which form a barb on the end of the points (Keenlyside 1985:83). It is believed that these points are indicative of a marine-based subsistence economy that developed when caribou hunting Paleoindian groups reached the Strait of Belle Isle and the Gulf of St. Lawrence and



MAINE:

1. Aburn
   a) Lamoreau
   b) Michaud
2. Aziscohos Lake
   a) Adkins
   b) Morss
   c) Vail
   d) Lower Wheeler Dam
   e) Upper Wheeler Dam
   f) Wright
3. Benson Falls
4. Brassua Lake
7. Flagstaff Lake
8. Graham Lake
   a) Chandle
   b) St. John
9. Lebanon
10. Moosehorn
11. Munsungun/Chase Lake
12. North Wayne
13. Rumford
14. Schoodic Lake
15. Skowhegan
17. Whitefield
18. Woolwich
19. Hall

NEW HAMPSHIRE

16. Whipple

MASSACHUSSETTS:

5. Bull Brook

NEW BRUNSWICK:

20. Quoco Head
21. Kingsclear
22. New Horton Creek
23. Tracadie River

NOVA SCOTIA

6. Debert
   a) Camp Debert
   b) Belmont I
   c) Belmont II
24. Cape Blomidon
25. Gaspereau River
26. Amherst Shore

PRINCE EDWARD ISLAND

27. North Tryon
28. Basin Head
29. St. Peters Bay
   a) Jones site
   b) Greenwich site
30. Savage Harbour
31. New London Bay

Figure 4. Map of Paleoindian sites throughout the Northeast (After Bonnichsen *et al.* 1991).

encountered harp seal populations (Bonnichsen *et al.* 1991:21; Keenlyside 1985:83-84). Unfortunately, few of these points have been found in Nova Scotia.

Despite the age of Paleoindian cultural materials, there have been a number of isolated artifact discoveries and sites dating from this period in the Maine/Maritimes area and a Paleoindian presence has been documented as early as ca. 11,500 B.P.(see Figure 4 for a map of Paleoindian sites). In Maine, Early Paleoindian occupations have been dated between 11,000 and 10,000 B.P. in the Moosehead Lake-Kennebec River drainage and in Androscoggin River drainage at the Vail and Michaud sites. Both Vail and Michaud date ca.10, 500 B.P. and are believed to have been used for caribou hunting (Gramly 1982; Petersen 1991; Spiess and Wilson 1987). In Maine, there is an even greater amount of evidence for the presence of Late Paleoindian peoples. Diagnostic artifacts have been found in Piscataquis and Penobscot River Drainages, at Brassau Lake, West Branch-Seboomook Lake, Caucomgomoc Stream and at Millinocket Lake and the Blackman site (Petersen 1991:11-13). In New Brunswick, Late Paleoindian sites have been found at Quaco Head, Kingsclear, Tracadie River, and New Horton Creek (Bonnichsen *et al.* 1991:4), and in Prince Edward Island at St. Peters Bay, Savage Harbour, New London Bay, Basin Head and North Tyson (Bonnichsen *et al.* 1991).

Several isolated artifact discoveries and the three excavated Early Paleoindian sites illustrate an extensive occupation of Nova Scotia. Isolated projectile points have been found on the Amherst Shore, the Northumberland Strait, Yarmouth Harbour, Melanson in Kings County, Medford at Minas Basin and in Dartmouth (Bonnichsen *et al.* 1991:7; Christianson 1991:8; Davis and Christianson 1988). The three excavated Paleoindian sites are Debert

(BiCu-1), Belmont I (BiCu-6) and Belmont II (BiCu-7). These three sites are temporally associated, and artifacts indicate the sites were occupied by the same group of people (Davis 1991b).

Important to this thesis is that an Early and Late Paleoindian presence has been documented in the study area of Gaspereau Lake. Early Paleoindian fluted points have been found in private collections originating from the Lake as well as from the multicomponent Erskine Site (BfDd-5). A Late Paleoindian Plano point has also been recovered from the Erskine Site (BfDd-5) (Erskine 1967; Murphy 1998) further substantiating a Paleoindian occupation.

3.2. The Archaic Period

The Late Paleoindian period is followed by the Archaic, which spans from 10,000 to 4,000 B.P. It is believed Archaic people developed from the preceding Paleoindian culture present within the Maritimes (Tuck 1975:140, 1988:25; 1991:23). Evidence of this development has been illustrated by lanceolate and triangular points, some with concave bases and basal thinning (Tuck 1988:23, 25). Projectile points such as these have been found at the Strait of Belle Isle, the Debert site (Tuck 1988:23, 25), and at Prince Edward Island (Keenlyside 1985). For a map of Archaic sites in the Northeast, refer to Figure 5.

3.3. The Early/Middle Archaic

Despite postulated development from Paleoindian groups it was believed, until recently, that there was an occupational hiatus between the Late Paleoindian Period and the Late Archaic in the Maritime provinces (see Tuck 1985). Murphy's (1996, 1998) recent review of previously excavated material, recent excavations in Maine and new

environmental data for the area during the Early and Middle Archaic Periods, has established an Early/Middle Archaic presence (Murphy 1996, 1998).

Previously, numerous hypotheses were proposed to explain this apparent hiatus (see Davis 1991a; Funk 1978; Petersen and Putnam 1992; Ritchie 1969a, 1969b; Sanger 1975, 1979; Sanger *et al.* 1977; Snow 1980; Tuck 1991). The only two that are still relevant are Sanger's (1979) and Tuck's (1991) 'Drowned Site Hypotheses'. Sanger and Tuck both postulate that postglacial eustatic sea level rise has inundated any Early/Middle Archaic Period sites which would have been located along the Atlantic seaboard. Evidence supporting their theory has come from the discovery of artifacts off the shores of the Bay of Fundy and the Gulf of Maine. Examples of artifacts found include a slate bayonet from Tantramar Marsh, a ground slate point and ridged ulus from off the coast of Digby Neck, a large ridged ulu off Isle Haute, another from Passamaquoddy Bay and a third form off the northeastern shore of Prince Edward Island (Deal and Rutherford 1991; Keenlyside 1985; Stright 1990; Tuck 1991:34; Turnbull 1988). The inundation of coastal sites, which are hypothesized to have existed during the Early/Middle Archaic Period (Bourque 1971,1975, 1995; Tuck 1984,1988, 1991), has led to the increased importance of intact interior sites located in Nova Scotia and New England. Through analysis of these interior sites, a greater understanding of this Period will be gained despite the hypothesized loss of coastal evidence.

Three projectile point forms have been designated as diagnostic of the Middle Archaic Period in Eastern North America, and all three have been found in the Maritimes. The first point form is stemmed with triangular blades that have straight or excurvate edges, and sharp shoulders. Stems are contracting and bases are either straight or indented

(Dincauze 1972:195; 1976:27). These points are similar to Neville points from southern New England and date between 7,740 and 7,015 B.P. (Dincauze 1976:29). The second form of Middle Archaic point has convex blades, rounded or obtuse angle shoulders, a contracting, parallel edge, stem and rounded or pointed base. Temporally these points date ca. 7,000 B.P. ±300 years and resemble Stark points found in southern New England (Dincauze 1972:195, 1976:33, 36-37). A final Middle Archaic cognate possesses "isosceles triangular blades, small shoulders, and [a] nearly square stem... with slightly convex blades and [a] sharp tip" (Dincauze 1976:45). Temporally, this projectile point type, which is similar in form to Merrimack projectile points, date ca. 6,060 and 5,910 B. P. (Dincauze 1976:47). Sites containing Middle Archaic complexes displaying these projectile point cognates are recognized throughout the Northeast. In Nova Scotia (Deal and Rutherford 1991; Murphy 1998) the shores of Gaspereau Lake and at the Erskine Site in particular, Middle Archaic, triangular, convex bladed Merrimack-like and contracting stemmed Stark-like projectile points have been discovered. In New Brunswick, Middle Archaic populations have been documented through the discovery of diagnostic points at Spednic Lake (Tuck 1991), and in Maine at the Turner Farm, Sharrow, and Hirundo sites (Bourque 1971, 1975, 1995; Petersen and Putnam 1992; Sanger *et al.* 1977).

Additional research into the Early/Middle Archaic period has further outlined the prehistoric occupation of the Northeast and has allowed the identification of additional diagnostic artifacts dating from this period. By re-examining previously excavated materials from stratified sites, Robinson (1992, 1996) established a technological tradition and identified a set of burial complexes associated with it dating from the Early Archaic into the

Terminal Archaic. Artifacts found during his study had, in many cases, been misidentified as diagnostic Late Archaic Period artifacts. The following outline of these complexes and tradition is taken largely from Robinson's work (1992, 1996).

Before the Morrill Point Burial Complex can be reviewed, the definition of 'complex' as it is used within this thesis must be mentioned. Throughout the following discussion, the term has been used in the same manner as used by Robinson (1992, 1996) in his research. Robinson (1992:69) defines a complex as "an archaeological pattern reduced in time and space". A complex can be a set of artifacts, or a set of behavioural traits such as burials (i.e., a mortuary complex) or hunting practices (Robinson 1992:69). Complexes can overlap, but are largely defined separately as to avoid confusion over their associations (Robinson 1992:69). Through his review of several artifact collections from cemetery sites, Robinson (1996:99) was able to associate different cemeteries with one another as related and a part of specific complexes. In addition to this, he (Robinson 1996) was able to date these cemeteries to specific periods. In effect, he was able to establish complexes that are temporal manifestations, each spanning a unit of time, within a greater, long term pattern which Robinson (1996) defined as the Morrill Point Burial Complex.

Originally, Robinson (1992) established the existence of the Gulf of Maine Archaic Tradition with its corresponding Morrill Point Burial Complex. The Gulf of Maine Archaic Tradition, a technological tradition, spans between 9,000 and 6,000 B.P. and is defined by core, uniface and ground stone technology, with few representative projectile points (Robinson 1992:64). Diagnostic ground stone tools are full-channeled gouges, full-channeled gouges with flareds and rods, which have dated as early as 9,000 B.P. Ground

stone rods and flared bit full-channeled gouges are believed to be the best indicators of this tradition (Robinson 1992:100). Additional artifacts such as whetstones, celts, plummets, "steep-edged quartz unifaces, irregular cores, flake tools, blocky fragments and flakes" are also associated with this tradition (Robinson 1992:75, 96).

The Morrill Point Mortuary Complex is associated with the Gulf of Maine Archaic Tradition and dates to the Middle Archaic Period (Robinson 1992). Its definition has been further expanded and the Morrill Point Complex is now believed to be one of five mortuary complexes dating between 8,500 and 3,700 B.P., from the Early to the Terminal Archaic. The first complex is the Table Land Burial Complex, dating 8,500 B.P. It is represented by expanding head ground stone rods, quartz cores and scrapers, tabular choppers, red ochre, and the absence of other ground stone tools (Robinson 1996). Next is the Morrill Point Complex, dating ca. 8,000 to 7,000 B.P. Sites from this period include Morrill Point Mound, Skunkhaze Ridge, Passadumkeag Sand Pit and Richmond Castle (Cole-Will and Will 1996; Robinson 1996). Diagnostic tools include full-channeled gouges with either long parallel sides or flared bits, rods, perforated and un-perforated examples, whetstones and red ochre (Robinson 1996). The Hathaway Complex, the third burial complex, dates ca. 5,000 B.P. Diagnostic materials include "greenstone tuff gouges and adzes, Penobscot pendants, banner-stones, Godfrey knives, plummets, grooved pebble weights and polished pebble strikers or fire-stones" (Robinson 1996:109). The majority of sites relating to this complex is found in interior of Maine (Robinson 1992).

The fourth complex is the Intermediate Period, and is divided into the Early Intermediate (5,000 to 4,500 B.P.) and the Late Intermediate (ca. 4,500 to 4,000 B.P.), both

of which constitute the Moorehead Burial Complex proper. Diagnostic Early Intermediate materials include parallel and narrow bit gouges with "lateral channel facets" and thick contracting to parallel sided stemmed bifaces (Robinson 1996:111-112). Late Intermediate material is identified as Bradley points, contracting stemmed points of Ramah chert and short-channeled igneous gouges (Robinson 1996). Also associated with this complex are ground slate points, which evolve into long hexagonal bayonets during the Late Intermediate (Robinson 1996:113).

The final burial complex identified, also a part of the Moorehead Burial Complex proper, is the Cow Point Complex, ca. 3,900 to 3,700 B.P. The type site for this complex is the Cow Point Cemetery in New Brunswick. Diagnostic artifacts include "shallow-channeled, thick-polled woodworking tools" (Robinson 1996:123) such as ground stone gouges, adz-gouges, adzes, hexagonal slate bayonets, perforated whetstones and plummets (Robinson 1996). The Cow Point Complex is the last Late Archaic Burial Complex found in the Northeast. It is subsequently replaced in the Terminal Archaic Period by a new burial complex, characterized by cremation burials, practiced by the newly immigrated Terminal Archaic peoples.

3.4. Late Archaic in Nova Scotia

Three traditions have been identified as dating from the Late Archaic in the Northeast: the Laurentian, Moorehead and the Maritime Archaic Traditions. These traditions are differentiated by divergent projectile point forms and differing tool kit compositions. While these designations have been found valid in New England and New York, none of these traditions has been definitely identified in Nova Scotia. The Late Archaic Period

within the province is seen as a whole. Three different projectile point forms found here are similar to diagnostic variants of the three traditions. However, there are enough differences between the morphology of these point forms and those identified elsewhere to allow them to be classified as regional variants. Along with regional distinctions of projectile points, Nova Scotian bayonets display divergent morphologies from those found elsewhere in the Northeast and are exclusive to the province (Deal and Rutherford 1991).

One reason for Nova Scotia's regional character is its geographic location. Located halfway between both Newfoundland and Labrador and Maine, Late Archaic peoples developed in situ. Similarities in cultural materials found elsewhere in Maine and Newfoundland are attributed to influences gained during trading contacts. Ramah Chert from Labrador, and Scots Bay chalcedony from Nova Scotia, have both been found in Late Archaic sites in Maine (Bourque 1975, 1995; Fitzhugh 1975). Although there is little evidence indicating an extensive trade network in the study area during this period, it is believed that the central position of Nova Scotia facilitated southward trade of lithic raw materials from both Labrador/Newfoundland and Nova Scotia in small quantities. Furthermore, the geographic location of Nova Scotia would have contributed to the in situ development of cultures. As the province is accessible by only one land route, it is hypothesized that prehistoric people of Nova Scotia were afforded some isolation from outside influences, thereby allowing regionally distinct patterns to emerge.

Burial Complexes associated with the Late Archaic were discussed in reference to Robinson's (1992, 1996) Morrill Point Mortuary Complex. To date, no Late Archaic burials have been found in Nova Scotia. Despite this fact, many tools often associated with the

Burial Complexes have been discovered. The apparent lack of burials and burial ceremonialism most likely results from poor preservation of human remains rather than a lack of detection through survey work. It is postulated that although regional individuality is displayed in Late Archaic Nova Scotian tool kits, their burial practices were similar to those found elsewhere during this time, but possessed their own regional signatures. With Nova Scotia's distinct cultural properties in mind, artifacts associated with this period, found in the province, can be discussed.

Late Archaic diagnostic artifacts are, broad bladed, side-notched projectile points, ground slate points, ulus (both ground stone and chipped types), atlatl weights, ground stone adzes and gouges, and plummets (Cox 1991; Ritchie 1969a; Tuck 1984, 1991). In Nova Scotia three different point forms dating from the Late Archaic are documented. The first type is large and thick, has lanceolate or largely parallel blades, excurvate blade edges, well-defined side-notches, squared tangs and a concave base (Ritchie 1961:40; Tuck 1978a:31). In the majority of type specimens, the base, tang edgesand notches have been ground (Rithie 1961:40). Additional artifacts often associated with these points include ground slate points, knives, celts, gouges, ulus, plummets, atlatls, end scrapers with bases similar to those of projectile points, and expanding base drills (Tuck 1978a:31; 1991:45). The points were first identified in New York by Ritchie (1969a) as a part of the Late Archaic Tradition and are listed under the type name Otter Creek points. Similar projectile points have been found at Tusket Falls, Indian Gardens/East Brook, Bear River, Tiddeville, Scots Bay, North Aspy (Deal and Rutherford 1991), the Erskine Site (Murphy 1998) and at Gaspereau Lake. Elsewhere in the Northeast Otter Creek-like points have been found at Spednic Lake in New

Brunswick, and the 95.20, Young and Hirundo sites in Maine (Borstel 1982; Cox 1991; Sanger 1975; Sanger 1973; Sanger *et al.* 1977).

Triangular 'eared' style points are the second type dating from the Late Archaic found in Nova Scotia. These points are associated with the Laurentian tradition in the Northeast. Examples of these points have triangular blades with excurvate to straight edges, are stemless and have broad, often concave bases with small notches on the lateral margins of the blade, which creates the 'ears' (Ritchie 1961:18). The type name defining this projectile point is Brewerton Eared Triangular. Projectile points of this form have been found in Nova Scotia at Indian Gardens/East Brook, Melanson, and Rafter Lake (Deal and Rutherford 1991; Tuck 1991). The third style of Late Archaic projectile point form found in Nova Scotia is narrow and straight stemmed. It has straight blades, rounded shoulders, and often retains a striking platform on the base (Deal and Rutherford 1991:3). Narrow stemmed points such as this have been found at the Bain Site, Tusket Falls, Port Joli, Gaspereau and Salmon Tail Lakes, along the Shubenacadie River and Stewiacke River (Deal and Rutherford 1991). The Narrow stemmed point style is associated with both the Moorehead and the Maritime Archaic Traditions identified in New England, Labrador and Newfoundland.

Ground slate bayonets are also diagnostic of the Late Archaic in Nova Scotia. To date, 14 bayonets have been found in the province. These specimens exhibit a variety of characteristics including long, narrow blades that are hexagonal or biconvex in cross-section and have stems that are either straight or contracting. Three additional Late Archaic ground slate bayonets have been found, all possessing decorative elements similar to those found on bayonets from the Cow Point Burial site in New Brunswick (Deal and Rutherford 1991). As

stated, this site has been re-classified as the type site for the Cow Point Complex of the Moorehead Mortuary system as defined by Robinson (1992). Twenty-four other bayonets have also been found in Nova Scotia, all possessing broad, hexagonal cross-section blades, and contracting stems, and the majority display notching (Deal and Rutherford 1991:4).

Sites at which ground slate bayonets have been found include Gaspereau Lake, Indian Island in Merrigomish Harbour, Cow Bay at Bras D'Or Lakes, Lake Rossignol and MacLeod Farm, Cape North (Deal and Rutherford 1991).

3.5. The Late Archaic in the Northeast, outside of Nova Scotia:

Outside of Nova Scotia the Late Archaic is subdivided into three Traditions: the Laurentian, Moorehead and Maritime Archaic. The Laurentian Tradition is subdivided into three, largely contemporaneous, phases: Vergennes, Brewerton and Vosburg (Funk 1988:28; Ritchie 1969a; Snow 1980:218). The three phases are separated by different projectile point forms, yet they share a clustering of other traits such as the presence of gouges, plummets, bannerstones, and broad bladed side-notched points (Funk 1988:32). The first phase, Vergennes, is often viewed as the classic Laurentian manifestation. Diagnostic projectile points are side-notched, with concave bases, lanceolate/parallel blades and are referred to by the type name of Otter Creek Points (Ritchie 1961:40; Tuck 1978a:31).

The following Brewerton Phase developed from the Vergennes (Tuck 1978a:32). Four different type points diagnostic of this phase have been recognized. These include Brewerton Corner-notched, Brewerton Eared-notched, Brewerton Side-notched and Brewerton Eared Triangular points (Ritchie 1961:16-20). All are broad bladed and characterized by different base and stem treatments, as their names imply. The only point

form similar to points found in Nova Scotia is the Triangular 'eared' type (Deal and Rutherford 1991; Tuck1984).

The final phase of the Laurentian Tradition is the Vosburg Phase. Vosburg type points, like all others of the Laurentian, have broad trianguloid shaped blades with straight edges, expanding stems with small to medium sized corner-notches and straight bases which have been ground smooth. No Vosburg-like points have been identified in Nova Scotia to date.

Two other traditions of the Late Archaic, Moorehead and Maritime Archaic, possess strikingly similar tool kits. Diagnostic projectile points for each culture are narrow, straight stemmed points, although points found in Maine have shoulders more angular than those found in the Canadian Maritimes (Deal and Rutherford 1991). Also diagnostic of both traditions are ground stone gouges, celts, adzes, slate bayonets, slate points, plummets, and an extensive bone technology (Bourque 1971, 1975, 1995; Tuck 1975, 1976, 1991). In addition to tool kit similarities, faunal evidence and site locations indicate that both traditions also had similar subsistence adaptations. Both groups spent the majority of the year exploiting coastal resources consisting of larger species such as seals and swordfish. The remainder of the year was spent at interior hunting camps in pursuit of terrestrial animals and anadromous fish (Bourque 1971, 1975, 1995; Fitzhugh 1975; Tuck 1975, 1976, 1991; Reader 1996; Robinson 1992:73).

3.6. The Terminal Archaic

Following the Late Archaic is the Terminal Archaic, or the Susquehanna Tradition. The appearance of Terminal Archaic people in Maine and the Maritimes was the result of a

migration from their homeland in the Carolinian Piedmont into the area. As a result they replaced the existing Late Archaic culture (Bourque 1975, 1995; Dincauze 1972, 1975; Rutherford 1989; Snow 1975; Tuck 1978a, 1978b, 1984, 1991).

The Terminal Archaic and its associated Susquehanna Tradition, was first defined by Witthoft (Tuck 1978a:37) who identified artifacts such as steatite bowls, early ceramics, soapstone gorgets, broad bladed points and drills as diagnostic (Tuck 1978a:37). Ritchie (1969a) further defined the Terminal Archaic for New York, establishing several complexes as did Dincauze (1972) in the State of Massachusetts.

The earliest complex was Snook Kill (Ritchie 1969a:136). Faunal samples indicate the Snook Kill diet was composed largely of terrestrial animals and their tool kit is characterized by three projectile point styles. The first style is stemmed with broad blades, the second is slender and is occasionally stemmed and the final variation has wide shallow side-notches (Ritchie 1969a:137). Knives, choppers, expanded base drills, and a sparse representation of adzes and celts are also present within Snook Kill tool kits (Ritchie 1969a:138). Other associated artifacts include fully grooved and ungrooved axes, rectanguloid celts, plano-convex adzes, grooved back adzes, gouges, plummets, grooved netsinkers, knives and drills, (Ritchie 1969a:138 and 171). In Massachusetts, the Atlantic Phase of the Susquehanna Tradition is identified by distinctive broad bladed points with straight, excurvate and recurvate blades and sharp shoulders (Dincauze 1972:50).

The appearance of these distinctive projectile points in the Northeast ca. 4,000 B.P. strengthens the evidence for a migration of peoples associated with the Susquehanna Tradition into the area. Terminal Archaic projectile point forms are extreme departures from

earlier Late Archaic narrow stemmed points. These broad bladed points appear suddenly in strata overlying Late Archaic components, with a lack of evidence indicating in situ development.

In addition to the appearance of new projectile point forms, a departure from established Late Archaic mortuary ceremonialism is seen (Bourque 1971, 1975, 1995; Dincauze 1975; Rutherford 1989, 1991; Snow 1980; Tuck 1991). The differences noted in mortuary sites provide evidence that further supports the migration hypothesis. Late Archaic interments are characterized by flexed or bundle burials, are not associated with fire and in some cases graves have been outlined with boulders. In addition to these features, objects such as ground stone tools and quantities of red ochre are also included within the graves (Dincauze 1975:32). Terminal Archaic burials are burials of cremated remains, lack red ochre and, although grave goods are included, they are frequently burnt or have been ceremoniously killed (Dincauze 1975:29).

Evidence for migration is also indicated by the appearance of a new subsistence strategy. Faunal analysis at Terminal Archaic sites with adequate bone preservation (Bourque 1971, 1975, 1995; Deal 1986; Ritchie 1969a; Spiess *et al.* 1983a; Tuck 1991) indicates a reliance on the hunting of terrestrial game. The Turner Farm, site in particular, revealed that deer, moose, and bear were the predominant species hunted with a concomitant reliance on shellfish. Extensive utilization of these resources was not documented in the earlier Late Archaic levels of the site (Bourque 1995; Spiess *et al.* 1983a). Further departure from the previous Late Archaic pattern is illustrated by the absence of swordfish bones, and an increased use of small fish and waterfowl. Similar to Late Archaic peoples, though,

anadromous fish runs at interior rivers and lakes continued to be exploited by Terminal Archaic people. Sites that illustrate a Terminal Archaic adaptation include Mud Lake Stream site in New Brunswick (Deal 1986) and Gaspereau Lake in Nova Scotia.

Changes in subsistence practices have led to the postulation that Terminal Archaic peoples migrated into the area subsequent to a climatic shift. Prior to and during this expansion, the temperatures in Maine and the Maritimes and the Gulf of Maine began to cool. This drop in temperature resulted in the decline of swordfish and cod populations (Sanger 1975). The cooling of Gulf waters created a more favourable habitat for shellfish species. On land, the increase of mixed hardwood forests, dominated by trees such as birch and beech, favoured deer population increases. People moving into the area, who originated from the western end of the Gulf of Maine along the Atlantic Coastal Plain (Sanger 1975:71), would have had to make few if any alterations in their adaptation and were able to continue exploiting terrestrial species, such as white tailed deer, and shell fish (Sanger 1975; Spiess *et al.* 1983a). On the coast, the loss of swordfish made the Late Archaic open sea hunting adaptation impossible to continue. This in turn led to replacement by a culture that had developed a more suitable subsistence practice in southern New England.

Numerous Terminal Archaic components and burials have been found in Maine and New Brunswick. Maine sites include Turner Farm, Nevin, Hathaway, Hirundo, the Young Site and Eddington Bend (Borstel 1982; Bourque 1971, 1975, 1995; Sanger *et al.* 1977; Snow 1975). In New Brunswick Terminal Archaic materials have been found at Portland

Point, Teacher's Cover and Mud Lake Stream (Davis 1974; Deal 1986). Terminal Archaic sites are more common in southwest New Brunswick near the Maine border,

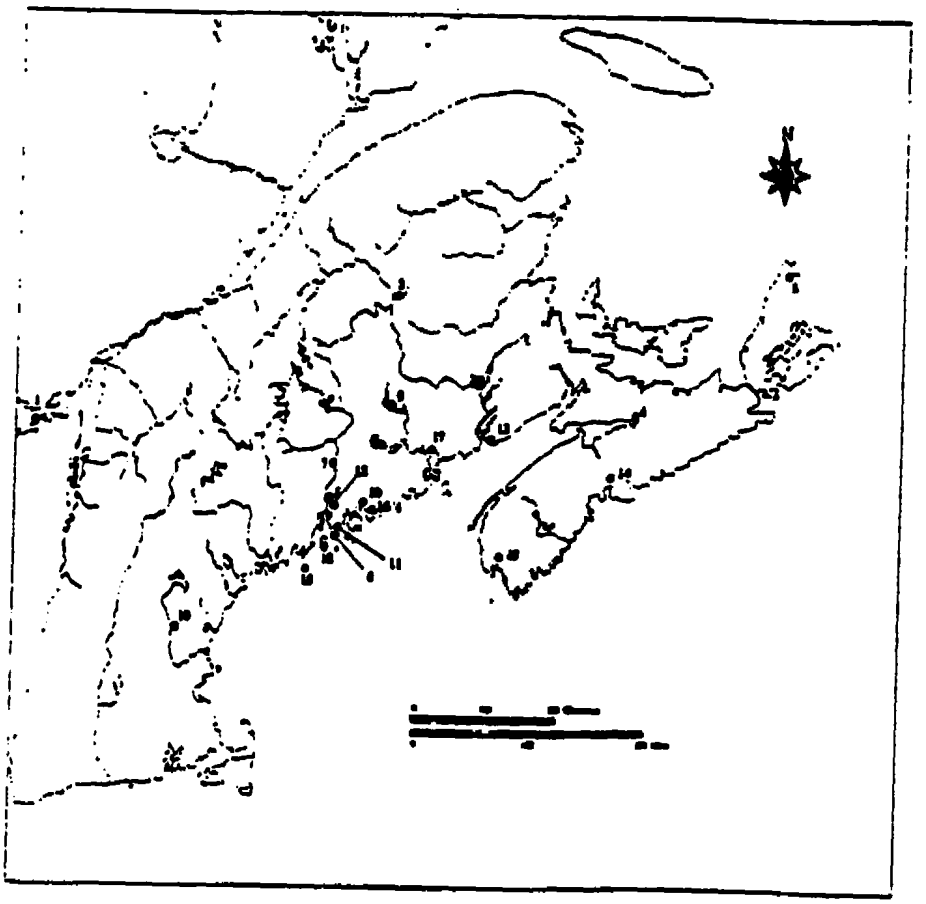


Figure 5. Archaic sites in the Northeast (After Tuck 1991).

while they are less frequent to the north and east of this area (Tuck 1991). In Nova Scotia, there are no excavated Terminal Archaic sites (Rutherford 1989; Tuck 1984, 1991), although evidence of their presence has been recovered. Broad bladed points cluster in the Tusket area of southwestern Nova Scotia (Deal and Rutherford 1991; Rutherford 1989), while additional diagnostic artifacts, such as grooved axes and drills, have been found at Gaspereau Lake and Gaspereau River, Melanson, Indian Gardens/East Brook, Eel Weir IV/Loon Island, Merrymakedge, Bear River, and Salmontail Lake (Deal and Rutherford 1991).

Although numerous broad bladed projectile point forms are associated with the Terminal Archaic throughout the Northeast, only points similar in style to Ritchie's (1969a) Snook Kill points have been documented in Nova Scotia. Projectile points of the period found in the province are characterized by straight to asymmetrically shaped broad blades, with straight to slightly contracting stems and straight bases. Long, narrow bifaces, expanding stem drills, as well as grooved axes and plummets have also been located in Nova Scotia (Deal and Rutherford 1991).

3.7. The Ceramic Period

The end of the Terminal Archaic and the beginning of the Ceramic Period in the Maritimes is marked by the appearance of pottery ca. 3,000 B.P. The Ceramic Period continues from this date until ca. 200 B.P. when the use of ceramics is discontinued. The Ceramic Period in the Maritimes remains poorly known because of a lack of excavated sites (Davis 1991:96). Similar to the Archaic, it has been subdivided into three periods, the Early, Middle and Late. The three periods are defined by diagnostic projectile points, and by different pottery styles.

A detailed chronology of Ceramic Period pottery styles was created by Petersen and Sanger (1991) and its application in Nova Scotia has been confirmed by Kristmanson (1992). In their chronology, Petersen and Sanger divided the Ceramic Period into seven time groups based on differing pottery styles, Ceramic Period 1 to 7 (Petersen and Sanger 1991). Prior to a discussion of these seven periods it must be noted that the Petersen and Sanger (1991) chronology is not directly applicable to projectile point styles. Projectile point forms dating from the Ceramic Period are not as temporally sensitive as the decorative elements found on ceramic wares. Therefore, projectile points are associated with only the broader subdivisions of the Ceramic Period as a whole, these being the Early, Middle and Late Periods.

Ceramic Period 1 dates from 3,050 to 2,150 B.P. Pottery from this period is characterized by grit temper, fibre perishable paddling, such as cordage or basketry, on the interior and exterior surfaces and by partial smoothing of the vessel on both surfaces (Petersen and Sanger 1991:118-119). Wares from this period have been found at the Melanson, Rafter Lake, Landing and St. Croix sites (Kristmanson 1992:64).

Ceramic Period 2 (2,150 to 1,650 B.P.) pottery possesses dentate, pseudo-scallop shell and unnotched stamping on the exterior of the vessel, created with a zigzagging technique. Incisions on the body were found to be a secondary form of decoration, with smoothing on both the interior and exterior with channeling of the interior also being documented (Petersen and Sanger 1991:124). In southwestern Nova Scotia wares do not display this incision until Ceramic Period 4, after which it continues to be seen in the province until Ceramic Period 7 (Kristmanson 1992:99).

Ceramic Period 3 dates 1,650 to 1,350 B.P. During this time in Maine both vessel

thickness, rim thickness and overall size are found to increase. Dentate stamping teeth are larger and rocker stamping decorations are used. Grit temper remains dominant, while pseudo-scallop shell decorating motifs disappear. Notably, an absence of rocker dentate stamping decoration is observed in southwestern Nova Scotia during this time period (Kristmanson 1992:67).

During Ceramic Period 4 (ca. 1,350 to 950 B.P.) rocker stamping, drag stamping and dentate stamping disappear. Cord-wrapped stick becomes dominant, with decorations seen only on the upper area of vessels. Shell temper appears at this time as do cylindrical punctates.

Ceramic Period 5 is marked by the continuation of these circular punctates and cord-wrapped stick impressions, which are applied by vertical stamping. Incision and linear punctates also appear, as does smoothing. Vessel wall thickness also increases at this time (Kristmanson 1992:75).

During Ceramic Period 6 (650 to 400 B.P.) in Maine, vessel walls become thinner, while in southwestern Nova Scotia they are found to become thicker (Kristmanson 1992:75). Decorations, such as cord wrapped stick and punctate motifs, continue in both areas. Bodies were undecorated and rims display a great amount of attention.

In the final Period, Ceramic Period 7 (400-200 B.P.), pottery is characterized by grit temper, thin walls, fabric paddling and incision motifs. It is near the end of this period in which pottery disappears from the archaeological record, and is soon replaced by European goods.

Various projectile point forms are also associated with the successive Ceramic

Periods. Throughout the Early Middle and Late Ceramic Periods straight and contracting stem points appea in southwestern New Brunswick although they are most prevelant in the Early Ceramic Period (Rutherford 1991). McEachen (1996) has noted the presence of Early Ceramic narrow, contracting stemmed points and straight to convex bladed points with straight or contracting stems and straight bases in the Maritimes and have been associated with the Early Ceramic Period. Examples of these projectile point types have been found at numerous sites in Maine and New Brunswick (Rutherford 1989).

Additional Early Ceramic projectile points associated with the Meadowood Tradition of the Early Ceramic have also been found in the Maritimes. These points possess concave bases, although convex examples have been found, narrow side-notches, and occasionally rectangular or square bases (McEachen 1996; Rutherford 1991). Adena projectile points, also indicative of the Early Ceramic, have been found in the Maine/Maritimes area. In the Maritimes, especially Nova Scotia, the majority of these points have straight bases and stems, although elsewhere in the Northeast they display convex bases (Rutherford 1990b:171).

One final projectile point style that has been associated with the Early Ceramic Period, and is a variant style exclusive to Nova Scotia, is the Tusket Point. Originally Tusket Points were dated to the Early Ceramic Period (Erskine 1967, 1998). In researching this point style, I believe a more conservative temporal placement must be assigned. Evidence indicates the use of these points continued throughout the Early and Middle Ceramic Periods. Therefore, the dating of Tusket Points should reflect the extended time period over which they were used.

No Ceramic Period sites containing continuous occupations have been excavated in Nova Scotia (Davis 1986). Most are short term occupation sites, and those with repeated occupations have breaks or hiatuses in the strata (Davis 1986), thereby undermining attempts to create clear cultural chronologies. It is because of this that the development sequence of projectile points from the Terminal Archaic Period to the Early Ceramic has remained unclear. Projectile points, which Erskine referred to as "Tusket Points", are found at the Gaspereau River outlet area (Erskine 1967, 1968, 1998). Classified within his "Group 10" at the Erskine Site (BfDd-5), classic Tusket forms exhibit contracting stems and possess either straight or convex bases. Their shoulders are sharp and laterally oriented, most frequently approaching a right angle toward the stem. Furthermore, their blades are either broad or narrow, with straight or excurvate edges. Average attribute values for the Tusket points found at the Erskine site can be viewed in Table 1.

Table 1: Tusket Point Measurements

Attribute	Number	Range	Mean
Length (mm)	7	30-49	36.1
Width (mm)	7	17.5-30	23.4
Thickness (mm)	7	5-9	6.9
Weight (grams)	7	2.4-6.3	4.1
Length/Width Ratio (mm)	7	1.1-2.2	1.6
Index (Neck width/base width *100)*	7	129-520	225.1

*The index illustrated denotes whether the projectile point has a contracting, expanding or straight stem. A score greater than 100 indicates a contracting stemmed, less than 100 an expanding stemmed, and = 100 designates a straight stemmed point.

Erskine designated these points as a part of his Tusket Phase ca. A.D. 200- A.D. 1000

(ca. 1700 B.P. to 900 B.P.) (Erskine 1998:64). He further noted that Tusket Points were contemporaneous with his Indian Island projectile point forms, which he described as corner-removed, or short stemmed points (Erskine 1998:67). Erskine's temporal placement of these points was based on his observations at the Bear River Site (BdDk-4), Annapolis County; the Brighton Site, Shelburne County; Granite Village, Digby County, and at the Erskine Site (BfDd-5), Kings County, Nova Scotia (Erskine 1998). While working at the Erskine Site, Erskine was unable to date Tusket Points (1967). With additional excavations in Yarmouth County though, Erskine concluded that Tusket Points were from the Early Ceramic Period as they were found stratigraphically prior to Late Ceramic Period narrow bladed corner- and side-notched variants here (Erskine 1967, 1969, 1998). Because of these observations Erskine came to believe that Tusket Points first appeared in the Late Archaic in conjunction with triangular bladed and small stemmed points. Erskine (1998:64) further argued that they became the dominant point form with the demise of Late Archaic projectile points.

An extensive literature review indicates that contracting stem points are found in Early and Middle Ceramic strata at sites throughout the Maritimes (Allen 1980; Borstel 1982; Nash and Stewart 1990; Rutherford 1989, 1991). In southwestern New Brunswick, straight and contracting stemmed points appear throughout the Early and Middle Ceramic Periods (Rutherford 1991). Some New Brunswick sites include Augustine Mound, Teacher's Cove, Sand Point, Oxbow and Cow Point, and at Turner Farm, Goddard, Young and Rogue Island in Maine (Rutherford 1989).

The presence of contracting stemmed points, which frequently possess straight sided

blades, appears to strengthen an Early Ceramic association for Tusket forms. Difficulty in slotting these points exclusively within the Early Ceramic Period arose when contracting stemmed point forms illustrated from previously mentioned sites were reviewed. None of the projectile points was morphologically similar to the Tusket style.

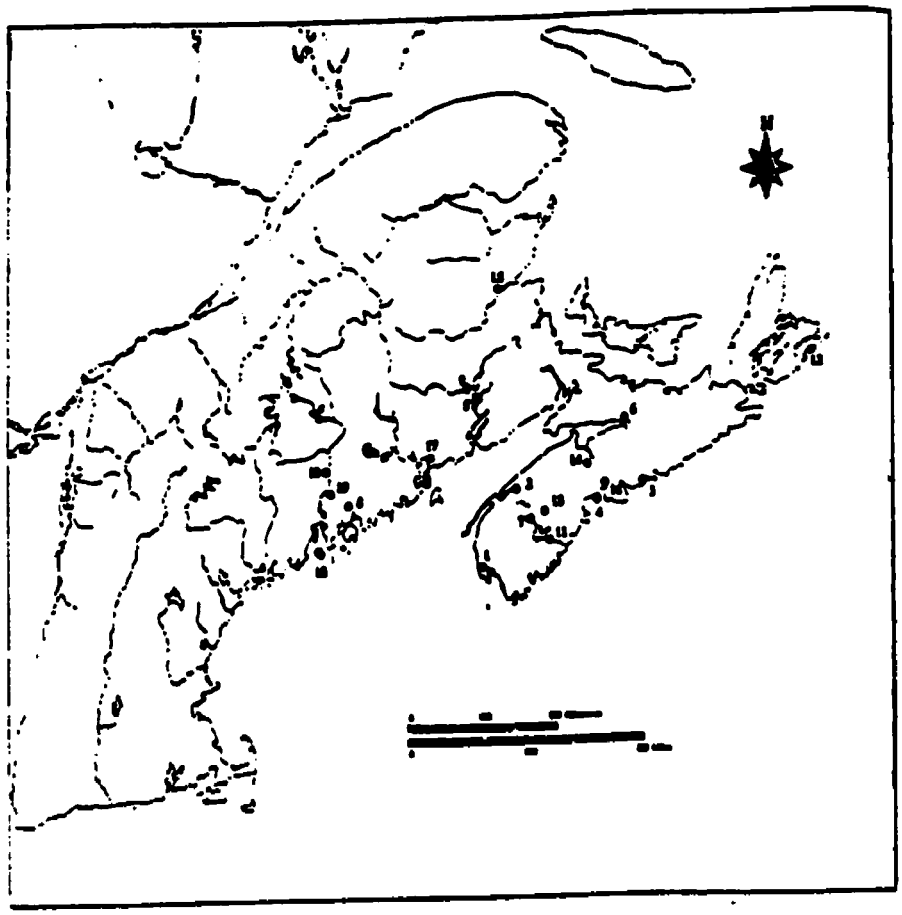
The only possible mention of these points found in the literature by Davis (1991a:96-97) in his discussion of the Bear River site (BdDk-4). He noted that Middle Ceramic pottery, which is characterized by "pseudo-scallop or fine dentate stamping techniques", with thin walls and grit temper, was found in association with contracting stemmed points. The pottery type has been dated between 2,400 and 1,700 B.P. at both the Oxbow and Fulton Island sites in New Brunswick (Davis 1991a). Although this pottery type is believed to be a part of the Middle Ceramic Period, corresponding dates fit within both the Early and Middle Ceramic Period time frames (2,500 to 2,000 B.P. and 2,000 to 1,000 B.P. respectively) (Deal 1986; Rutherford 1989, 1990a, 1991). This association of Middle Ceramic pottery and an overlapping date are believed by Sanger and Petersen (1991:123) to indicate a co-occurrence of both Early Ceramic (CP1) and Middle Ceramic (CP2) pottery types. They further believe the Middle Ceramic CP2 types are no older than 2,100 B.P. (1991:23). Support for an Early/Middle Ceramic designation comes from the Melanson site located along the Gaspereau River. In the BgDb-5 area of Melanson, a contracting stemmed point which falls within the Tusket Point form was discovered (BgDb-5:5, Nash and Stewart 1990:50), as were a number of points with concave blades and contracting stems (Nash and Stewart 1990). These points were also associated with Middle Ceramic pseudo-scallop and dentate stamp decorated pottery (Davis 1989; Nash and Stewart 1990; Petersen and Sanger 1991).

Nash (1990:54) believes the BgDb-5 occupation area is an Early Woodland component and predates the BgDb-1/4 area, dating ca. 1,760 ±60 B.P. (Nash and Stewart 1990:189). With his belief that the area predates 1,760 ±60 B.P., it appears that at Melanson, Tusket style contracting stemmed points fall somewhere between the Early Ceramic Period and the middle of the Middle Ceramic Period.

To conclude, there are limited data which date the Tusket Point style firmly within the Early Ceramic Period. However, information regarding this point form indicates that its use extended beyond the Early Ceramic Period, with a continued presence into the Middle Ceramic Period. Therefore, a conservative (i.e., a less restricted) temporal placement is applied to Tusket projectile point forms. Not until further information and research has been conducted in Nova Scotia will there be a better definition of the temporal placement of this point form. For the purposes of this thesis, Tusket Points are assigned an Early/Middle Ceramic Period association.

To continue, following the Early Ceramic and its projectile cognates is the Middle Ceramic Period (ca. 2,000 to 1,000 B.P.). Projectile points from this Period possess expanding stems, created by wide side- and corner-notching (Deal 1986; Rutherford 1991; Sanger 1977, 1987). Next is the Late Ceramic Period which dates ca. 1,000 to 400 B.P. in the Maritime Provinces (Deal 1986:72; Petersen and Sanger 1991:118). Culturally diagnostic projectile points include expanding stemmed, corner-notched and side-notched forms (Deal 1986). Unlike points of the Middle Ceramic, the side- and corner-notching displayed on Late Ceramic points is narrower, often with tangs present on blade ends.

In Nova Scotia there are several excavated sites illustrating Early, Middle and Late



1 - Bain
2 - Belleisle
3 - Brown
4 - Cellar's Cove
5 - Cow Point
6 - Debert
7 - Eel Weir
8 - Ellsworth Falls
9 - Fulton Island
10 - Hirundo
11 - Indian Gardens
12 - Lansisboro
13 - McGowan Lake
14 - Malanson
15 - Oxbow
16 - Rafter Lake
17 - Teacher's Cove
18 - Turner Farm
19 - Young

Figure 6. Map of Ceramic Period sites in the Northeast (After Davis 1991a and Rutherford 1991).

Ceramic Period occupations. As stated earlier though, none has continuous occupations and those occupied during more than one Ceramic Period possess breaks in their stratigraphy. Excavated sites containing Ceramic Period components include: Bear River, Rafter Lake and Cellar's Cove, St. Croix, Eel Weir VI, Skora Mound, Indian Gardens, the Erskine site and Melanson (Connolly 1977; Davis 1986; 1991a; Deal 1986; Erskine 1968; 1998; McEachen 1996; Nash and Stewart 1990; 1991). Various Ceramic Period sites have also been excavated outside the province of Nova Scotia, in Maine and New Brunswick, including the Young Site, Goddard Site, Turner Farm, Knox Site, Carson Site, Teacher's Cove, Fulton Island, Oxbow, Augustine Mound, Sand Point, Mud Lake Stream, and Cow Point (Allen 1980; Belcher 1989, Bourque 1995; Davis 1974, 1986, 1991a; Deal 1986; Rutherford 1989, 1990a, 1991; Sanger 1973, 1987; Turnbull 1976). Refer to Figure 6 for a map of Ceramic Period sites in the Northeast.

3.8. Summary

There are still a number of unanswered questions regarding the cultural history of Maine and the Maritimes. Although we have an understanding of the basic cultural chronology in Nova Scotia, there are several areas that require a greater amount of research. Although fairly clear chronologies and diagnostic cultural materials have been established for Maine and the rest of New England, Nova Scotia has lagged behind in research devoted to clarifying human occupation in the province. This thesis represents one of the few attempts to outline a cultural chronology for a specific area in Nova Scotia, and one that has an application over the entire province.

Chapter 4 Gaspereau Lake Sites

The following chapter outlines the occupation of each of the sites located along the Gaspereau Lake shoreline. All cultural materials from the area were analyzed, including those collected during the 1998 Gaspereau Lake Survey, the 1988/89 Minas Basin Survey, and artifacts in private collections. Materials found were grouped based on their site of origin. After this was accomplished, occupational time lines were established for each site based on the presence of culturally diagnostic materials. Artifacts are listed below, along with their cultural and temporal associations. Cultural materials originating from private collections can be found in Appendix B.

4.1. The Occupation of Sites within Grid Coordinate 7982

Because of the proximity of the Dam Site (BfDd-10), the Erskine Site (BfDd-5), the Fish Ladder (BfDd-9) and the Landing Sites (BfDd-14) to one another, when discussing the occupational history of the Gaspereau River lake outlet, they are dealt with as one site.

Analysis of the cultural material originating from this area demonstrates an extensive occupation. Cultural material dating from the Paleoindian Period up to the Historic Period has been documented from these four sites. The Paleoindian artifacts include a fluted point (BfDd-5:158), a Plano point of quartzite (BfDd-5:193), and a quartz triangular point which displays fluting on one side (BfDd-5:194) (Gaspereau Lake Catalogue 1996; Murphy 1996, 1998). Two additional Paleoindian fluted points were found in a private collection.

The first is a convex sided, straight based point with fluting on one face (BdDf-1:8) and the second is a convex sided, straight based, stemless point with fluting on one of its faces (BdDf-1:9). Refer to Plate 1 or an illustration of the Paleoindian cultural material

found in this area. In addition, during the Melanson Site excavations, Nash and Stewart (1990:189) discovered two Paleoindian points that originated from the site in a private collection.

Following this, an Early/Middle Archaic Period occupation is found in the area. One full-channeled ground stone gouge (BfDd-5:226) and a ground stone rod (BfDd-5:28) (Murphy 1996, 1998) were excavated from the Erskine Site. While an additional ground stone rod originating from this site was found in a private collection (Gertridge Collection, Deal, slide E18). Stark-like convex sided, contracting stem projectile points diagnostic of the Middle Archaic in New England (Snow 1980:174), have also been recognized. Seven points have been defined as dating from this tradition (BfDd-5:79,116,201,230, 314,320; Corbin Collection, Deal, slide 11). Refer to Plates 2 and 3 for illustrations of the ground stone rods, gouge and Stark-like points found in this area. With the discovery of these points, it can be documented that an occupation occurred around the Gaspereau Lake outlet at some point between 8,000 and 6,000 years ago. Two other Middle Archaic Merrimack-like (BfDd-5:310 and 167) projectile points have been identified. These specimens have straight and expanding stems with narrow, slightly convex blades (Murphy 1998). An additional point, BfDd-5:313, which consists of a stem and partial blade, displays characteristics similar to the two identified Merrimack-like points and is classified as such. Another Middle Archaic projectile point, similar to a Kirk Serrated Point was also found originating from the lake outlet area (BfDd-5:169). This point is made of quartzite and has a broad, serrated blade and lacks a base. Kirk Serrated and Kirk Stemmed Points have been found during the early part of the Middle Archaic in the Northeast and the Early Archaic

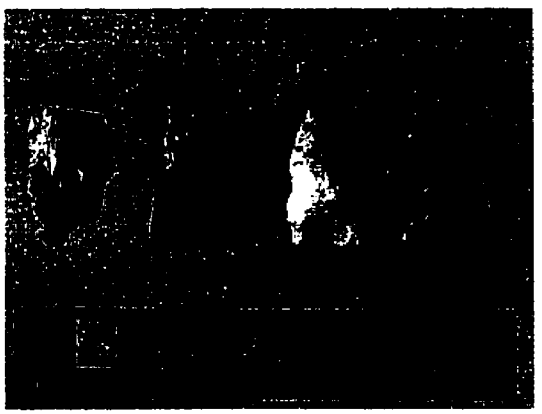
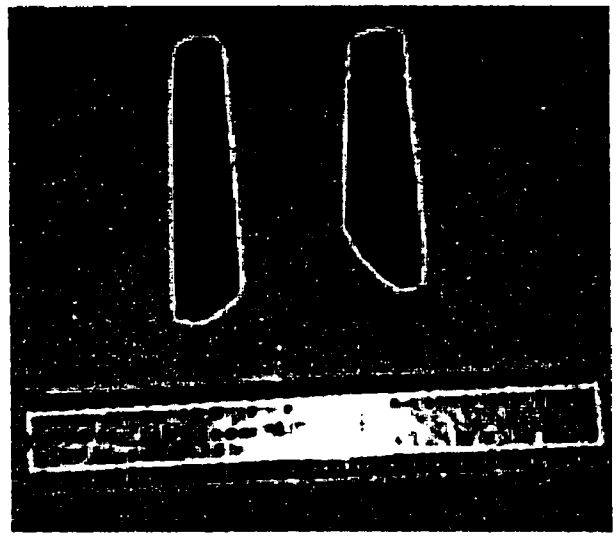


Plate 1. Paleoindian projectile points in the area of, and at the Erskine Site (BfDd-5). (Top from the Legge Collection; bottom after Murphy 1998).



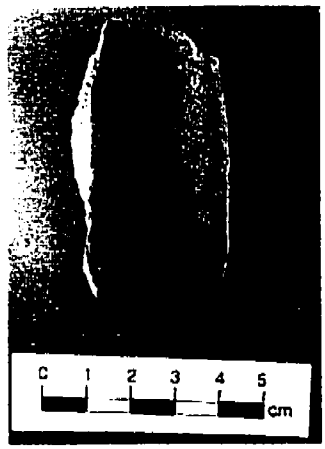


Plate 2. Rods and gouge found in the area of, and at the Erskine Site (BfDd-5). (Top from Legge Collection 1998; bottom after Murphy 1998).

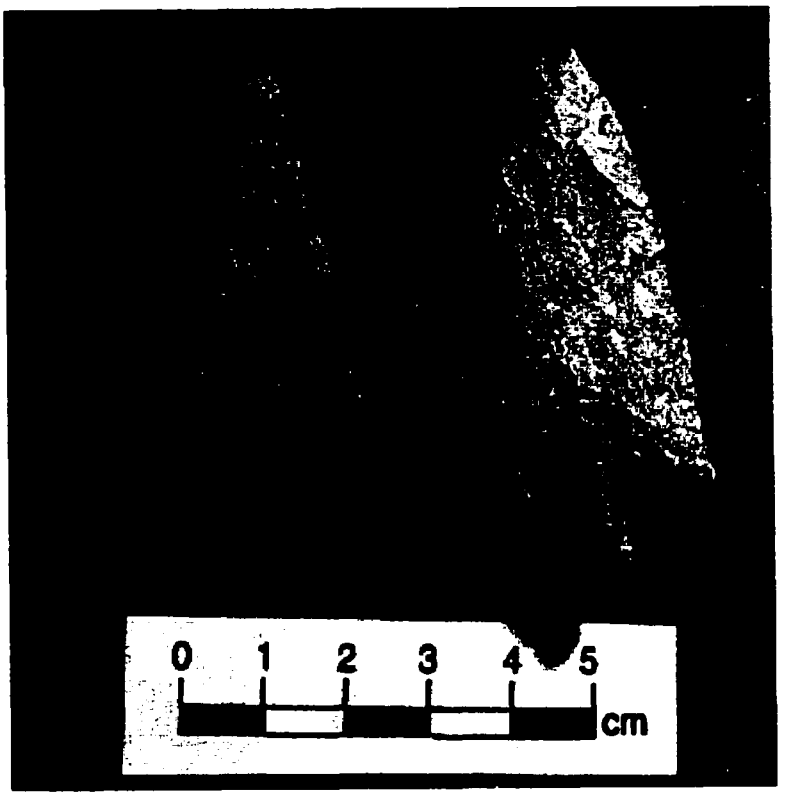


Plate 3. Middle Archaic Stark-like points from the Erskine Site (BfDd-5). (After Murphy 1998).

in the Carolina Piedmont (Snow 1980:160, 161) and New England (Murphy 1998:40). It is believed that this point dates from the Middle Archaic ca. 8,000 B.P. because of the similarities of its attributes with the type forms.

The following Late Archaic Period is represented by a greater number of artifacts than the Early/Middle Period. Material from the Erskine Site and private collections illustrate a number of Late Archaic artifacts. Overall, 13 Late Archaic broad bladed, side-notched projectile points were noted (BfDd-5:166,168,181,217,218,220,322; BdDf-1:11, 13, 28; 16A98NS15:7). For an illustration of some of these projectile points refer to Plate 4. This number includes two other possible Late Archaic point forms (BdDf-1:47, one from Gertridge collection, Deal, Slide E18). These Late Archaic side-notched points resemble Laurentian Tradition cognates, such as Brewerton-Eared and Otter Creek projectile points, and date between 5,000 and 4,000 B.P. and 6,500 and 4,500 B.P., respectively (Borstel 1982:28; Cox 1991:158; Murphy 1998:40; Ritchie 1961,1969a; Tuck 1991).

Two points, BdDf-1:47 and one from the Gertridge Collection (Deal, slide E18). The second (BdDf-1:47) is a convex bladed point with a contracting, asymmetrical stem and straight base. The presence of these points further indicates a Late Archaic occupation occurred ca. 5,000 to 3,700 B.P. Two other possible Late Archaic cognates found were small stemmed points from the Erskine Site (BfDd-5:307) and a private collection (18A98NS15:7). BfDd-5:307 was not given a cultural designation in the original site catalogue, but it, along with point 18A98NS15:7, closely resembles small stemmed points found in Nova Scotia during the Late Archaic ca. 5,300 B.P. (Deal and Rutherford 1991).

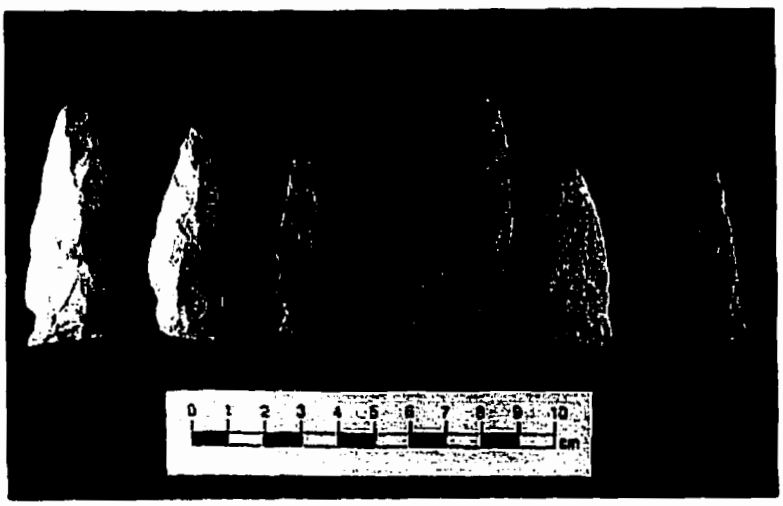


Plate 4. Late Archaic projectile points from the Erskine Site (BfDd-5). (After Murphy 1998).

Additional Late Archaic artifacts found include five whetstones (BfDd-5:174,192,305; 20A98NS15:7) or whetstone fragments (both perforated and unperforated types: BdDf-1:6), two ground slate points (one with stem notching: BdDf-1:22; BfDd-5:202), four partial and one whole ground slate bayonets(BfDd-5:57,210,309,320), 20 adze blades and bits (BdDf-1:36,43; 16A98NS15:1; 20A98NS15:14; BfDd-5:9,14,26,44, 54,56,57,317; BdDf-1:36,43; 16A98NS15:1) (five from undocumented collection; Deal slide E20 and E18), six pre-plummets and plummets (BfDd-5:2,21,176,231,354; Redden #4) (refer to Plate 5 for an illustration of plummets BfDd-5:2,21, 176, 231 and 354), an ulu (BfDd-5:298), an atlatl (BfDd-5:227), several ground slate fragments and what appears to be a ground stone blade preform or wedge (1A98NS15:4). Overall, the presence of broad bladed, side-notched and straight stemmed points as well as an extensive ground stone industry, indicate a Late Archaic occupation dating ca. 6,500 to 4,000 B.P.

Terminal Archaic Period occupation at the Gaspereau Lake river outlet is indicated by the recognition of 17 diagnostic projectile points (BfDd-5:125,165, 182,190,228, 240,264,290,294,295,308,315; BdDf-1:5,17,19,51; 20A98NS15: 4). Refer to Plate 6 for an example. These points include broad bladed stemmed points, and what Erskine (1967, 1998) referred to as Broadspear and Bluewhin points, both of which are diagnostic Terminal Archaic projectile point forms. Additional Terminal Archaic Period material consists of three grooved axes (BfDd-5:6,27), two of which originate from the Erskine Site (Erskine 1967, 1969, 1998) and the third from an undocumented private collection (Deal, slide E18).

The following occupation at the Gaspereau River lake outlet dates from the Ceramic Period. The presence of Tusket Points indicates an Early/Middle Ceramic Period occupation

Plate 5. Late Archaic ground stone plummets from the Erskine Site (BfDd-5) (After Murphy 1998).

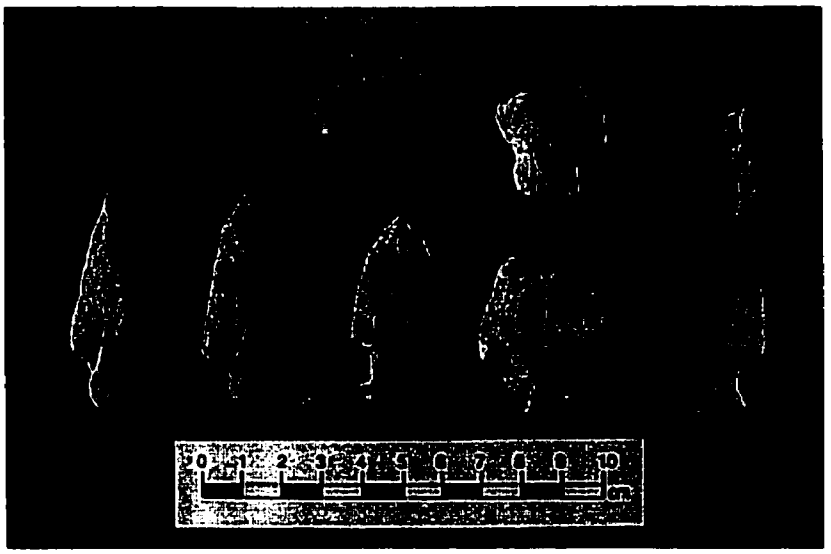


Plate 6. Terminal Archaic projectile points form the Erskine Site (BfDd-5). (After Murphy 1998).

with a total of 13 Tusket projectile point forms being documented (BfDd-5:127,138, 161,180,265,270,301,328;BdDf-1:16,18,29,37,46). Meadowood Tradition and Adena-like projectile points dating from the Early Ceramic Period (BfDd-5:121; BdDf-1:10,15) were also discovered. The first Adena-like point (BdDf-1:10) displays the classic Adena point morphology with a convex blade, and lobate stem (see Ritchie 1969a), also BdDf-1:15 resembles an Adena-like point, although its base is somewhat more pointed than type forms. Based on measurements of BdDf-1:15, with the exception of a broader width, its length, thickness, neck and base width fall within Adena point ranges (see Appendix B, Legge Collection-BdDf-1 for measurements).

Two other Early Ceramic cognates were identified from a private collection (BdDf-1:12,31). The first point (BdDf-1:12) greatly resembles Jack Reef's Pentagonal points which are found throughout New York during the Middle Woodland Period (Ritchie 1969a). While its measurements are slightly shorter than classic examples and its shoulders more pronounced, it clearly resembles examples found throughout Northeast (Ritchie 1969a, Snow 1980:321). The second projectile point (BdDf-1:31) resembles other contracting stemmed points found throughout the Maine watershed (Allen 1980; Borstel 1982:22; Bourque 1995:176). A final possible Early Ceramic cognate is BfDd-5:244. Originally dated to the Early Ceramic Period, it was identified by Erskine (1967) as a broad, convex bladed, unstemmed projectile point, similar to those typed as 'Stubenville Lanceolates' in the Northeastern United States. This point type is found throughout Virginia and the Ohio Valley, where it is often associated with Early Woodland, Vinette I pottery (Ritchie 1969a). However, stratigraphy places this point in the Middle Ceramic area of the site (Erskine

1967), and a re-examination of this broad convex bladed, unstemmed point led to its possible identification as a Meadowood (Early Ceramic) cache blade. At present, it appears to be an amorphous undiagnostic biface; undiagnostic to a specific time period.

Finally, evidence of an Early Ceramic Period occupation is supported by two pieces of Vinette 1 pottery (Murphy 1996, 1998). Although rare in the Maritime Provinces (Allen 1980:137; Deal 1986:72; Rutherford 1991:105), some examples have been discovered in Nova Scotia and New Brunswick (see Davis 1991:98; Deal 1986). This pottery type is comparable to that designated by Petersen and Sanger (1991) as originating from Ceramic Period 1 which date ca. 3050 to 2,150 B.P.

Following the Early Ceramic is a Middle Ceramic occupation. Two Middle Ceramic Period projectile points are identified as originating from this area. These points strengthen a Middle Ceramic occupation which is indicated by the presence of the Tusket Points. The first Middle Ceramic Period point (BfDd-5:240) has a broad blade, expanding stem, wide side-notches and a straight base. The second (18A98NS15:3) has a wide convex blade, expanding stem and a straight base. In addition to these projectile points, a prehistoric pottery sherd was recovered (18A98NS15:8). This sherd has an extreme curvature and is believed to be a neck sherd. The temper is of fine grit and the piece displays thick walls. There are no decorations and its surface has been smoothed. Its thickness, lack of decoration and grit type, suggests that this pottery dates from the Middle Ceramic Period.

Following the Middle Ceramic is a substantial Late Ceramic Period occupation. The Late Ceramic Period in the Maritime Provinces dates ca. 1,000 to 400 B.P. (Deal 1986:72; Petersen and Sanger 1991:118). Culturally diagnostic corner-notched and side-notched

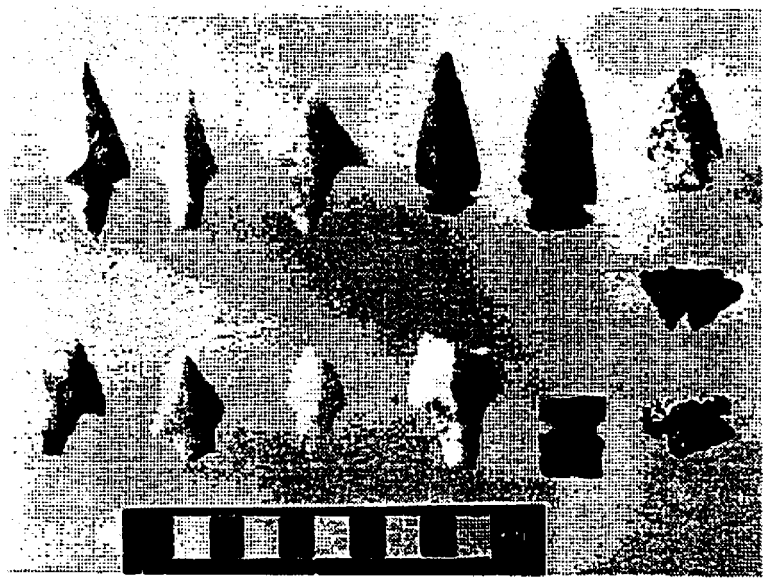


Plate 7. Early, Middle and Late Ceramic Period projectile points from the Erskine Site (After Murphy 1998).

(Deal 1986) projectile points have been found in private collections and in materials recovered from the Erskine Site (BfDd-5:121,154,198,221,273,246/260,263, 280,281,283; Redden #10; BdDf-1:7,52; Gaul 20A98NS15:2,3).

One point worth mentioning in greater detail was that found in the Redden collection (#10). This point has a broad convex blade, wide side-notches and a straight base. It greatly resembles those found in the first gravel floor at the Turner Farm Site, which was dated 875 ±70 B.P. (Bourque 1995:173). Such similarities may be an indication of influences derived from regionally different groups during trade contacts. In addition to the culturally diagnostic materials, a number of non-diagnostic, prehistoric cultural objects have also been collected around the lake outlet. A list of these artifacts can be found in Table 2.

The final occupation occurred in the Historic Period. During the Minas Basin Survey of 1988/89 (Deal 1989b) numerous sherds of European Historic Period ceramics were found, as well as nails and a piece of metal (Deal 1988b, 1988c).

Overall, it can be illustrated that the occupation around the Lake outlet for the Gaspereau River endured for almost 10,000 years. The number of artifacts dating from the Late and Terminal Archaic, as well as the Late Ceramic Period, point towards a heavy occupation at these times. However, this statement is tentative, as looting, erosion and construction within the area has undoubtedly destroyed a vast amount of archaeological evidence although, further research may prove otherwise.

Table 2. Artifacts from sites in Grid Coordinates 7982

Projectile Points

Time Period	Number of Points
Paleoindian	5
Middle Archaic	9
Late Archaic	14
Terminal Archaic	17
Early Ceramic	5
Early/Middle Ceramic	13
Middle Ceramic	2
Late Ceramic	15

Ground Stone Artifacts

Artifact	Number of Artifacts
Whetstones	7
Pre-plummets/Plummets	6
Waterworn Pebbles	2
Gouge	1
Ground Slate Fragments	6
Atlatl Weight	1
Ulu	1

Additional Artifacts

Artifact	Number of Artifacts
Bifaces	51
Scrapers	41
Drills	4
Choppers	3
Chisels	4
Boring Tool	1
Bipoint	1
Point Bases	3
Point Tips	37
Prehistoric Pottery	3
Historic Pottery	3
Blanks	11
Flakes/Debitage	4
Metal Fragments	4

4.2 Western Shore of Stovepipe Island

After reviewing private collections and the 1998 Gaspereau Lake Survey it was discovered that numerous artifacts had been collected between the north shore of Gaspereau Lake, to the south of Stove Pipe Island and along the western shore of the Island itself. The area to be discussed lies between the Military Grid coordinates 786826 and 786815. Included in this area is the unnamed island to the south of Stovepipe (M.G. 786815), where the Dead Gull Site (A98NS15:10) is located.

Before the damming of the Lake this section would have been part of the mainland, with the northern end of Stovepipe Island being located at the lake outlet for the Gaspereau River. The area of 786826 is part of the modern shoreline, and includes material in the Legge collection listed as BdDf-3. Originally this area would have been the northern shore for the Gaspereau River Lake outlet. Because of spatial association, artifacts which have been recovered from this area will be discussed as one unit, although their locations spread along the former shore. It is believed this is a more efficient method considering the lack of recorded sites for this stretch of area.

The earliest evidence for occupation dates from the Paleoindian Period. Diagnostic of this period is a convex bladed, convex based, fluted projectile point (BdDf-3:28). Although very fragmented, there is clear evidence of fluting on its dorsal surface.

The next documented occupation is from the Early/Middle Archaic Period. The first artifact found which is indicative of this period was a ground stone rod fragment (BdDf-3:41). This specimen was ground into shape, is biconvex in cross-section and possesses incising on its distal end. One whole projectile point (BdDf-3:10) and one point stem (BdDf-

3:29) have also been identified as Middle Archaic, Merrimack-like cognates. Both specimens are similar to points previously identified as Merrimack-like specimens at the Erskine site (Murphy 1998). However, because of their deteriorated condition, these two points are assigned only to the general Archaic Period. Beyond these examples, no other Early/Middle Archaic material has been identified from this area, indicating a rather limited occupation.

The Late Archaic occupation here has a greater presence than that of the Paleoindian and Early/Middle Archaic Periods. Diagnostic Late Archaic objects include two plummets, one chipped (BdDf-3:1) the other ground (BdDf-3:3), an adze blade (BdDf-3:2) a perforated whetstone (BdDf-3:4) and three Late Archaic convex bladed, straight stemmed and straight based projectile points (BdDf-3:18,20; 14A98NS15:3).

An Early Ceramic Period occupation is indicated by the presence of a convex bladed, side-notched, concave based projectile point (BdDf-3:17), similar to Meadowood types. Further indication of an Early/Middle Ceramic Period occupation is indicated by three contracting stemmed, straight based projectile points (BdDf-3:13,18,30) and five Middle Ceramic wide side-notched, convex bladed points (BdDf-3: 15,16,21,24,26). The Late Ceramic Period is also represented by two straight bladed, narrow corner-notched points (BdDf-3:27; 14A98NS15:5). For a complete list of artifacts from this site, refer to Table 3. Overall, artifacts collected from this area illustrate an extended, although light, occupation spanning from the Paleoindian Period into the Ceramic Period.

Table 3. Artifacts from Stovepipe Island area

Projectile Points

Time Period	Number of Points
Late Archaic	3
Early Ceramic	1
Early/Middle Ceramic	3
Late Ceramic	5

Ground Stone Artifacts

Artifact	Number of Artifacts
Rod	1
Adze Blade	1
Perforated Whetstone	1
Plummets	2

Additional Artifacts

Artifact	Number of Artifacts
Bifaces	15
Point/Biface Tip	1
Scrapers	6
Waterworn Pebble	1

4.3. Burnt Bone Beach Site (BfDb-8)

Burnt Bone Beach is located on a stretch of sandy beach and an adjoining spit, on the eastern side of a small bay, to the west of the Gaspereau Lake Dam. The site has yielded a substantial amount of material culture despite looting and erosion that has occurred here. Artifacts indicate an occupational sequence spanning from the Late Archaic Period to Historic times.

The first occupation at Burnt Bone Beach is associated with the Late Archaic Period and is indicated by the presence of several temporally diagnostic projectile point forms. Two

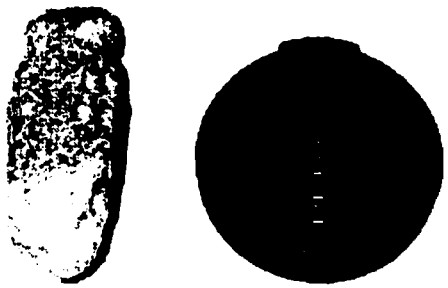


Plate 8. Grooved plummet from Burnt Bone Beach (BfDd-8) (From Corbin Collection, 1998).

points were found in the Redden collection. The first specimen, which resembles a Maritime Archaic-like projectile point, possesses a convex blade, straight stem and base, while the second, which resembles a Brewerton-like point, is a broad bladed, side-notched projectile point. In a second collection, another Late Archaic point was found, possessing a convex blade, straight stem and a straight base (7A98NS15:2). Additional Late Archaic material recovered from Burnt Bone Beach included a perforated whetstone (BdDf-5:2), a grooved plummet (Corbin #3) (see Plate 8) and a ground stone celt (Marge Hirtle Collection #28).

The following occupation at Burnt Bone Beach dates to the Early Ceramic period. One Early Ceramic period projectile point was found in a private collection (7A98NS15:3). This broad convex bladed, contracting stemmed point is reminiscent of those found at theOxbow site in New Brunswick (Allen 1980). The Early/Middle Ceramic Period is further represented at the Burnt Bone Beach site by the presence of three Tusket points (BdDf-5:1,3,6) and a diagnostic Middle Ceramic (BdDf-5:7) wide side-notched, convex bladed, concave based point. The Late Ceramic Period has greater numerical representation at Burnt Bone Beach, with six diagnostic narrow corner- and side-notched points (BdDf-5:8; Corbin #2), plus two points documented by Deal (1989a; Marge Hirtle #28,35).

An extensive amount of Historic Period material has originated from the Burnt Bone Beach site. Artifacts include: two Historic Period glass trade beads (BfDd-8:21; Marge Hirtle #184), a ceramic pipe bowl (BfDd-8:4), several pieces of metal (BfDd-8:8,9,18,19,28,29),a tinkling cone (BfDd-8:20) and numerous pieces of calcined bone (BfDd-8:3,7,22,35,36,38,39,108).

While a number of protohistoric burials have been reported in Nova Scotia, Burnt

Bone Beach has the only known protohistoric camp site in the province (Deal 1989b). In addition non-diagnostic artifacts have been collected from the site. These include scrapers, flakes, bifaces and several projectile points all with undetermined ages. Overall, cultural materials recovered from the Burnt Bone Beach site appear to indicate an occupational history beginning sometime during the Late Archaic and continuing sporadically until the Historic Period. The copious amount of calcined bone and lithic reduction flakes recovered from BfDd-8 suggest that it was an important habitation site.

Table 4. Artifacts from Burnt Bone Beach (BfDd-8)

Projectile Points

Time Period	Number of Points
Late Archaic	1
Early Ceramic	2
Early/Middle Ceramic	3
Middle Ceramic	1
Late Ceramic	5

Ground Stone Artifacts

Artifact	Number of Artifacts
Celt/Adze Blades	2
Grooved Plummet	1
Perforated Whetstone	1
Abrading Stone	1

Additional Artifacts

Artifact	Number of Artifacts
Calcined Bone Fragments	815
Glass Trade Beads	2
Metal Fragments	17
Lithic Flakes/Debitage	672
Bifaces	7
Drill	1
Tinkling Cone	1
Scrapers	24

4.4. Cadet Beach Site (BfDd-11)

No cultural materials were discovered during the 1998 Gaspereau Lake Survey. However, previous work here (Deal 1989a, 1989b) and materials from private collections, revealed a limited site occupation. Two bifaces, one Late Ceramic Period projectile point two, scrapers, and a limited number of flakes were found on the site during the 1989 Minas Basin Survey (Deal 1989a, 1989b). The paucity of cultural material may be because of looting, as the site is easily accessible from the highway, erosion caused by lake level fluctuations as well as general age.

Overall, because of the small amount of material found here, including the single projectile point, it is believed that this site consisted of a possible single occupation dating from the Late Ceramic Period.

4.5. Cement Cross Site (BfDd-12)

The Cement Cross site comprises a beach located on a peninsula of granite rock along the north shore of Gaspereau Lake. When originally surveyed in 1989 (Deal 1989a, 1989b), artifacts found indicated a relatively recent occupation, estimated at 500 years B. P. or later (Deal 1989a). However, analysis of private collections demonstrates a greater occupational depth.

The earliest manifestation of human presence at Cement Cross dates from the Early/Middle Archaic. Four full-channeled gouges (BdDf-4:1, 2, 7, 8) were found, two with narrow channels and one with a flared bit (Plate 9) originated at Cement Cross. All four gouges were made of igneous rock and two, the narrow-channeled gouge and the only flared-bit gouge, (BdDf-4:1 and 8), display polishing. Also found was a ground slate rod (BdDf-

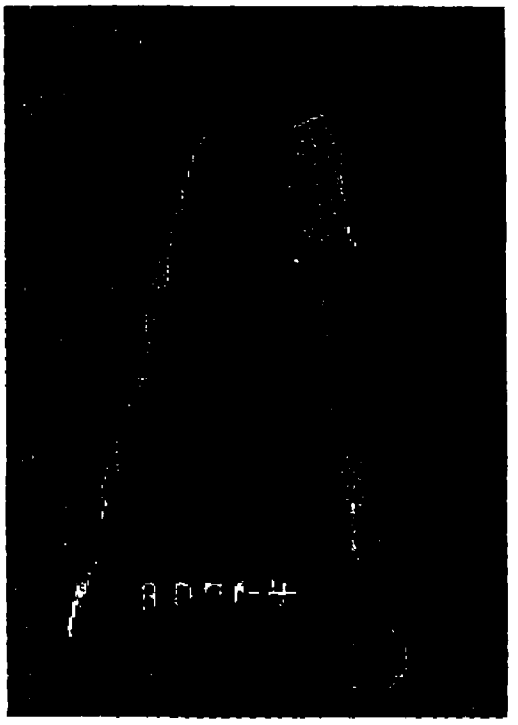


Plate 9. Flared bit full-channeled gouge from Cement Cross (BfDd-12). (From Legge Collection 1998, BdDf-4:8)

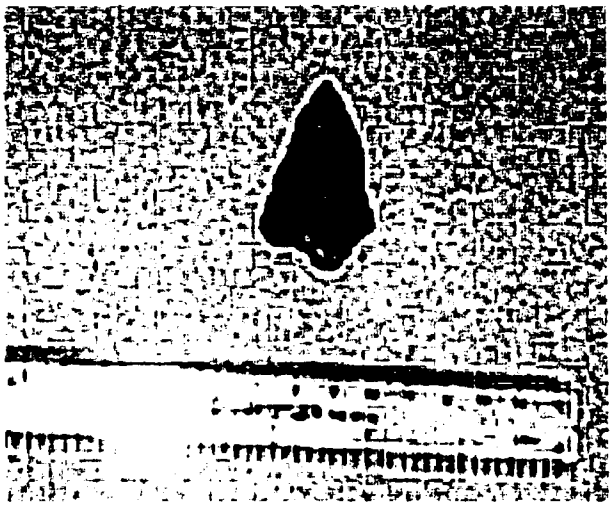


Plate 10. Stark-like projectile point form Cement Cross (BfDd-12). (From Legge Collection, 1998; BdDf-4:49).

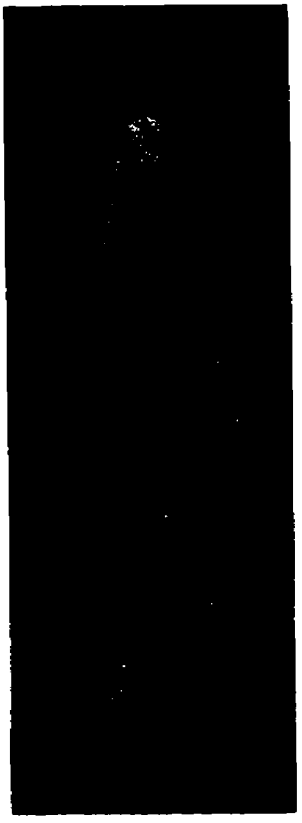


Plate 11. Ground slate point from Cement Cross (BfDd-12). (From Legge Collection, BbDf-4:14).

4:4). The slate rod was pecked and ground in a diagonal direction. It has seven facets or sides, which are not obvious to the eye, but can be detected through touch. Finally, a Middle Archaic convex bladed, contracting stemmed, Stark-like point (BdDf-4:49) was found to have come from the site. The presence of the ground stone rod, the gouges and the Stark-like point indicate the earliest occupation of the Cement Cross site was during the Early/Middle Archaic, between 8,000 and 6,000 B.P.

The next occupation dates from the Late Archaic Period. Late Archaic items include one grooved pre-plummet (BdDf-4:13), three grooved plummets (BdDf-4:11,12; 1A98NS15:2), an atlatl weight (BdDf-4:5), four adzes and one adze preform (BdDf-4:9,22,47,50,32), one ulu preform (1A98NS15:1), a slate point (BdDf-4:14) (see Plate 11), one perforated pendant (1A98NS15:3), one perforated whetstone (BdDf-4:16) and one unperforated whetstone (BdDf-4:21). The pre-plummet is roughly flaked and appears to have been made expediently. Two of the grooved plummets (BdDf-4:11,12) are well formed, possessing bulbous bodies, constricted necks and round heads. Both display evidence of pecking on their bodies but, overall, appear to have been ground smooth. All three are made of igneous rock. The third grooved plummet (1A98NS15:2) is particularly interesting as it diverges greatly from the form of the other two. It has a double grooved head and a somewhat cylindrical shape to its body, as opposed to the bulbous shape of the other two plummets. Grinding marks are clearly visible on this specimen and the mid-section appears to have been battered. Unlike the other plummets, this example is made of black slate with a white band running down the center of its body.

All five adzes from Cement Cross are made of igneous rock and are in different

stages of preservation. BdDf-4:32 appears to be an adze preform because of its rough condition. Therefore, its placement in this category is tentative. BdDf-4:47 displays no evidence for pecking or grinding and appears to be very water-worn. The remaining three (BdDf-4: 9,22,50) are well formed and display evidence of grinding or smoothing, while BdDf-4:22 is extremely smooth and symmetrical. Four are complete specimens, while the fifth (BdDf-4:22) is incomplete and missing its poll end.

The atlatl weight (BdDf-4:5) found at Cement Cross has been designated as a Late Archaic artifact (Ritchie 1969a; Tuck 1991). The example originating from this site is made of ground slate, with the grinding marks still observable on the dorsal side of the tool.

The one slate ulu preform (1A98NS:1) lacks a tapered or sharp cutting edge. This edge is rounded and the entire surface of the ulu has been ground smooth, although no grinding marks remain. The slate point (BdDf-4:14) from Cement Cross (see Plate 11) is similar to those found at the Cow Point Cemetery site in New Brunswick (Sanger 1973). The point is made of a green coloured slate, with grinding marks still visible on its ventral surface. It appears to have been polished. The blade element has six facets and the stem has been notched. Because perforated pendants are in reality perforated whetstones, the two whetstones and one perforated pendant from Cement Cross are discussed together. The perforated pendant (1A98NS15:3) appears to be made from sandstone. It is missing its distal end and greatly resembles a fountain pen nib. Its perforation appears to have been created by incising from both faces. The perforated whetstone (BdDf-4:16) is made from sandstone, and although a corner is missing, it appears that originally the tool was triangular in shape (see Plate 12). Furthermore, it possesses an hour-glass shaped perforation, indicating it was

formed by drilling one side mid-way through the material and then turning the tool over and continuing the process on the other side. The second whetstone (BdDf-4:21) is oblong in shape, is made of igneous rock, and is not perforated. The grinding and polishing displayed on the tool may have resulted from use of the whetstone in order to sharpen other tools.

A Terminal Archaic occupation is the next documented occupation at Cement Cross. Although not as well represented as the Late Archaic, two igneous rock grooved axes (BdDf-4:3,10), two culturally diagnostic projectile points (BdDf-4:18,6) and a Terminal Archaic, narrow bit, expanding base drill (1A98NS15:20) were found in private collections. Neither of the grooved axes is intact, the first (BdDf-4:10) lacking part of its poll and bit, and the groove from its dorsal and ventral surfaces appears to be in its initial stages of creation, with only a limited degree of pecking present. Its bit has had large flakes removed on its dorsal surface and displays some evidence of pecking above these scars. The poll is flat and appears to have been broken off in one clean break. It appears this axe was in the middle of manufacture when it was broken. The second axe (BdDf-4:3) has suffered a degree of weathering and is greatly deteriorated, missing both its poll and bit.

The two Terminal Archaic points from Cement Cross are both broad bladed. The first (BdDf-4:6) has straight sides and a straight stem, while the second (BdDf-4:18) has a convex blade and slightly convex base. The drill, also characteristic of this period, has a long narrow bit and expanding base. Both the drill and projectile points are of forms similar to those found throughout the Gulf of Maine watershed (Borstel 1982; Bourque 1995; Deal 1986; Sanger and Davis 1991; Tuck 1991).

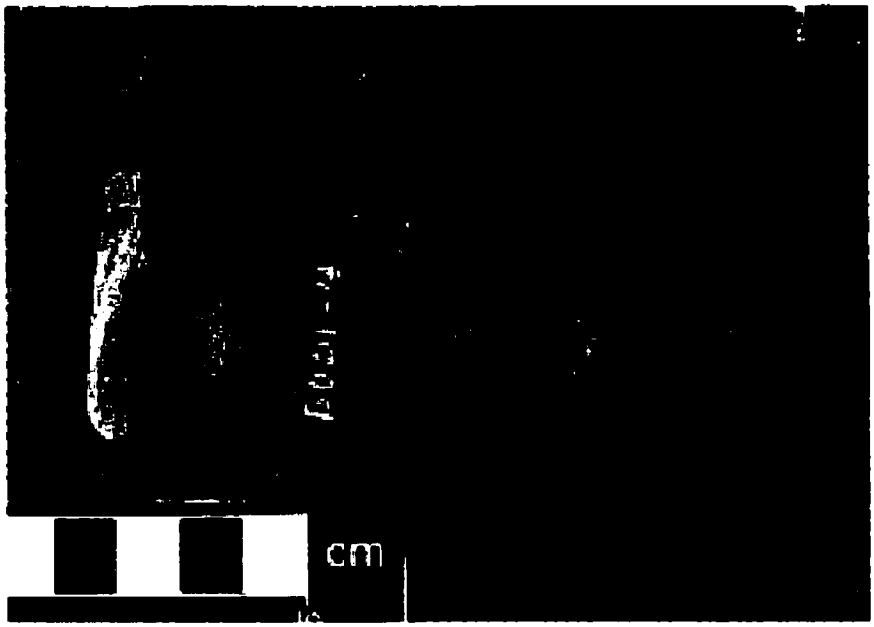


Plate 12. Perforated whestone from Cement Cross (BfDd-12). (From Legge Collection 1998, BdDf-4:16).

The next occupation at Cement Cross was during the Early Ceramic Period. Two Adena-like projectile points (BdDf-4:19,44) and a ground slate gorget (BdDf-4:15) were discovered on the site. The two points are broad bladed with contracting stems and convex bases. Both fall within Adena point measurement ranges (Ritchie 1969a) and have attributes similar to those found on New York specimens. The gorget displays a high degree of decoration (BdDf-4:15) and is made of slate. It possesses vertically incised lines along its lateral margins on the dorsal surface, and four incised lines that carry across the entire face of the artifact. The gorget flares at its proximal and distal ends and is constricted in the center, and the hole at the proximal end is hour glass shaped. Also present were Early/Middle Ceramic Tusket Points (BdDf-4: 20,24,25,27,37,38,39,40,41,42,43,46), six of which (BdDf-4:37-42) were found together in what can be considered a cache, in the crevice of a granite rock. Eight of the points (BdDf-4:33-41) conform with the classic Tusket style, possessing long narrow blades, sharp lateral shoulders, slightly contracting straight stems and straight bases. The tenth (BdDf-4:42) is somewhat dissimilar to the other Tusket points, being shorter, lacking the sharp lateral shoulders and having a more convex than straight sided blade. The remaining are variants of the Tusket form observed elsewhere in the province.

Two Middle Ceramic points were also found at Cement Cross (BdDf-4:17,26). Both have expanding stems, wide side-notches, convex blades, and straight bases. The final occupation at Cement Cross appears to have been during the Late Ceramic Period. Three Late Ceramic diagnostic projectile points were found (BdDf-4:23; 1A98NS15:6,7), all with

Table 5. Artifacts from Cement Cross (BfDd-12)*

Projectile Points

Time Period	Number of Points
Middle Archaic	1
Terminal Archaic	1
Early/Middle Ceramic	12
Middle Ceramic	2
Late Ceramic	3

Ground Stone Artifacts

Artifact	Number of Artifacts
Slate Point	1
Rod	1
Ulu	1
Pre-plummet/Plummet	4
Full-channelled Gouge	4
Perforated Whetstones	4
Grooved Axes	2
Adze/Adze Preforms	5

Additional Artifacts

Artifact	Number of Artifacts
Drill	1
Scrapers	8
Bifaces	5
Bipoint	1
Blade-like Tool	1

*The artifact assemblage also includes an unspecified number of flakes, biface fragments and bipolar cores (Deal 1989a).

narrow corner-notches and straight bases. Various other culturally nondiagnostic artifacts were found at the site, including several scrapers, bifaces, flakes, and core fragments. Unfortunately, no pottery has yet been recorded from Cement Cross. The discovery of pottery would further aid dating the Ceramic Period occupation at this site.

Overall, an extended occupation has been illustrated at the Cement Cross Site.

Occupation of the site began in the Early/ Middle Archaic Period and continued into the Late Ceramic Period, spanning from ca. 10,000 to 400 B.P.

4.6. JL6 (BfDd-13)

The JL6 (or Jim Legge 6) Site is located near the head of Lower North Bay, on a beach which is exposed when lake water levels are at their lowest. During the 1989 Minas Basin Survey (Deal 1989a,b) two pieces of ground stone material and a number of flakes were discovered on this site. An estimated occupation date of 500 years B.P. or later was given (Deal 1989a). After reviewing private collections, materials originating from this area is somewhat dissimilar to the other Tusket points, being shorter, lacking the sharp lateral shoulders and having a more convex than straight sided blade. The remaining are variants of the Tusket form observed elsewhere in the province. Two Middle Ceramic points were also found at Cement Cross (BdDf-4:17,26). Both indicated a greater occupational length then originally estimated.

In one collection a Late Archaic perforated pendant or whetstone was found (Corbin Collection #4) (see Plate 13). Similar examples of these perforated pendants or whetstones have been found in Moorehead burial sites, such as Cow Point in New Brunswick (Sanger 1973), the Hathaway Cemetery Site, Maine (Snow 1980) and the Hirundo Site also in Maine (Sanger et. al. 1977). A partially grooved gouge (BdDf-6:3) and a ground stone celt (BdDf-6:4) further strengthen the evidence for a Late Archaic presence.

A Terminal Archaic occupation is also indicated at JL6 by a broad, convex bladed, slightly expanding stemmed point (BdDf-6:5) diagnostic of the Broadpoint Tradition. There

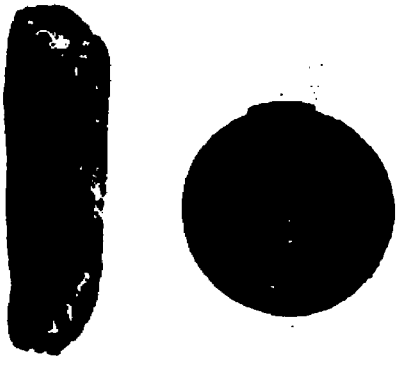


Plate 13. Perforated whetstone from the JL6Site (BfDd-13) (From Corbin Collection, 1998).

also appears to have been a Ceramic Period occupation at JL6. In a private collection a convex bladed, narrow side-notched, convex based, Meadowood-like point was found (BdDf-6:2), dating ca. 2,800 B.P. to 2,000 B.P. This point style resembles those found by McEachen (1996) at the BaDd-4 site in Nova Scotia, which also dates from the Early Ceramic Period. A second broad, convex bladed, contracting stemmed lobate or convex based, Early Ceramic point was also discovered (BdDf- 6:1) at JL6. This point greatly resembles Early Woodland Adena points found in New York (Ritchie 1969a), and Vermont (Snow 1980:296), as well as the lobate stemmed points found in Occupation 4 (ca. 2,000 B.P.) at the Turner Farm Site (Bourque 1995:175). Other materials originating from JL6 include a blade of slate (BdDf-6:6), a chopper and a biface. However, none is diagnostic to a particular time period. For a complete list of artifacts found at JL6 refer to Table 6.

Table 6. Artifacts from JL6 (BfDd-13)

Projectile Points

Time Period	Number of Points
Terminal Archaic	1
Early Ceramic	2

Ground Stone Artifacts

Artifact	Number of Artifacts
Ground stone Fragment	1
Partially Grooved Gouge	1
Celt Blade	1

Additional Artifacts

Artifact	Number of Artifacts
Blade of Slate	1
Chopper	1
Biface	1

Only brief Late Archaic, Terminal Archaic and Early Ceramic occupations can be attributed to this site. It is believed that a longer duration of occupation existed here, but evidence has subsequently been destroyed.

4.7. Camp Side Site (A98NS15-6)

The Camp Side site is located on a granite slope, along the shore of an island located in a small unnamed bay west of Lower North Bay. It is represented by the isolated find of an adze blade. Currently, it cannot be firmly dated because of the paucity of material that has originated from this area. Unfortunately, no other cultural materials in private collections were found to have originated from this site.

A Late Archaic date is tentatively assigned to this site. This designation is based on the general association of ground stone tools with the Archaic, specifically the Laurentian, Maritime Archaic and Moorehead Traditions, in the Northeast. Further research in the Gaspereau Lake area will hopefully shed more light on the occupation of this site.

4.8. The Prize Site (A98NS15-7)

The Prize site is located on a rocky beach west of Lower North Bay, and is represented by a grooved axe and a ground stone adze blade. The culturally diagnostic nature of the grooved axe indicates the Prize Site was occupied during the Terminal Archaic. The ground stone adze blade is also viewed as indicative of the Late Archaic Period and gives further credence to dating of this site at ca. 4,000 to 3,000 B.P., in the Terminal Archaic Period. Unfortunately, no other cultural materials were found in private collections that originated from this site or from further investigations at the site itself. Because of the paucity of cultural materials, no table has been created.

4.9. The Heaven's Gate Site (A98NS15-9)

This site is located on a recently exposed area of shoreline on the western end of a small island west of Nab's Island, approximately 12 meters from the shore. The only cultural materials originating from this site are two jasper flakes that were discovered during subsurface testing. No other artifacts from this site were found in private collections. The lack of diagnostic materials hinders the dating of this site, although the jasper flakes may represent a Late Ceramic or at least a Ceramic Period occupation, for it is during this time that the Scots Bay quarries were most heavily utilized (Deal 1989c).

4.10. Schaffer's Camp Site (BfDb-7)

Based on a narrow corner-notched point, Schaffer's Camp was originally identified as a Late Ceramic Period site (Deal 1988a). After further investigation of the area, and the viewing of several private collections, it can be illustrated that occupation of Schaffer's Camp took place both before and after the Ceramic Period. Cultural materials found indicate Paleoindian, Late Archaic, Terminal Archaic, Ceramic Period and Historic era occupations.

The earliest occupation of Schaffer's Camp has tentatively been identified as Paleoindian (11,500 to 9,500 B.P.). A convex, broad bladed, concave based point with possible fluting was documented (5A98NS15:55). Because of the deteriorated condition of this point, the identification of it as a Paleoindian fluted point is tentative.

The next occupation at Schaffer's Camp dates from the Late Archaic. Culturally diagnostic artifacts found include a grooved plummet (5A98NS15:48), a perforated pendant (5A98NS15:16), a whetstone (5A98NS15:54), a fragment of a whetstone (5A98NS15:54) and two Late Archaic adze blades (5A98NS15:49; 4A98NS15:12). The presence of five

Terminal Archaic broad bladed projectile points (5A98NS15:72,79, 81,83; 4A98NS15:1) and a narrow bit, expanding base drill (5A98NS15:75), indicate a Terminal Archaic occupation followed the Late Archaic one.

Following the Terminal Archaic are Early and Middle Ceramic Period habitations. One Early/Middle Ceramic projectile point (5A98NS15:12), two diagnostic Early Ceramic points (5A98NS15:41) and a Middle Ceramic Period projectile point (A98NS15:73) originated from Scaffer's Camp. Specimen A98NS15:41 closely resembles Jack Reef's Pentagonal points (Ritchie 1969a:240, 1961:80; Snow 1980:321), although its stem is slightly more contracting than textbook examples. These projectile points, which have been found in New York and New England, have been assigned to the Middle Woodland ca. 2,200 to 1,600 B.P. (Snow 1980:261,285), which overlaps with the Early Ceramic Period (ca. 2500 to 2000 B.P.) in the Maritime provinces (Deal 1986:72). The Middle Ceramic Period projectile point, 5A98NS15:73, has an expanding stem, created by wide corner-notches. The third Early/Middle Ceramic projectile point, 5A98NS15:12, has a broad straight blade and contracting stem; it closely resembles a point found at the Young Site (Borstel 1982) in the Early Ceramic level, and one from the Melanson Site (BgDb-7) in the Middle Ceramic area of the site (Nash and Stewart 1990:78). Because of its rather amorphous shape, it has been given an Early/Middle designation as opposed to a more definite date. The remaining projectile points from Schaffer's Camp (5A98NS15:2,18,19,43,50,78,80,82;4A98NS15:2,3; 3A98NS15:1 Legge) are corner- and side-notched points, all dating from the Late Ceramic Period ca. 1,000 to 400 B.P. (Deal 1986:72). Because of the quantity of these points, it is believed that there were a greater

number of people visiting the site during this time. Also dating from the Ceramic Period are five pottery sherds, (5A98NS15:37,60,61,62; BfDd-7:2). The final occupation of Schaffer's Camp occurred during the Historic era. This most recent occupation was indicated through the presence of an European clay pipe bowl (5A98NS15:85) found in a collection. Additional culturally non-diagnostic artifacts were found to have originated from Schaffer's Camp, including flakes, scrapers, bifaces and point tips. A complete list of the artifacts found at Schaffer's Camp can be viewed in Table 7. Overall, cultural materials found at Schaffer's Camp indicate it was occupied repeatedly throughout prehistory, into the Historic Period.

4.11. Combined Sites of A98NS15-4,5, and 8

Heaven's Door (A98NS15-4), the Other Side Site (A98NS15-5), and the Bottom Out Site (A98NS15-8) are located in close proximity to one another. Both Heaven's Door and the Other Side Sites are on an island located directly to the north of the Bottom Out Site. Before the damming of the Gaspereau River, these sites would have been located close to the mouth of the Gaspereau River. With higher water levels, they are now situated on islands that are approximately 12 meters from the present shoreline.

Occupation of this area began during the Early/Middle Archaic Period and continued into the Late Ceramic Period. A diagnostic Early/Middle Archaic Period full-channeled gouge was found in a collection (Redden #1). Unfortunately, this gouge was the only diagnostic Early/Middle Archaic material that could be attributed to this area, it appears that the occupation was limited.

Table 7. Artifacts from Schaffer's Camp (BfDd-7)

Projectile Points

Time Period	Number of Points
Paleoindian	1
Terminal Archaic	5
Early Ceramic	1
Early/Middle Ceramic	1
Middle Ceramic	1
Late Ceramic	12

Ground Stone Artifacts

Artifact	Number of Artifacts
Adze Blades	2
Plummet	1
Plummet/Adze Preform	1
Slate Fragment	1
Perforated Pendant	1

Additional Artifacts

Artifact	Number of Artifacts
Point/Biface Tips	12
Bifaces	16
Scrapers	33
Prehistoric Pottery	5
Preform	1
Clay Pipe Bowl	1
Bipoint	1
Drill	1

A greater number of diagnostic Late Archaic artifacts points to a heavier occupation of the area at this time. Artifacts found in private collections include a perforated whetstone (Redden #2), two ground stone slate bayonets (BdDf-2:1 and 2), a ground slate point tip (Redden #3), a partially grooved gouge (Redden #1), and an adze blade (BdDf-2:10). Although partially grooved gouges have also been found in Terminal Archaic contexts in Maine (see Bourque 1995), the presence of additional ground slate

materials that are diagnostic to the Late Archaic, allow its assignment to this period. In addition to the ground stone material, a Late Archaic convex bladed, contracting stemmed, straight based projectile point (BdDf-2:17) was found, as well as a number of ground slate fragments. Although not culturally diagnostic, these fragments may strengthen the evidence for an Archaic presence.

The next occupation dates from the Terminal Archaic. Diagnostic broad, straight bladed, straight stemmed and straight based projectile points (BdDf-2:4; A98NS15-4:1); one seen in Redden Collection) and two grooved axes were discovered (BdDf-2:3 and 9). One of the projectile points (A98NS15-4:1) was found with basalt fragments through archaeological testing and was associated with two lithic scatters. One scatter, composed of quartzite flakes, was located within ten meters of the testing area, while the second scatter comprises the Other Side Site which was represented by two jasper flakes, one primary and one secondary.

A Ceramic Period occupation is also documented in this area. Four Early/Middle Ceramic Period Tusket Points were found in a private collection (BdDf-2:5,11,15,16) and three other projectile points diagnostic of the Ceramic Period were discovered in two private collections (BdDf-2:13,14; Redden #8). The first point, BdDf-2:13, dates from the Middle Ceramic, while the remaining two (BdDf-2:14; Redden #8) are narrow, corner-notched points that date to the Late Ceramic Period. One of the Late Ceramic points (Redden #8), is made from slate and is ground in places. This projectile point is notable as it has been ground, which is a deviation from the more common flaking process used to manufacture projectile points during the Ceramic Period.

4.12. The Moose Island Site (A98NS15-11)

The Moose Island Site is located on the southern shore of Moose Island in the southern portion of Gaspereau Lake. The only objects originating from this site are a ground stone celt (A98NS15-11:1) and an endscraper (A98NS15-11:2). A tentative Archaic Period occupation is assigned to the Moose Island Site by the presence of the ground stone celt.

Unfortunately, the endscraper is not culturally diagnostic and can offer no further aid in temporally placing the site. With such a limited amount of cultural materials, the site may represent two isolated artifact finds deposited during a brief overnight stay. However, the site may also represent the remains of a habitation area that has since been destroyed by erosion caused by the fluctuating lake water levels.

4.13. Unprovenienced Cultural Materials From Gaspereau Lake

The following cultural materials (refer to Table 9 for a complete list of artifacts) were found in private collections. Unfortunately, none could be associated with specific sites, only Gaspereau Lake itself. These artifacts further support an extensive prehistoric occupation in the Gaspereau Lake area.

First, an additional a Paleoindian projectile point was found with the discovery of an unstemmed, unnotched, convex bladed, concave based projectile point in a private collection (22A98NS15:20). While no additional diagnostic Early/Middle artifacts were located, three Middle Archaic projectile points were noted. The first two (Corbin Collection, Deal Slide #12) possess narrow blades, straight stems and bases and resemble Merrimack-like points (Murphy, 1998, see point BfDd-5:167). Unfortunately, there are problems in firmly assigning a Middle Archaic date to these points. When compared to projectile points from

Turner Farm in Maine, they closely resemble points from Occupation 4, the Ceramic Period

Table 8. Artifacts from Heaven's Door (A98NS15-4), the Other Side Site (A98NS15-5) and the Bottom Out Site (A98NS15-8)

Projectile Points

Time Period	Number of Points
Late Archaic	1
Terminal Archaic	3
Early/Middle Ceramic	3
Middle Ceramic	1
Late Ceramic	2

Ground Stone Artifacts

Artifact	Number of Artifacts
Grooved Axes	2
Gouge	1
Slate Bayonets	2
Slate Fragments	2
Hand Maul	1
Perforated Whetstone	1
Adze Blade	1
Slate Point	1

Additional Artifacts

Artifact	Number of Artifacts
Scrapers	3
Preform	1
Biface	1
Basalt Fragment	1
Flakes/Debitage	23

level, and Occupation 2, the Moorehead, Late Archaic level (see Bourque 1995:177, 181). Without measurements to aid dating, and because of the close resemblance to points

identified as Merrimack-like at the Erskine Site (Murphy 1998), these two points are tentatively labelled as dating from the Middle Archaic. A third Middle Archaic point comes from another collection (see Deal, Slide #13) and is a broad straight bladed, contracting stemmed, pointed base, Stark-like point. Much like the two possible Merrimack-like projectile points, the identification of this must also remain tentative because of the lack of quantitative information with which to compare it to firmly dated forms.

Greater representation of a Late Archaic occupation was indicated by additional diagnostic artifacts. Five Late Archaic projectile points (Corbin Collection; D. A. Collection, Deal, Slide #10,12, and 14) were found in private collections, two grooved plummets (D. A. #1 and 8), two ridged ulu fragments (D. A. #2 and 3) (see Plate 25), and one adze blade (Corbin Collection, Deal Slide #33). The ridged ulu fragments are particularly interesting as no similar specimens have been found at Gaspereau Lake.

Dating from the Terminal Archaic, 14 broad bladed, straight stemmed and straight based projectile points, a narrow bit, drill with an expanding base (Redden Collection, Deal, Slide #16; Corbin Collection, Deal, Slide #14; D. A. Collection), and two grooved axes (D. A. Collection) were also recorded. All Ceramic Periods were well represented among unprovenienced materials. Two Early Ceramic projectile points (Corbin Collection, Deal Slide #12; D. A. Collection, Deal Slide # 10) and a gorget (D. A. Collection #7) were found in two private collections. Four Early/Middle Ceramic Tusket Style points were noted (Corbin Collection Deal Slide #12, 19; D. A. Collection, author photos #11, 15; 22A98NS15:1), as were four expanding stem, wide side-notched points and one possible Jack Reef's Pentagonal-like point (Corbin Collection, Deal, Slide #19; Redden Collection,

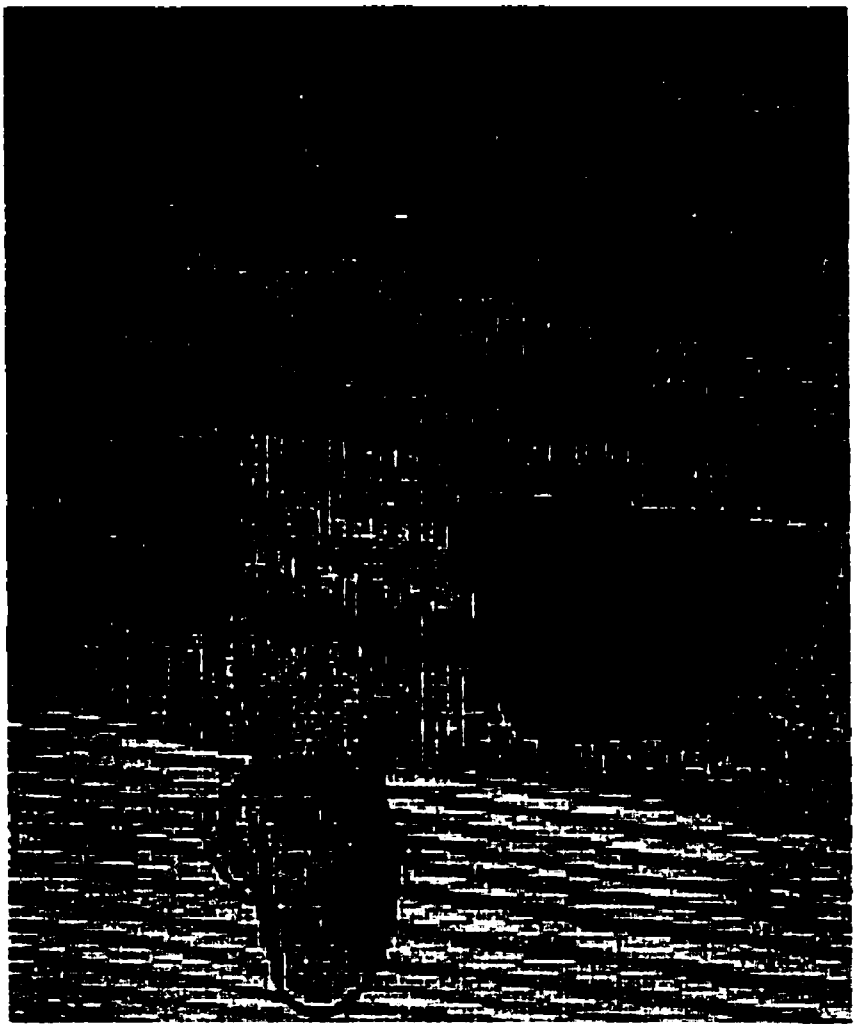


Plate 14. Ground stone ridged ulu fragments and a grooved ground stone plummet (From D. A. Collection 1998).

author photos #13, 19), all dating from the Middle Ceramic.

Table 9. Unprovenienced Artifacts from Private Collections

Projectile Points

Time Period	Number of Points
Middle Archaic	3
Late Archaic	5
Terminal Archaic	14
Early Ceramic	2
Early/Middle Ceramic	4
Middle Ceramic	4
Late Ceramic	18

Ground Stone Artifacts

Artifact	Number of Artifacts
Abrading Stone	1
Hammerstone	1
Adze Blade	1
Grooved Plummets	2
Ridged Ulus	2
Gorget	1
Grooved Axes	2
Wedge	1

Additional Artifacts

Artifact	Number of Artifacts
Scrapers	4
Projectile Point/Biface Tips	20
Slate Blade	1
Worked Slate	1
Barbed Fishing Implement	1
Bipoint	1

A total of 18 narrow corner- and side-notched Late Ceramic points were also identified (Corbin Collection, Deal, Slide #14; D. A. Collection, Deal, Slide #13; Redden Collection, Deal, Slides #18, author photos #8, 10, 15, 19; 22A98NS15:2, 7,8,18,19).

Various culturally non-diagnostic artifacts originated from Gaspereau Lake. These included bifaces, scrapers, an abrading stone, a hammerstone, biface and point tips, worked pieces of slate and basalt and what is believed to be a wedge.

4.14. Summary

Extensive erosion has occurred along the shores of the Gaspereau Lake subsequent to its damming in 1929. Water levels have risen over 1.5 metres since dam construction and currently fluctuate throughout the year. Despite the extensive alteration of the shoreline, it can be illustrated that numerous shoreline sites remain partially intact. Furthermore, it has been demonstrated that the artifacts collected by private individuals and archaeologists indicate a continuous occupation from the Paleoindian period through to the Historic period. The existence of these objects indicates occupation of the area during numerous environmental fluctuations. The environmental history of the area is outlined in the following chapter. People in different time periods were choosing the same sites and in all likelihood, similar resources. After the environmental conditions at Gaspereau Lake are outlined, these settlement patterns will be discussed.

Chapter 5 The Gaspereau Lake Environment

The following chapter addresses the changing environmental conditions in the Gaspereau Lake area. Pollen diagrams taken from bogs near Gaspereau Lake, from Cape Breton and from Maine are used to reconstruct the conditions that existed during each cultural period. In addition, subsistence species associated with specific environmental stage are identified.

When analyzing pollen cores, researchers divide the sample into lettered Zones. These zonal divisions are based on varying pollen frequencies, with the L Zone being the base of the pollen profile, then going upward to A, B, and C. For example, A Zone may represent a closed forest, dominated by pine pollen, while B Zone may illustrate an influx of deciduous trees into the area. Pollen zones are used by archaeologists and palynologists to reconstruct prehistoric environments. Through radiocarbon dating of charcoal from each zone, absolute date ranges can be established, further aiding the archaeologist in associating environmental conditions to occupying cultures.

The extrapolation of the vegetation and the ecosystem changes throughout Gaspereau Lake's prehistory is based on analyses of pollen core samples from Shaws Bog, Hants County (Hadden 1975), and Caribou Bog, Kings County (Ogden 1960), Nova Scotia (Refer to Figure 9 for a map illustrating the location of the bogs mentioned in this thesis). Shaws Bog is approximately 30 kilometres from Gaspereau Lake, while Caribou Bog is approximately 20 kilometres away. Comparison with pollen analyses of samples from Cape Breton and New Brunswick (Mott 1975; Livingstone 1968; Livingstone and

Livingstone1958) also illustrate similar corresponding changes in plant communities in these areas.

5.1. L Zone: The Paleoindian Period-Environment and Resources:

The L Zone present in pollen samples from Cape Breton and New Brunswick (Livingstone 1968; Livingstone and Livingstone 1958; Mott 1975; Terasmae 1973) represents the period just after deglaciation, and indicates a tundra-like environment. Pollen began accumulating at this time as plants moved into formerly ice-covered areas. Neither Shaws nor Caribou Bog's pollen samples displays an L Zone (Hadden 1975; Ogden 1960). The lack of this zone in the two samples indicates that either the surrounding area did not experience a tundra-like environment or that the samples are truncated (Hadden 1975:42). In this context, truncation refers to a lack of pollen accumulation and therefore, the absence of this level.

In Livingstone's (1968) study of Folly Bog, Colchester County, Nova Scotia, he found the L Zone was also missing. He believed its absence resulted from truncation and pointed to the temporal contemporaneity of the spruce zone (the parkland environment that followed the tundra one) in the Folly Bog sample (see Figure 7 for the Folly Bog pollen sample), to the spruce zone found at Gillis Lake, Cape Breton (Livingstone 1968). Livingstone's (1968) conclusion regarding the truncation of the L Zones at Shaws and Caribou Bogs were adopted by the researcher in studying the climatic variations in Nova Scotia. It is believed that the lack of an L Zone at Shaws (see Figure 8) and Caribou Bogs (see Figure 9) indicates that truncation did indeed occur and that a tundra environment experienced at Gaspereau Lake as

it was throughout the province.

Dating of the pollen samples has been established at Shaws Bog. Here, the basal zone dates 1000 years younger than that of Folly Bog. The younger age of the basal zone at Shaws Bog indicates that deglaciation and pollen accumulation commenced at a later time than it did at Folly Bog. Additionally, no radiocarbon dates exist for Caribou Bog, but zones in this bog have been correlated to dated levels at Shaws Bog. Therefore, this correlation allows for comparisons between pollen frequencies found within the two (Hadden 1975:42).

Through the use of Gillis Lake, Cape Breton, L Zone pollen data, a coarse-grained picture of the environment at Gaspereau Lake can be created. Here, the L Zone indicates the existence of a tundra or parkland (taiga) environment. This zone was created prior to the A Zone found at Shaws Bog.

The A Zone at Shaws Bog dates between 9,180 and 8,505 B.P. (Hadden 1975:42). Because the L Zone predates the A Zone, the L Zone found at Gillis Lake falls within the Paleoindian Period. Vegetation pattern associations allow postulation of faunal and floral resources that would have been available for Paleoindian exploitation.

As a result of acidic soils in Nova Scotia and the Northeast faunal materials which would have been deposited at Paleoindian sites have been destroyed, thus creating difficulties when attempting to reconstruct species availability. Because of the lack of faunal remains, vegetational association patterns are used to postulate what faunal resources were available to early peoples. Vegetational associations are believed to be an effective means by which to reconstruct subsistence patterns (Bonnichsen *et al.* 1991). The accuracy of these

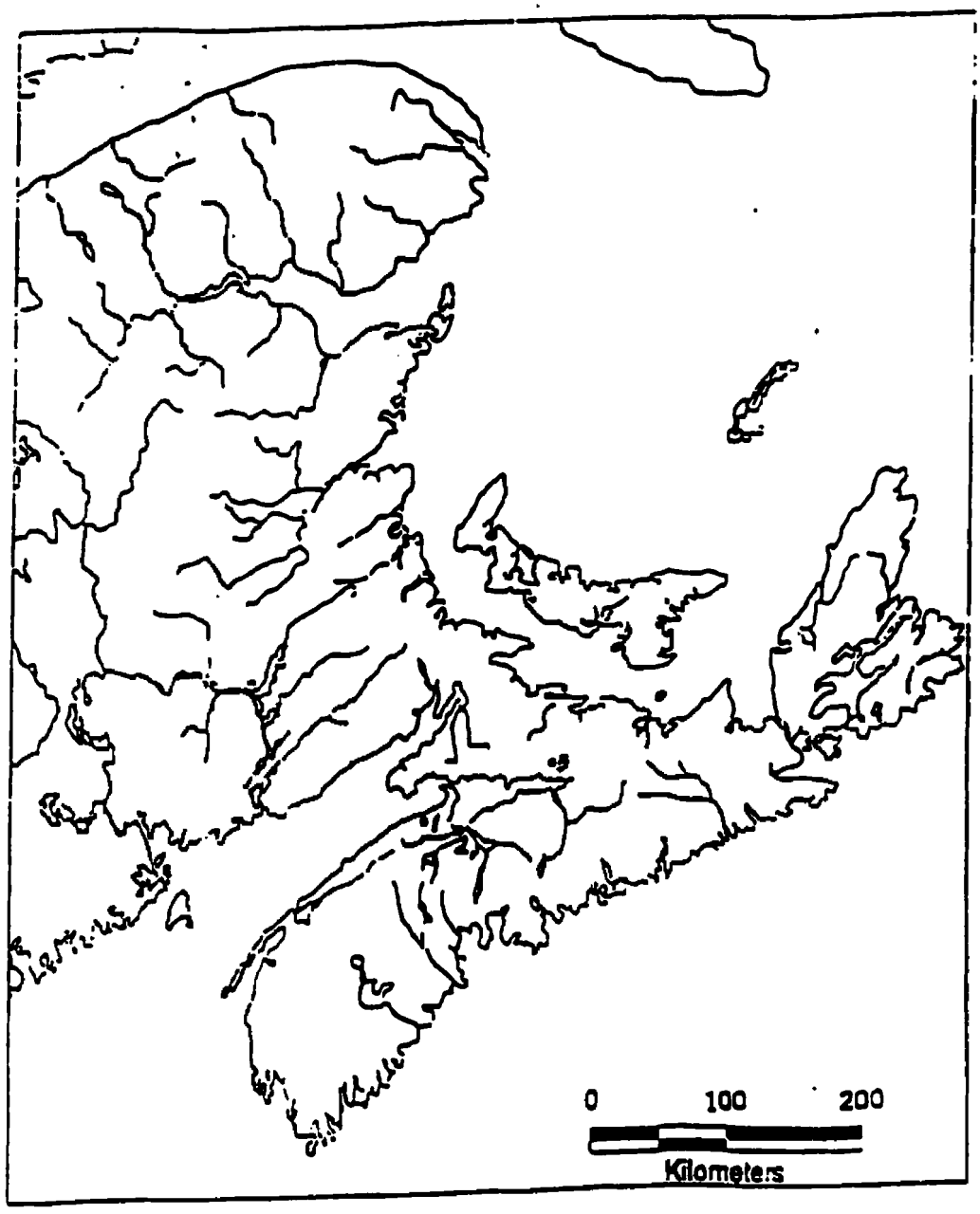


Figure 7. Location of pollen samples mentioned in this thesis. 1) Caribou Bog, 2) Shaws Bog, 3) Folly Bog, 4) Gillis and Salmon River Lakes.

reconstructions comes from the theory that animals presently inhabiting certain environments lived in the same, or similar, ones in the past. Fossilized skeletal and coprolite remains of Pleistocene megafauna such as mastodons, found along the Bay of Fundy shoreline (Bonnichsen *et al.* 1991:3; Livingstone and Livingstone 1958:357; Stea and Mott 1989:184) have also been used to support further hypothetical subsistence resources. Additional data from sites with preserved floral and faunal samples, located elsewhere in the Northeast and the Midwest further substantiate subsistence patterns practiced in other areas that possessed similar environments. Examples of sites containing preserved faunal samples outside the study area include Dutchess Quarry Cave, New York, Shawnee-Minisink, Pennsylvania, Whipple, New Hampshire, and Bull Brook, Massachusetts (Bonnichsen *et al.* 1985:157-158; Petersen 1995:213). At Shawnee-Minisink, in particular, fish and plant remains were recovered. The plant remains included specimens of:

Acalypha (*Aidlypha virginica*)
Amaranth (*Amaranthus* sp.)
Blackberry (*Rubus* sp.)
Buckbean (*Menyanthes trifoliata*)
Smartweed (*Polygonum* sp.)
Winter Cress (*Barbarea orthoceras*).

At Whipple, Dutchess Quarry Cave and Bull Brook sites, caribou remains were found in association with Paleoindian occupation, further aiding the reconstruction of subsistence patterns (Bonnichsen *et al.* 1991; Bonnichsen *et al.* 1985:157-158; Meltzer and Smith 1986:13). As previously stated, no subsistence remains have been recovered from Paleoindian sites in the study area, but Pleistocene megafauna and tundra-associated species are believed to have inhabited the area. A species list can be found in Table 10.

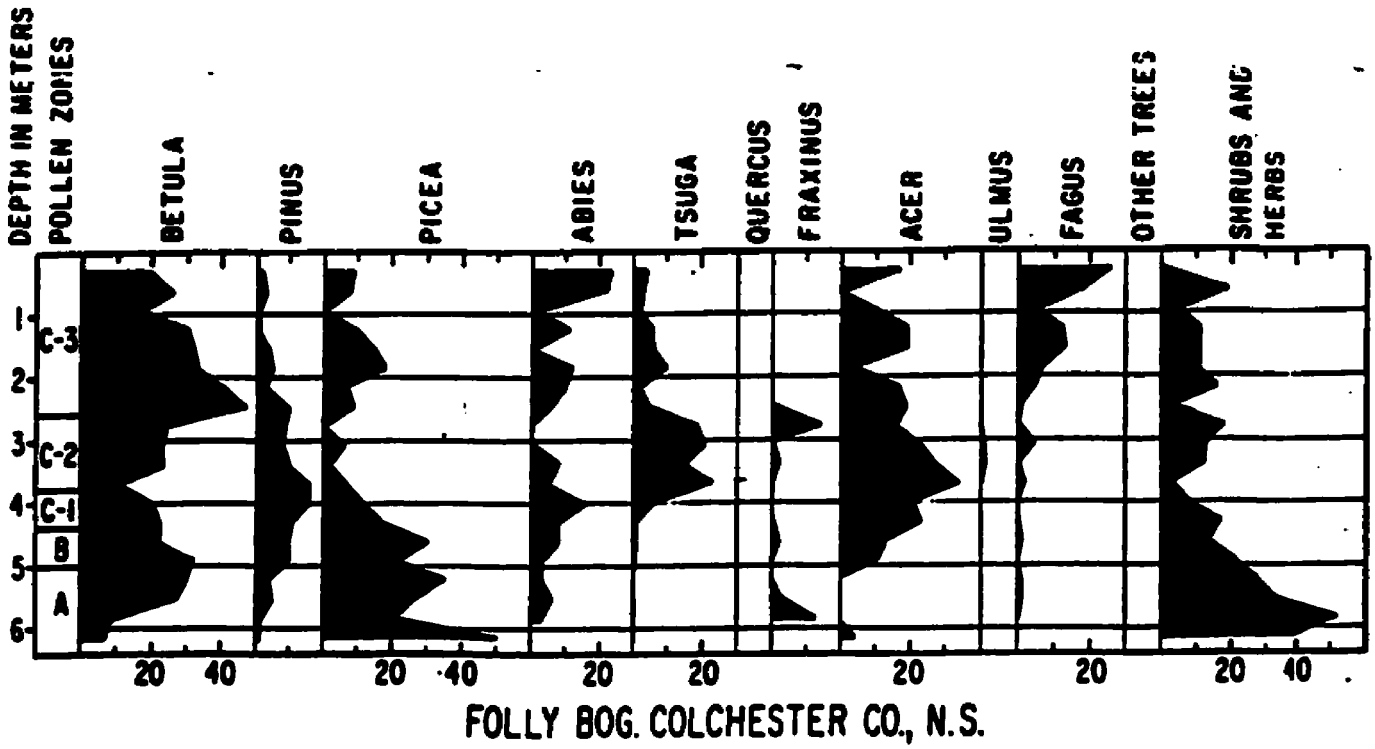


Figure 8. Pollen diagram from Folly Bog, Colchester County (After Livingstone 1968).

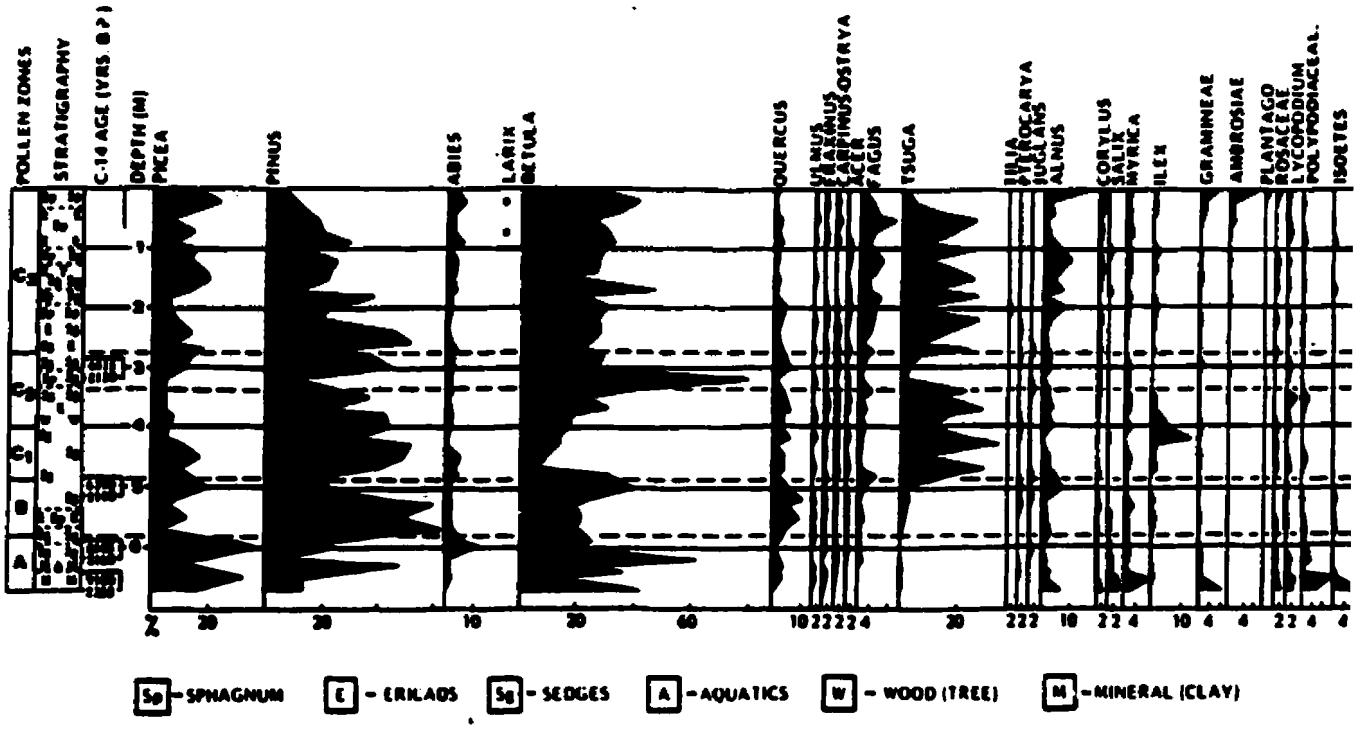
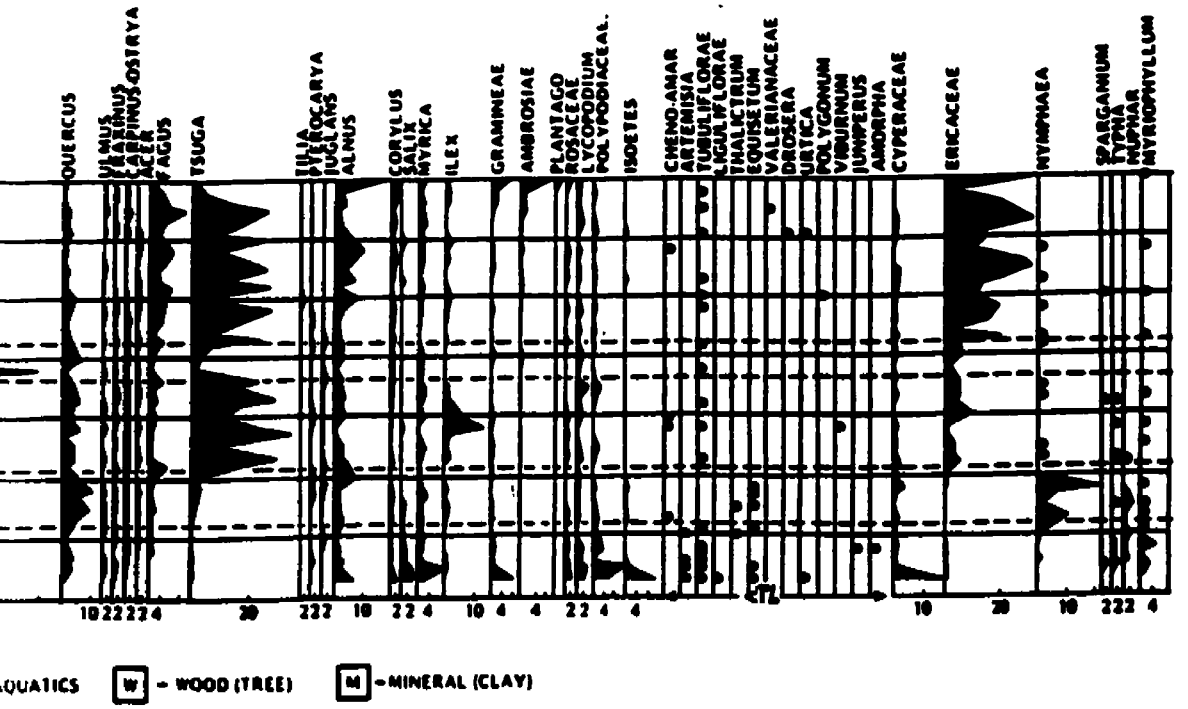


Figure 9. Pollen diagram from Shaws Bog, Hants County, Nova Scotia (After Hadden 1975).



County, Nova Scotia (After Hadden

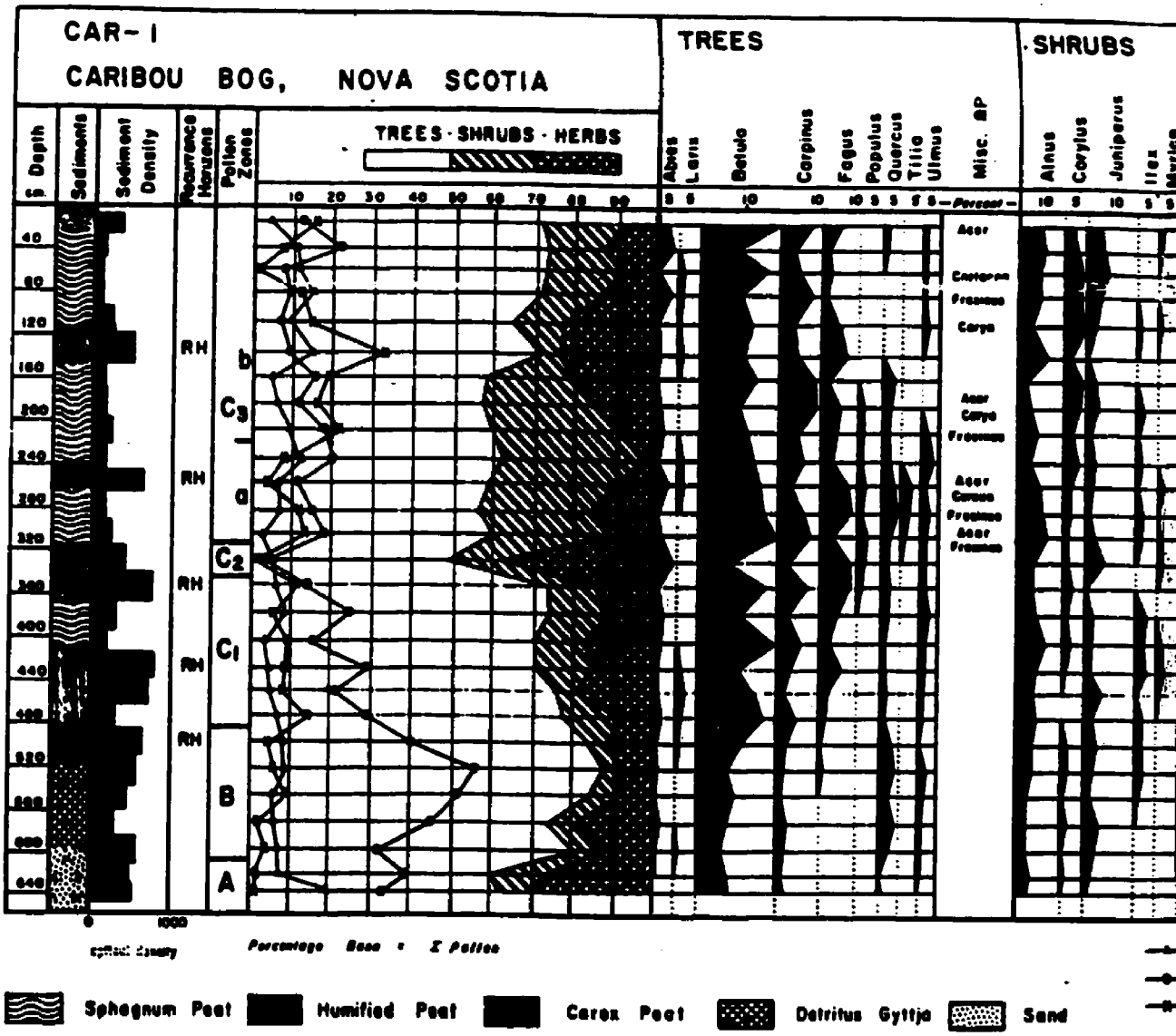
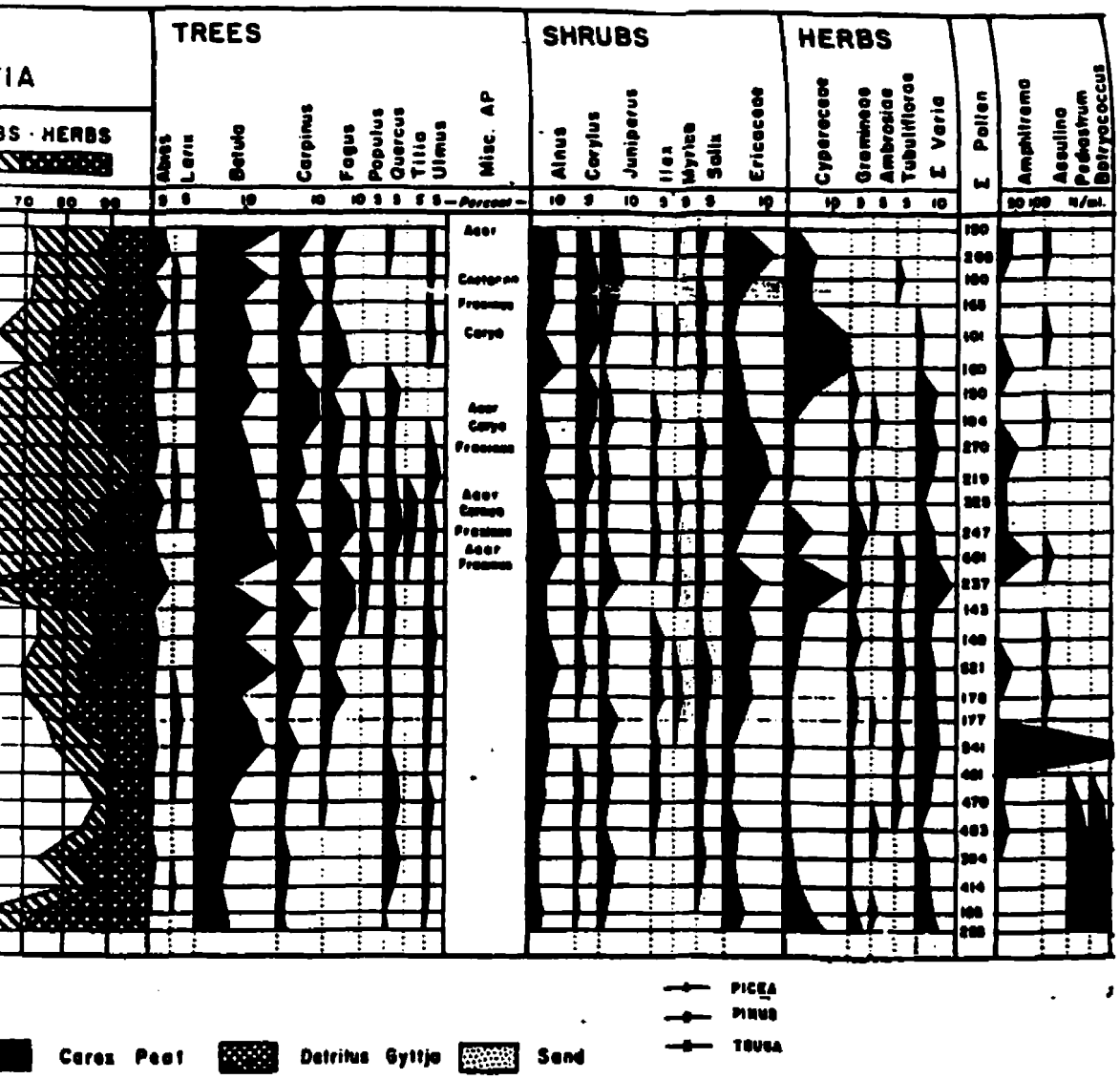


Figure 10. Pollen diagram of Caribou Bog, Kings County, Nova Scotia (After Odgen 1960).



og, Kings County, Nova Scotia (After Odgen

Table. 10. Pleistocene and Post-Pleistocene Species

Mammoths (*Mammuthus primigenius*)
Mastodons (*Mammut americanum*)
Horses (*Equus* spp.)*
Black Bears (*Ursus americanus*)
Giant beaver (*Castoroides ohioensis*)
Beaver (*Castoroides canadensis*)
Caribou (*Rangifer tarandus*)
Muskoxen (*Ovibos moschatus* and *Symbos cavifrons*)
Arctic hare (*Lepus arcticus*)
Arctic fox (*Alopex lagopus*)
Timber Wolf (*Canis lupus*)
Stilt legged deer (*Sanagmona* spp.)
Ground Sloths (*Megalonyx, Glossotherium*)
Short-Faced Bear (*Ursus Arctodus*)
Spectacled Bear (Tremarctos)
Lemmings (*Dicrostonyx torquatus and D. hudsonius*)
Ermine (*Mustela erminea*)
Masked shrews (*Sorex cinereus*)
Red-backed voles (*Clethrionomys gapperi*)
Wolverines (*Gulo gulo*)
Red foxes (*Vulpes vulpes*)

(Bonnichsen *et al.* 1991; Bonnichsen *et al.* 1985; Davis 1991b; Dumont 1989; Hiseler 1989:29; Snow 1980:117-120).
*only available in the more southern limits of the Northeast

By approximately 9,000 B.P., the Pleistocene megafauna had become extinct (Pielou 1991:251), and the disappearance of many of the browsing animals is believed to have forced Paleoindians to rely more heavily on alternative animal resources, such as caribou. With the loss of other grazing animals such as mastodon and mammoth, the remaining browsing species (e.g. caribou which remained in Nova Scotia) were able to increase their population (Bonnichsen *et al.* 1985; Meltzer and Smith 1986).

In Nova Scotia, and the Northeast generally, researchers believe the most heavily

utilized terrestrial mammal was the caribou (Bonnichsen *et al.* 1991; Davis 1991b; Dumont 1981; Tuck 1984). Caribou are believed to have been the only terrestrial species of cervid inhabiting the Northeast at the time with great enough numbers to support a human population (Gramly 1982; Meltzer and Smith 1986:12). In addition to the numerical availability of caribou herds, their gregarious nature and limited migration range (Forsyth 1985), would have made these animals especially attractive to early hunters.

The species listed in Table 10 are largely associated with the tundra-like environment that dominated the area prior to 9,000 B.P. However, many of these animals are also associated with boreal forests adjacent to tundra areas (Bonnichsen *et al.* 1991). This adaptation would have allowed for a continued occupation of the Northeast and Nova Scotia during the Late Paleoindian Period as an influx of coniferous trees occurred. In evidence of their continued occupation, remains of boreal forest mastodons have been recovered (Livingstone and Livingstone 1958:357). Also, vegetational pattern association provides evidence that the woodland muskox (*Symos cavifrons*), fugitive deer (*Sangamona fugitive*), stage moose (*Cervalces*), and yellow-cheeked vole (*Microtus xanthognathus*) would also have been present (Bonnichsen *et al.* 1991).

In conjunction with the numerous terrestrial animals, riverine, lacustrine and coastal resources were also utilized by Paleoindian peoples (Bonnichsen *et al.* 1991; Davis 1986; Dumont 1981; Keenlyside 1985; Tuck 1984). Marine mammals inhabited the Atlantic Coast, the Northumberland Strait and the Bay of Fundy and Minas Basin. Even today, in the Bay of Fundy, Harbour seals (*Phoca vitulina*) are found year round. With their tolerance for

fresh water, they can also be found in estuaries, rivers and lakes (Banfield 1974; Simmons *et al.* 1984:290). Additional seal species present at various times of the year in the Bay of Fundy and Northumberland Strait were Grey seals (*Halichoerus grypus*) and Harp seals (*Phoca groenlandica*) (Banfield 1974; Bonnichsen *et al.* 1991; Forsyth 1985; Hiseler 1989:30; Tuck 1984). The Atlantic walrus (*Odobenus romarus*), and various species of porpoises and whales also inhabited the bay (Banfield 1974; Bonnichsen *et al.* 1991; Hiseler 1989:30; Tuck 1984). During the Paleoindian Period, the Bay would have been located in the Boreal Region for coastal waters, therefore species inhabiting waters of cooler temperatures would have been present in the past as they are today (Simmons *et al.* 1984).

Additional animal species available for exploitation were shellfish and sea birds, which would have been abundant along the coast and in estuaries. Interior lakes and rivers of Nova Scotia also supported freshwater fish, including permanent, anadromous and catadromous species (Bonnichsen *et al.* 1991; Dumont 1981; Tuck 1984).

While animal resources would have been found in quantities great enough to support human populations, as they are in tundra and coniferous environments today, it is speculated that a limited number of vegetable resources were available for human consumption. The few listed from Shawnee-Minisink were most likely not available to peoples living in Nova Scotia at this time, as they are associated with warmer environments. Similar to Inuit populations inhabiting tundra environments in Canada during the recent past, it is quite likely that summer berries and roots were harvested and caribou stomachs, filled with lichen, were eaten.

5.2. A Zone: The Early/Middle Archaic Period-Environment and Resources

The A Zone of the pollen samples from Shaws and Caribou Bogs dates ca. 9,180 to 8,505 B.P. and is associated with the Early/Middle Archaic Period. The base of A Zone at Shaws Bog indicates that an open forest or parkland environment was present. A similar environment has been documented elsewhere within the Maritimes (see Figure 13) (Mott 1975; Murphy 1998). In the upper level of this zone, spruce (*Picea*), fir (*Abies*) and non-arboreal pollens, in association with birch (*Betula*) and pine (*Pinus*), dominate the environment (Hadden 1975:42). This increase is believed to indicate a cool, wet climate, as well as a closed forest system (Hadden 1975).

The presence of birch and other deciduous tree pollen, such as oak (*Quercus*), in this predominantly coniferous environment is important. The presence of oak pollen may have resulted from long distance transportation from New England, where a pine, birch, mixed forest was present (Hadden 1975, cited from Deevey 1965). It is also believed that oak pollen deposition may have occurred through the presence of oak trees in open areas (Hadden 1975; Livingstone 1968). Livingstone (1968:106) believes that oak pollen found at Folly Bog indicates an actual presence of oak in the area, as opposed to long distance travel. An oak presence is further supported by its occurrence at both Shaws and Caribou Bogs within the same zone (Hadden 1975:43; Ogden 1960:344). It is suggested that an increase in oak would likely have led to an increase in species found in association with this tree type.

Unfortunately, little is known about Early/Middle Archaic subsistence strategies. It has only been recently that an Early/Middle Archaic occupation has been firmly established

for Nova Scotia, New Brunswick, and Maine. Because research involving this period is still in its infancy, the majority of data regarding subsistence and resource availability have come from environment/animal associations, and data from areas with better preservation outside the study region.

Despite the influx of oak documented in A Zone, it is generally believed that the development of the coniferous forest resulted in a reduction in plant resources available for human and animal consumption. As a result, Early/Middle Archaic peoples are believed to have relied more heavily on coastal, riverine and lacustrine resources than the preceding Paleoindian groups did (Bonnichsen *et al.* 1991; Dumont 1981; Tuck 1984).

Although a coniferous forest of spruce and birch is believed to provide few vegetable resources for human consumption (see Fitting 1968; Ritchie 1969a), several animal species are associated with this environment during modern times. The greater number of spruce and birch trees coming into the area may have allowed for an increase in the associated animal populations. Specific animals found in association with spruce and coniferous forests, which are also found in Nova Scotia today, include: moose, beaver, muskrat, snowshoe hare, woodcock, red squirrel, Canadian lynx, and the porcupine (Forsyth 1985; Sanger *et al.*1991:158; van Norstrand 1967) Additionally, animals listed in Table 10,excluding megafauna, are also believed to have been present within this forest.

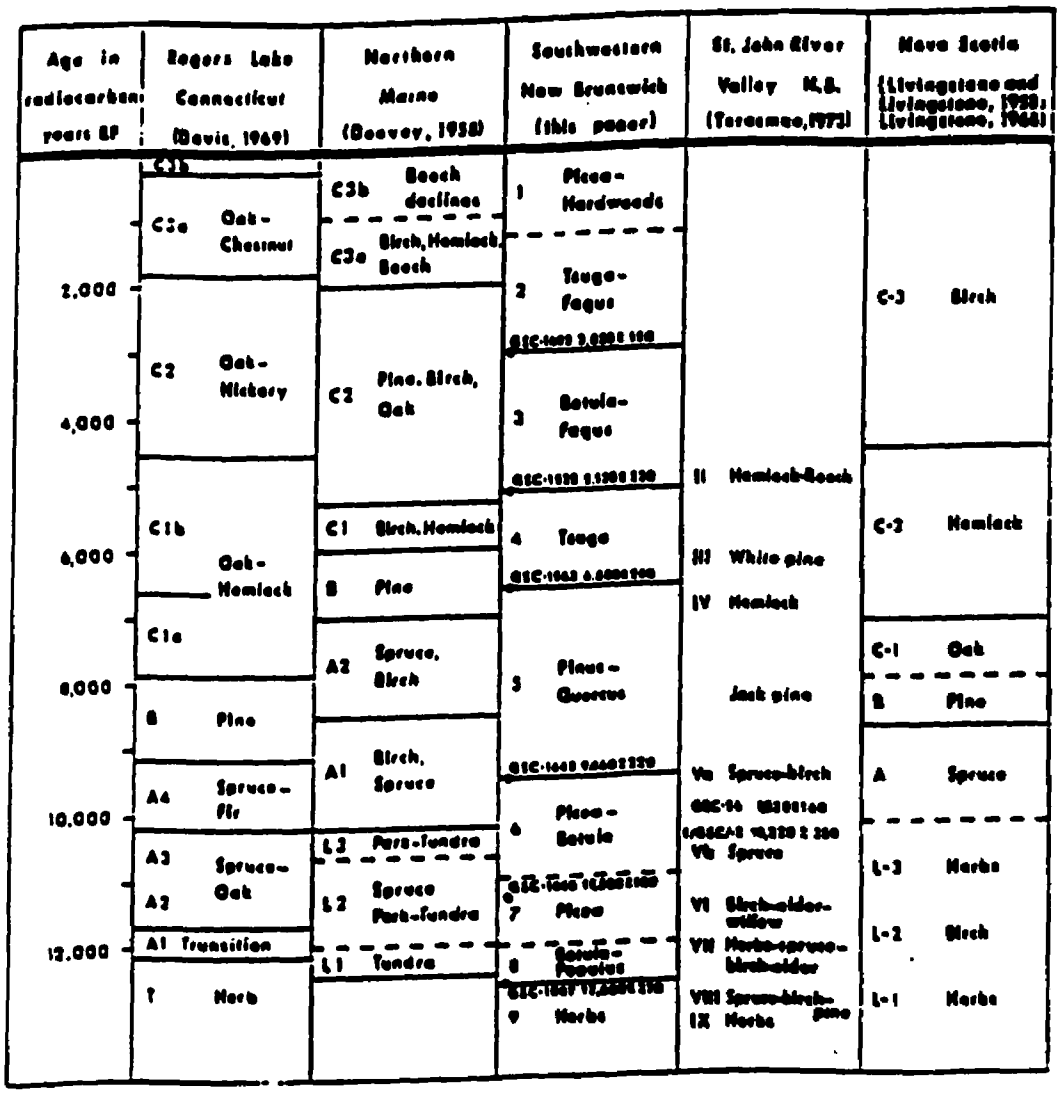


Figure 11. Diagram of selected pollen samples throughout the Northeast (After Mott 1975).

5.3. B Zone: The Early/Middle Archaic Period continued-Environment and Resources

B Zone at Shaws Bog dates ca. 8,505 to 6,290 B.P. and has been correlated with the B Zone at Caribou Bog (Hadden 1975; Ogden 1960). The B Zone from each of these bogs continues to be associated with the Early/Middle Archaic Period. In this zone, an increase in pine pollen illustrates a climatic fluctuation (Hadden 1975:44), pointing to higher summer temperatures and decreased levels of precipitation (Hadden 1975:45). The warmer temperatures and drop in precipitation created an environment unsuitable for spruce trees. However, the new conditions encouraged species such as pine and oak, which prosper in this type of climate, to migrate into the area. Notably, oak rises to a maximum and declines again all within B Zone (Hadden 1975:45). This pine/oak maximum was found to be contemporaneous with the pine/oak maximum displayed at Gillis Lake, Cape Breton (Hadden 1975:45; Ogden 1960).

With the greater influx of deciduous tree species, an increasing number of floral resources may have been available for human consumption. As in A Zone, similar faunal resources would have been available to prehistoric peoples because of the similar environments found in both areas.

5.4. C1 Zone: The Early/Middle Archaic Period continued-Environment and Resources

The C Zone at Shaws Bog, ca. 6,290 to present, (Hadden 1975:45) along with the contemporaneous C Zone at Caribou Bog shows an increase in hemlock (*Tsuga*) and beech (*Fagus*) and a sharp decline of pine (Hadden 1975:45; Ogden 1960:347). However, at Caribou Bog, hemlock is not as prevalent as it is at Shaws Bog (Hadden 1975:45).

The C1 Zone, at both Caribou Bog and Shaws Bog, dates between 6290 and 5,000 B.P. (Hadden 1975:45). Throughout this zone spruce continued to decrease. This decline indicates a continued rise in temperature, which is further exemplified by an increase in other hardwood species (Hadden 1975:45). With the high moisture needs of both hemlock and beech, it is believed that this period was not necessarily drier, but that a greater amount of evaporation was occuring (Hadden 1975:45). A similar increase in hemlock pollen levels was also found at Folly Bog, Colchester County, Nova Scotia (Livingstone 1978).

This increase in beech and hemlock, as well as other deciduous species, with a concomitant decrease in spruce, indicates an environment warmer than present. While a warmer environment prevailed, an increase in moisture likely did not occur (Hadden 1975:45). The increase of beech is believed to have caused an increase in subsistence resources for human and animal inhabitants of the area. The nuts of beech trees are consumed by, and attract, bears, squirrels, raccoons, mice, ruffed grouse (Saunders 1970:56) and humans. It is therefore, likely that with the movement of a greater number of beech trees into the Gaspereau Lake area, the number of terrestrial species that could be exploited by humans would have increased. Hemlock may also have helped create an increase in faunal resources. When other food sources are scarce, deer and rabbits often browse on hemlock, while porcupines gnaw on its bark (Saunders 1970:30). Although hemlock is not a primary food source for these animals, its presence may have aided in bolstering population numbers through an increase in available food resources.

5.5. C2 Zone: The Late Archaic Period-Environment and Resources

The C2 Zone at Shaws and Caribou Bogs, ca. 4,415 B.P., contains a hemlock minimum (Hadden 1975:46; Ogden 1960:347-348). This zone dates from the beginning of the Late Archaic Period to the beginning of the Terminal Archaic Period, ca. 5,000 to 4,000 B.P. (Hadden 1975:46). During this time, the climate is at a maximum of warmth and dryness (Hadden 1975:46). This oak zone is not represented strongly at either bog location (Hadden 1975; Ogden 1960), although a maximum has been found in samples from Maine and Connecticut during this time period (Hadden 1975:46). This paucity of oak is attributed to Nova Scotia's higher latitude, where oak populations continue to be sparse today (Hadden 1975:46).

Although oak is not viewed as a dominant species at this time by Hadden (1975), upon viewing the pollen diagrams for Caribou and Shaws Bog, it is apparent that the levels of oak pollen remain much the same as in C1 Zone. Therefore, it is believed that species associations for C1 would have remained the same in C2 Zone.

Archaeological evidence has documented the continued use of interior terrestrial, riverine/lacustrine, and coastal resources, which are believed to have been exploited by Paleoindians. This included the hunting of caribou, moose, deer, seals, fish and waterfowl (Bourque 1995; Sanger 1975; Spiess *et al.* 1983b; Tuck 1984, 1991). In the Maritimes during the Late Archaic, Tuck (1975, 1984, 1988, 1991) has postulated people were largely marine oriented, spending the majority of the year on the sea coasts utilizing marine mammals. The remainder of the year was spent at interior locations, exploiting resident fish

species, spring and fall anadromous and catadromous fish runs as well as terrestrial mammals, with a focus on moose and caribou. This suggested marine focus has been supported by the quantities of deep sea, swordfish and cod remains found at the Turner Farm Site, Maine (Bourque 1971, 1975, 1995; Sanger 1975; Spiess *et al.* 1983a; Tuck 1984, 1991).

Coastal subsidence in Nova Scotia has destroyed almost all direct evidence of a coastal adaptation of prehistoric peoples from the Paleoindian Period, up to the Late Archaic. The only direct evidence supporting a coastal occupation has come from the discovery of Archaic Period artifacts by scallop draggers off the Nova Scotia and Gulf of Maine shorelines (Deal and Rutherford 1991; Tuck 1984, 1991). Further evidence for this occupation comes from comparisons between Nova Scotia and sites containing faunal remains in New England, Newfoundland and New Brunswick (Deal and Rutherford 1991; Fitzhugh 1975; Keenlyside 1985; Reader 1996; Robinson 1992; Tuck 1975, 1976, 1991). Although coastal evidence is sparse, it is believed that subsistence patterns in Nova Scotia were similar to those found elsewhere in the Northeast (Tuck 1984, 1991). Excellent faunal preservation at the Turner Farm Site has allowed reconstructions of subsistence systems for the Gulf of Maine. Faunal material discovered here displays a diet focusing on swordfish and cod with terrestrial species such as white-tailed deer, moose, bear, beaver and avian species of secondary importance (Bourque 1995, 1975; Sanger 1974. Speiss *et al.* 1983a; Tuck 1984, 1991).

In Nova Scotia, it is believed that a similar coastal adaptation existed. Although

swordfish probably migrated into the Bay of Fundy during the summer, as they do presently (Simmons *et al.* 1984:288), marine mammals such as seals are believed to have been the main coastal species hunted. Additional species exploited included cod, sea birds, and shellfish (Tuck 1978a, 1984).

While evidence of coastal occupations in Nova Scotia is sparse, there is a great number of artifacts indicating interior occupation. Although no faunal evidence has been recovered at interior Archaic Period sites, almost all sites from this time are located along interior rivers, lakes and streams (Deal and Rutherford 1991). The locations of these sites indicate a subsistence pattern similar the one documented elsewhere in the Northeast where faunal remains have survived. Remains from Archaic sites in Maine illustrate the use of spring and fall anadromous fish runs and interior terrestrial animals such as moose and caribou (Robinson 1992; Sanger *et al.* 1977; Tuck 1975, 1976, 1991).

5.6. C3 Zone-The Terminal Archaic to the Ceramic Period-Environment and Resources

The next zone, C3a, dating to 4,000 B.P., at Caribou and Shaws Bogs displays an increase in hemlock and beech, with the two reaching maximum levels. In conjunction with this maximum, spruce and pine pollen increase indicating higher moisture levels and a drop in temperature (Hadden 1975:46). Throughout the remainder of C3a Zone, spruce and alder increase, as pine, hemlock and beech decrease, indicating a continued climatic deterioration and cooling (Hadden 1975:46; Ogden 1960:349). Another hemlock and beech maximum occurs, as well as a rise in both spruce and fir pollen within this zone. This maximum is also seen at Caribou and Folly Bogs (Hadden 1975:46, Livingstone 1075; Ogden 1960). The shift

in tree species was the result of a climatic deterioration which led to a cooler, moister climate (Hadden 1975:46). This maximum of hemlock occurred ca. 4,000 B.P. at Shaws Bog, around the beginning of the Terminal Archaic Period and ca. 4,200 B.P. at Folly Bog. These conditions continued through the Ceramic Period (ca. 2,500 to 500 B.P.) and into modern times.

With no excavated Terminal Archaic period sites in Nova Scotia, it is only through comparisons with Terminal Archaic sites in New Brunswick, Maine and New York, that reconstruction of resources used during this period can be created. At Turner Farm, Maine, faunal analysis indicated a heavy reliance on terrestrial hunting (Bourque 1971, 1975, 1995; Spiess *et al.* 1983). A similar adaptation was found at Terminal Archaic sites in New York (Ritchie 1969a). Deer, moose and bear dominated the terrestrial faunal sample, while shellfish were the primary coastal resource (Bourque 1995; Spiess *et al.* 1983a). An absence of swordfish bones, a paucity of cod remains, and an increased utilization of small fish and waterfowl, indicate a departure from the previous Late Archaic adaptation (Bourque 1975, 1995; Sanger 1975, 1979, 1996b, Spiess *et al.* 1983a). The lack of deep sea species and increased reliance on shellfish are believed to be a result of the cooling climate. This drop in temperature caused the Gulf of Maine waters to cool, which in turn created an environment unsuitable for swordfish habitation, while creating one favourable to shellfish species (Sanger 1975; Spiess *et al.* 1983a). This climatic cooling and the shift in tree species also led to an environment more suitable for deer populations (Sanger 1975; Spiess *et al.* 1983a).

Although there is no direct evidence for this shift in coastal resources during the Terminal Archaic in Nova Scotia, it is believed that a similar pattern occurred. Additionally, in Nova Scotia, caribou may have been the main terrestrial species hunted, not deer. The presence of deer in Nova Scotia has fluctuated through time. Evidence suggests deer were in the province before European arrival. Cooling of the climate during this pollen zone, which continued into the next zone, led to a decline in the deer population, allowing for caribou population gains (Simmons *et al.* 1984:261). Unlike the situation in Maine, it is possible that prehistoric Nova Scotian peoples, during the Terminal Archaic, were utilizing a greater number of caribou, as opposed to deer populations. It was not until ca. A. D. 1890 that the environment in Nova Scotia had again become warm enough to allow deer habitation (Simmons *et al.* 1984:262). The rise in temperatures, on the other hand, as well as the pressures of overhunting, eventually led to the extinction of caribou in Nova Scotia by A. D. 1912 (Simmons *et al.*1984:261). Deer remains found in prehistoric shell middens however, indicate that the deer population was great enough to allow hunting (Simmons *et al.* 1984:261).

Overall, Terminal Archaic sites and isolated artifact finds from Nova Scotia, New Brunswick and Maine illustrate a continued interior occupation of all these areas for at least part of the year. This interior locations of the sites, as well as faunal samples from excavated sites, also indicate a continued exploitation of riverine and lacustrine resources similar to patterns found in the Late Archaic (Deal 1986; Tuck 1991).

At the top of C3 Zone at Shaws Bog (Hadden 1975:46) and in C3b Zone at Caribou

Bog (Ogden 1960:349), an increase in spruce and alder is observed, as well as a decline in pine, hemlock and beech. No date is given for this level by either Hadden (1975) or Ogden (1960), but a similar fluctuation is found in pollen samples from Maine and New Brunswick, which have been dated ca. 2,000 B.P. (Rutherford 1991:104). This fluctuation dates 500 years after the beginning of the Early Ceramic Period. The increase in these tree species indicates a continued climatic deterioration and cooling (Hadden 1975:46; Rutherford 1991:104). Despite this apparent cooling and deterioration, an increase in biomass productivity is believed to have occured (Rutherford 1991:104). Furthermore, the climate during the Ceramic Period, beginning ca. 2,500 B.P. in Nova Scotia and the Maritimes, is similar to that which is experienced today (Davis 1986:xiii,30). Subsistence resources that were observed by the first Europeans were also utilized during the Ceramic Period. The use of ethnohistoric information, strengthened by archaeological data, has furthered our understanding of resource exploitation and seasonal subsistence patterns during late prehistoric times (Davis 1986, 1991).

Coastal resources used during the Ceramic Period included seals, cod, shellfish, and sea birds (Davis 1986,1991:97). In the interior of the province bears, beavers, otters, moose and caribou were hunted, resident fish species and anadromous fish runs of trout, salmon and gaspereau were utilized (Davis 1986, 1991:97). Near Gaspereau Lake, evidence of Ceramic Period subsistence patterns comes from faunal remains found at the Melanson site on the Gaspereau River. Melanson is eight kilometres from Minas Basin and contains some coastal fish species (Nash and Stewart 1991). This sample adds to our knowledge of the prehistoric

environment within the area. It is most likely that the Melanson site faunal sample does not clearly represent remains that hypothetically would be found at sites along Gaspereau Lake's shore. Coastal species such as Atlantic cod (*Gadus morhua*) found at Melanson would not likely be found along Gaspereau Lake because of its inland location. Permanent, anadromous and catadromous fish species would likely be found within samples.

5.7. Minas Basin Resources

In Minas Basin, only 12 kilometres from Gaspereau Lake, following the Gaspereau River, were numerous coastal resources. The tidal flats provide soft shell clam *(Mya arenaria),* common clam *(Macoma balthica)* and razor clam *(Ensis directus)* (Nash and Stewart 1991:172). Minas Basin is, and was, home to various types of crustaceans (Bromley and Bleakney 1984), as well as breeding harbour seal populations. All of these animals would have provided potential subsistence resources for area populations throughout prehistory (Hiseler 1989:33; Nash and Stewart 1991:172). For a list of additional Minas Basin species, refer to Table 11.

Terrestrial species found in the area and remains that were recovered at Melanson included beaver, river otter (*Lutra canadensis*) and woodchuck (*Marmota monax*), all of which are native to the Gaspereau River Valley and surrounding forests (Nash and Stewart 1991:168-169). Additional terrestrial species that would have been present in the Gaspereau Lake area at this time included caribou, snowshoe hare, lynx, porcupine, as well as ruffed grouse and passenger pigeons (Hiseler 1989:33).

Although no anadromous fish remains were discovered in the Melanson faunal

sample, Nash and Stewart (1990) believed the site was occupied primarily for exploitation of these fish. As in the modern era, migratory fish species ascended and descended the Gaspereau River during the spring and fall to spawn in the Gaspereau Lake. Species include Gaspereau (*Alosa pseudoharnegus*), Atlantic salmon (*Salmo salar*), rainbow trout (*Osmorus mordaz*), Atlantic sturgeon (*Acipenser oxyrhynchus*), American eel (*Anguilla rostrata*)

Table 11. Species available in Minas Basin

Atlantic halibut (*Hippoglossus hippoglossus*)
Spotted flounder (*Scophthalmus agosas*)
Smooth flounder (*Liposetta putnami*)
Winter flounder (*Pseudopleuronectes americanus*)
Skate (*Raja* spp.)
Thresher shark (*Alopius vulpinus*)
Spiny dogfish (*Squalus acanthias*)
Monkfish (*Lophius americanus*)
American smelt (*Osmerus mordax*)
Herring (*Clupea harengus*)
Pollock (*Pollachius virens*)
Atlantic tomcod (*Microgadus tomcod*)
Silver hake (*Merluccius bilinearis*)
Red hake (*Urophycis chuss*)
White hake (*Urophycis tenius*)
Atlantic cod (*Gadus morhua*)
Atlantic mackerel (*Scomber scombrus*)
Atlantic sea raven (*Hemitripterus americanus*)
Rock gunnel (*Pholis gunnellus*)
Butterfish (*Poronotus triacanthus*)
Sculpins (*Myoxocephalus* spp.)
Spotted Flounder (*Scophtalmus agosas*)
Smooth Founder (*Liposetta putnami*)
Winter Flounder (*Pseudopleuronectes americanus*)

(After Bromley and Bleakney 1984:258-287; Nash and Stewart 1991:172).

(which is catadromous, ascending rivers in the fall and descending in the spring), American shad (*Alosa sapidissima*), white perch (*Roccus americanus*), striped bass (*Roccus saxatilis*),

and brook trout (*Salvelinus fontinalis*) (Nash and Stewart 1991:170-171). In addition to these seasonally available species, white sucker (*Catostomus commersoni*) and brown bullhead (*Ictalurus nebulosus*) were both available throughout the year (Nash and Stewart 1991:171). Evidence of floral resources was also recovered at the Melanson site. Seed identification indicated Ceramic peoples may have utilized lamb's quarter (*Chenepodium album*), blackberry or raspberry (*Rubus* sp.), common elder (*Sambucus canadensis*), pin cherry (*Prunus pennsylvanica*), sorrel (*Oxalis stricta*), and stagehorn sumac (*Rhus typhina*) (Deal 1991:179-182).

The close of the Ceramic Period is illustrated in the top portion of the pollen sample at Shaws Bog. Although vegetation patterns of today are similar to those in the Ceramic Period, the influence of incoming European peoples can be illustrated. At Shaws Bog, agricultural weed species begin to appear in the pollen sample (Hadden 1975:47). Hadden (1975:47) states this could be due to selective felling of trees by Europeans or by the recolonization of abandoned farmland. Although it cannot be ascertained which situation existed in the Gaspereau Lake area, it is apparent that European settlers did have an effect on the vegetation. This, in turn, may have influenced subsistence resources available to native populations. One example is the extinction of caribou, which Europeans accelerated through overhunting.

5.8. Gaspereau Lake Area Synopsis

Overall, the preceding examination of pollen samples from the Gaspereau Lake area has allowed a reconstruction of the environmental conditions present throughout prehistory.

Notably, Gaspereau Lake experienced the same fluctuations found at other sites in the Northeast, such as those located in New Brunswick and New England. Because of these similarities, subsistence resources in the area, before the development of modern climatic conditions, are postulated. During the Paleoindian Period, megafauna and tundra-associated species such as caribou would have inhabited the Lake area. With the extinction of Pleistocene megafauna and the introduction of a boreal forest environment, a greater reliance on caribou herds, as well as fish, moose, and small mammals associated with boreal forests would have resulted. Floral resources were most likely similar to those exploited by historic subarctic populations, such as seasonally available berry crops. As the climate warmed and a greater number of deciduous trees moved in the area, a greater diversity and number of floral resources would have been available. Not only would the increase in floral species lead to a greater number of plants to be used by humans, but the increase in flora such as oak and beech would have attracted a greater number of exploitable faunal species. As the climate cooled and became similar to that of modern times, modern animal populations were established, providing a variety of faunal and floral resources for native exploitation.

Chapter 6 Settlement Patterns

The following chapter outlines theories associated with hunter-gatherer mobility and seasonal transhumance models found in the Maine/Maritimes area. One model in particular, Davis (1986, 1991a) Contiguous Habitat Model is applied to all prehistoric occupations found along Gaspereau Lake, despite its original application to only Ceramic Period sites along Nova Scotia's southeast coast.

Before a discussion of prehistoric settlement patterns in the Northeast and Nova Scotia is pursued, general theories associated with this subject and those followed by researchers in the area must be considered. The most common method used to establish factors that influence decisions associated with the placement of sites and the interpretation of these locations is ethnographic analogy. Modern hunter-gatherer groups, and those from the recent past, are studied to develop models that are applicable to the lifeways of past cultures. The environmental contexts of these groups are observed in conjunction with the timing of seasonal rounds, resources utilized, population aggregations, division of labour and various other patterns associated with the retrieval of different foods. These data are then used to postulate possible seasonal movements and resource exploitation patterns used by prehistoric people living in similar environments in order to explain settlement patterns found in the archaeological record. Patterns displayed by the archaeological data also serve to "fine tune" these models, further refining and detailing regionally distinct adaptations to particular microenvironments.

The most important principle used to explain observed seasonal migrations is that

people work to minimize their efforts, while at the same time maximize their gains (Dark 1995:122). For example, hunting and gathering people rely on resources available in their environment. As a result, these people must overcome the difficulty of abundance cycles in the area. Certain foodstuffs are only abundant during particular times of the year. After this point their availability fluctuates, resulting in a greater amount of energy expenditure in order to obtain these resources, while at the same time there is a decrease in realized gains.

In order to maximize gains, groups relocate close to important, seasonally abundant resources. However, the move toward one resource often signals the move away from another (Binford 1980; Spiess and Wilson 1989:76). It is in these cases that decisions must be made as to which resource offers the greatest benefit or gain for the group. This benefit often translates into utilizing the resource that is available in the greatest quantities (Binford 1980; Spiess and Wilson 1989:76). Frequently, in an effort to maintain maximum access to a variety of resources, groups will locate themselves in areas close to a number of different ecological zones. From these base camps, smaller groups can travel to nearby ecozones for short durations to utilized resources in these areas, while other resources found near the base camp can be collected by remaining members of the group (Binford 1980; Spiess and Wilson 1989:76). This settlement type allows people to utilize several ecozones at one time and therefore a greater number of resources which may be found in abundance at the same time of year (i.e., maximizing subsistence efforts).

There are a number of problems that the researcher must be aware of when creating analogies drawn from ethnohistorical materials. Often subsistence patterns of historically

indigenous peoples are extrapolated from documents written by early European visitors. The first problem encountered with the use of these documents is that none of these observers was a trained naturalist. Because of this, plants and animals were frequently misidentified, with early observers claiming native use of plant and animal species despite the fact they were not actually present in the environment (Lackowicz 1991). Misinformation such as this can lead to numerous inaccuracies in resource exploitation reconstructions for both historic and prehistoric periods due to continued misclassification of plant and animal species. A second problem often encountered is the ethnocentricity of early European observers (Davis 1986; Deal 1998; Lackowicz 1991; Nash and Miller 1987; Stewart 1989). Beliefs of European superiority often led to the misinterpretation of observed activities, further distorting resource exploitation patterns (Lackowicz 1991). Additionally, European observers wrote their accounts geared toward a European audience. In an effort to please readers and draw new settlers, actual observations were skewed and the productivity of the environment exaggerated (Stewart 1989).

The greatest pitfall which often occurs when historical sources are used, and one which has affected Nova Scotia and Maine archaeology in particular, is the belief that activities observed by early writers were the same in pre-contact and prehistoric times. The lag between Native-European contact and actual European settlement and documentation was considerable. Between initial European contact and the establishment of settlements, native peoples had already been greatly influenced by European fishermen and had made changes to their traditional lifeways before documentation of these activities occurred.

Therefore, archaeologists must be wary when using historical documents to formulate theories pertaining to prehistoric cultures because of the likelihood of numerous inaccuracies existing in historic documents.

6.1. Prehistoric Settlement Patterns

Traditionally, it has been postulated that Paleoindians were big game hunters. They were believed to have lived in a tundra, taiga environment where few resources were available for human exploitation beyond megafauna and tundra-associated species. In contradiction to this, evidence from outside the Northeast at sites such as Bull Brook, Massachusetts and Shawnee-Minisink, Pennsylvania has illustrated that a greater number of resources were available and exploited by Paleoindians. In addition to the use of outside evidence, settlement patterns have also been used to infer subsistence strategies, as well as criteria that influenced site location decisions (Spiess and Wilson 1987).

It is suggested that people located their sites in proximity to important cultural resources, usually resources associated with subsistence. Paleoindians are not an exception to this notion. Paleoindians located their camps in areas near important food resources. For example, camps were located next to swamps or bogs, and fresh water sources which mastodon, mammoths and moose would have been attracted (Spiess and Wilson 1987:131-132). The location of Paleoindian sites close to grasslands, which would have been grazing areas for various ungulate species, has also been documented. To aid further hunting of important resources, topographical features were taken into consideration. Paleoindian sites often are located near, or on, vantage points, permitting observation and interception of

caribou herds as they migrated in to or out of the area (Funk 1978; Gramly 1982; Meltzer and Smith 1986; Tuck 1984, 1988). Sites such as Whipple, New Hampshire, and Vail, Maine and Debert, Nova Scotia, illustrate this attribute as all three are located in areas enabling observation of grasslands. In addition to this, the Whipple and Vail sites are located on valley floors near valley wall constrictions. The closing in of the valley walls channeled caribou herds toward each site, thereby enabling their capture (Gramly 1982; Meltzer and Smith 1986). The placement of sites conducive to the hunting of caribou has also been documented in Ontario (Peers 1985). Here, Paleoindian sites are often located on glacial lake strandlines, areas which would have been traversed by migrating caribou herds (Peers 1985).

In addition to these criteria, Paleoindians chose locations on well drained, sandy soils. These areas were often created by the formation of sand dunes that eventually stabilized through colonization by vegetation (Funk 1978; Spiess and Wilson 1987:130). Camps were on hills or rises which possessed excellent drainage, which in turn would have provided dry living floors. Consequently, living on the crest of hills or rises would also have fulfilled the Paleoindian requirement of locating on or near a vantage point (Funk 1978). In conjunction with utilizing caribou, Paleoindian peoples would also have exploited smaller terrestrial and avian fauna and seasonally available herbs, berries, and roots (Bonnichsen *et al.* 1991; Meltzer and Smith 1986; Tuck 1984). Interior rivers and lakes provided additional resource outlets which contained fresh water fish species throughout the year, anadromous and catadromous fish during the spring and fall, as well as terrestrial and avian species associated with these areas. Additionally, coastal resources were exploited by Paleoindians,

although there is not as much evidence supporting this coastal adaptation as there is for the use of terrestrial animals. Refer to Figure 4 for an illustration of Paleoindian sites in the Northeast.

Subsequent to deglaciation, the continental shelf which was exposed during glaciation was again inundated by sea water. As a result of inundation, those archaeological sites located on the continental shelf from the Paleoindian and Early/Middle Archaic Periods were drowned. However, support for a coastal Paleoindian occupation has been documented by artifacts found off the coast of Prince Edward Island, Nova Scotia and Maine by scallop draggers (Keenlyside 1985; Sanger 1996; Tuck 1984, 1988). On Prince Edward Island, specimens have been found at North Tryon, Basin Head and LittleHarbour, Morell River in St. Peter's Bay and in New London Bay (Bonnichsen *et al.* 1991; Keenlyside 1985). In Nova Scotia, isolated projectile points have been located on the Amherst Shore, on the Northumberland Strait, at Yarmouth Harbour, Medford on the Minas Basin and Dartmouth (Bonnichsen *et al.* 1991:7; Christianson 1991:8; Davis and Christianson 1988). Artifacts recovered suggest that the extensive number and quantity of species living along the coast were not ignored by Paleoindians (Tuck 1984). Researchers (Bonnichsen *et al.* 1991; Keenlyside 1985; Tuck 1984, 1988) suggest that coastal sites were a part of Paleoindian seasonal rounds, much as they were in later periods. Marine mammals such as seals, porpoises, walruses and whales lived along the Maine/Maritimes shores. Seasonally, flocks of migrating birds would have stopped in the area during spring and fall and a variety of fish species would have been found in estuary systems and the intertidal zone year round.

Greater evidence exists for the use of interior riverine/lacustrine resources. Numerous Paleoindian sites are situated on river drainages, on the shores of modern and fossil shorelines and on glacial spillways (Bonnichsen *et al.* 1991:20). In Maine, the Vail and Michaud sites are located on the Moosehead Lake-Kennebec and Androscoggin River drainages. The locations of these two sites, as well as the quantity of tool types found, indicate the hunting and processing of caribou (Gramly 1982; Petersen 1991; Spiess and Wilson 1987). Additional Paleoindian sites have been found on the Piscataquis and Penobscot River Drainages, at Brassua Lake, and Millinocket Lake (Petersen 1991:11-13). Interior Paleoindian sites in New Brunswick include Tracadie River, Kingsclear, Quaco Head and New Horton Creek (Bonnichsen *et al.* 1991:4; Keenlyside 1985). In Nova Scotia, Paleoindian presence in the interior of the province has been noted at four sites, namely, the Erskine, Melanson, Debert, and Belmont I Sites (Bonnichsen *et al.* 1991; Davis 1991; Keenlyside 1985; Murphy 1998; Nash and Stewart 1991).

Although the Vail, Michaud and Debert sites are believed to have been occupied for caribou hunting, the proximity of all these sites to lakes and rivers indicates that fishing may also have been undertaken at these locations. Overall, it is believed that Paleoindians practiced seasonal transhumance, moving from one resource to another as foods became available throughout the year. Tuck (1984) has postulated that late spring, summer and the fall were spent on the coast utilizing coastal resources and sites. The remainder of the year was spent hunting interior terrestrial mammals and in the spring anadromous fish runs were exploited.

During the end of the Late Paleoindian Period and the beginning of the Early/Middle Archaic an environmental fluctuation occurred. A greater number of coniferous trees spread into the Northeast, producing a boreal and eventually a coniferous forest environment. Despite these shifts, few changes are believed to have occurred in human subsistence practices. With the extinction of the Pleistocene megafauna and a decrease in the number of plant and animal resources associated with boreal forests, researchers believe a greater reliance on riverine/lacustrine resources developed in order to compensate for the loss of species (Keenlyside 1985:83). Support for this theory can be documented in Nova Scotia by the numerous artifacts, such as full-channeled gouges and rods, that have been recovered from interior river/lake associated sites, such as Eel Lake, Indian Gardens, Lake Rossignol, Salmontail Lake, Salmon River, Rafter Lake and Nine Mile Lake (Deal and Rutherford 1991). Similar to the Paleoindians, Early/Middle Archaic peoples continued to utilize coastal resources. Unfortunately, as with the Paleoindan sites, coastal inundation has also affected Early/Middle Archaic coastal sites. Support for this continued occupation is documented by the recovery of Early/Middle Archaic artifacts off the coasts of both Nova Scotia and Maine (Deal and Rutherford 1991; Sanger 1996b; Spiess *et al.* 1983b; Tuck 1984, 1988, 1991).

To date, no faunal remains have been association with Early/Middle Archaic materials in Nova Scotia. Furthermore, most of the Early/Middle Archaic materials found have been isolated finds and only one excavated site (the Erskine Site) in the province has produced Early/Middle Archaic artifacts. Despite the lack of faunal evidence, the placement

of sites along interior lakes and rivers indicates Nova Scotia Early/Middle Archaic peoples did utilize resources associated with these ecozones. Furthermore, interior sites cluster to the west of the Shubenacadie River system, which appears to indicate a preference for the southwestern area of the province (Deal and Rutherford 1991). In addition to the use of interior lakes and rivers for associated resources, waterways would have been used for water travel to the interior and the coast.

Unlike Paleoindian camps, there have been no studies aimed at identifying conditions, other than locations along rivers and lakes, which affected site location decisions during the Early/Middle Archaic. It has been noted that many Early/Middle Archaic sites are found near lake outlets and near river rapids or falls, all of which would have facilitated the capture of anadromous fish (Dincauze 1974). Beyond these observations little else is known of Early/Middle Archaic settlement patterns in the Northeast.

In the following Late Archaic Period fairly similar seasonal rounds are believed to have been followed, although subsistence practices became more generalized. An influx of deciduous tree species increased the number of resources available for animal and human consumption. As a result, edible animal and plant populations increased, allowing for the use of a greater variety of subsistence resources by Late Archaic peoples. In conjunction with this, there was a continued use of marine and riverine/lacustrine resources (Bourque 1995; Ritchie 1969a; Snow 1980; Tuck 1978a, 1984). Elsewhere in the Northeast, Late Archaic peoples appear to have been specialized in the exploitation of either marine species or interior resources (Bourque 1971, 1975, 1995; Tuck 1975, 1978a, 1984, 1991). In Nova

Scotia, it is believed that a more generalized subsistence pattern was followed, in which inhabitants exploited both interior, riverine/lacustrine and coastal environments, specializing in none. Support for this suggestion is illustrated through both the location of Late Archaic sites, in which a variety of environments was exploited, and the negative evidence indicating a lack of coastal or interior specializations. If coastal resources were used exclusively, no Archaic Period sites would be found in Nova Scotia, only their remnants as offshore artifact finds. If the converse were true, only interior sites would ever have been discovered and their would be a paucity of offshore artifact discoveries. Refer to Figure 5 for an illustration of Archaic Period site locations throughout the Northeast. In Nova Scotia, neither case can be illustrated. Late Archaic Period sites are found throughout the province, although there is a greater number located to the west of the Shubenacadie River system (Deal and Rutherford 1991). Some of these site include the Bain site, Tusket Falls, Port Joli, Eel Weir IV/Loon Island, Merrymakeridge, Merigomish Harbour, Indian Island, Barren Lake, Yoell, Gaspereau and Salmontail Lake and along the St. Croix river and Shubenacadie River (Bourque 1995; Deal and Rutherford 1991; Sanger 1975; Sanger and Davis 1991).

During the Terminal Archaic a greater number of shellfish and terrestrial mammals such as deer began to be used, with a concomitant decrease in the use of marine species such as marine mammals, cod and swordfish (Bourque 1971, 1975, 1995; Ritchie 1969a; Sanger 1975; Spiess *et al.* 1983a; Tuck 1978a, 1984). As discussed, this shift was believed to have resulted from a climatic cooling which rendered previous adaptations focusing on marine species, such as swordfish, impossible.

In Nova Scotia, it appears that a more generalized subsistence pattern was practiced. While Terminal Archaic material has been located in coastal sites, numerous artifacts have been found in the interior of the province, indicating these were still utilized to a great extent. Sites containing Terminal Archaic materials in Nova Scotia appear to cluster in the Tusket area of southwestern Nova Scotia (Rutherford 1989; Tuck 1984, 1991), and have also been located at Gaspereau Lake and River, Indian Gardens/East Brook, Eel Weir, Merrymakedge, Bear River, and Salmontail Lake (Deal and Rutherford 1991).

Following the Terminal Archaic, it is during the Ceramic Period in which traditional Mi'kmaq subsistence practices and seasonal rounds were developed. Part of the establishment of these patterns is because of the development of modern climatic conditions. The resource base available to Ceramic Period peoples was similar to the one available to historic Mi'kmaq populations.

Ceramic Period groups continued utilizing resources similar to those used in the Terminal Archaic (see Figure 6). Sites are found along the coast, in estuaries in the interior and on islands (Davis 1986, 1991a; Rutherford 1989, 1991). For a list of subsistence items refer to Chapter 4. In the Ceramic Period, base camps are believed to have been established on the coast near major estuaries which provided access to interior lakes and rivers (Davis 1986, 1991a). In the spring months, part of the group traveled to interior sites to exploit anadromous fish runs, while the remaining people hunted migrating birds and collected their eggs. In the summer, interior resources continued to be utilized as did shellfish along the coast. In the fall, migrating birds were again exploited as were catadromous fish species.

Winters were spent on the coast in pursuit of marine mammals, and interior forests were used to harvest additional terrestrial species (Davis 1986, 1991a). Ceramic Period sites which have been excavated in Nova Scotia include Bear River, Rafter Lake, Cellar's Cove, St. Croix, Eel Weir VI, Skora Mound, Indian Gardens, and Melanson (Davis 1986, 1991a; Connolly 1977; Erskine 1970, 1971, 1998; McEachen 1996; Nash and Stewart 1990, 1991).

Overall, the patterns described are found largely throughout the entire Northeast. Examination of settlement and subsistence patterns at Gaspereau Lake indicate similarities, but also that there are regionally distinct patterns involving Gaspereau Lake, Gaspereau River, the North River and Minas Basin.

6.2. Gaspereau Lake Settlement Patterns

The most apparent settlement patterning found at Gaspereau Lake was the clustering of sites around the Gaspereau River lake outlet. Over 47 percent (n=8) of the sites are located within 200 metres of the Gaspereau Lake outlet. Additionally, statistical analysis using Chi-square cross tabulation, illustrated with 90 percent confidence that the distance from a lake outlet and the number of occupations found on a site are associated. Therefore, it appears that sites closer to a lake outlet tended to be occupied more frequently as opposed to sites located further away from the outlets. In conjunction with the greater number of occupations observed on sites near the lake outlet, it was found that these areas produced the earliest evidence of occupation. Schaffer's Camp and the sites located within 200 metres of the Gaspereau River Lake outlet were the only two areas on the lake in which sites produced material dating from the Paleoindian Period up to the Late Ceramic and Historic times.

In addition to clustering by lake outlets, other site placement patterns were discovered in relation to topographical features. One of these was the tendency for sites to be located on specific contour intervals. Fifty-nine percent (n=10) of the sites were located on the 192 metre contour interval, four were on the 190 metre contour interval and two were on both the 191 and 194 metre intervals. All sites, except for the Camp Side Site (A98NS15-9), were located in areas that facilitated the landing and launching of a canoe from the beach. In relation to this, all sites but one (the Dam Site) would have been within 40 metres of the shoreline or less. Today, because of higher water levels, all sites but three (Dam Site, 100 metres; the Landing, eight metres; and Dead Gull, six metres) are within five metres or less of the shoreline. Two sites in particular, JL6 and the Erskine Site are underwater for most of the year.

6.3. Gaspereau Lake Settlement Model

The settlement patterns at Gaspereau Lake examined in the following using a modified version of Davis's (1986, 1991a) Contiguous Habitat Model, created to explain observed Ceramic Period site patterning, can be applied to Gaspereau Lake prehistoric occupations. Davis (1986, 1991a) model postulates that people located sites in areas which allowed the exploitation of several ecological zones at one time. By locating near several ecozones, people were better able to take advantage of resources particular to each zone. The location of sites at Gaspereau Lake appears to indicate similar ecological attributes were utilized because of similar pattern results.

Davis (1986) has defined four ecological zones: the Inshore Marine Zone, the

Intertidal Zone, the River/Lake Zone and the Forest Zone. The Inshore Marine Zone is a "true marine environment" (Davis 1986:38). This Zone supports various fish species as well as marine mammals. The Intertidal Zone is the littoral region of a shore, the area exposed during low tide and inudated during high tide (Davis 1986:41). Mudflats and saltwater marshes are in this area and support numerous fish, shellfish and bird species (Davis 1986: 42-43). Interior rivers and lakes located above the tide head make up the River/Lake Zone (Davis 1986:44). Again several fish species, including resident fish, anadromous and catadromous fish, and mammals such as beaver, muskrat and otters can be found in this Zone (Davis 1986:46). Lastly, the Forest Zone is found throughout the province, composed of different tree species in various areas. This Zone is not isolated from the others except for the Inshore Marine Zone, as forests are found along river and lake shores, and behind the Intertidal Zone (Davis 1986:46). Several species of terrestrial mammals are available within the forests, as well as bird and edible plants species (Davis 1986:46-47). Overall, it must be noted that none of these zones is segregated from the others by physical barriers, and species found in one zone are sometimes found in another (Davis 1986, 1991a).

As Davis (1986, 1991a) focused on Ceramic Period coastal sites along the Atlantic Coast, it is believed that an additional ecological zone should be added to clarify further ecological relationships around the Gaspereau Lake. This zone is the Stream/Swamp Zone. The Stream/Swamp Zone, unlike the rivers associated with Davis's Lake/River model, consists of small streams which empty into Gaspereau Lake that do not lead to another lake or river system. The Swamps and Marshes of this zone are those often associated with small

streams and marshes along portions of the lake's shore. As will be outlined, while not unique to the area, streams and swamps are found in abundance throughout Kings County (Nash and Miller 1989) and are not discussed in Davis' (1986) research. These areas were probably important sources of food for people occupying the Gaspereau Lake area.

Through his analysis of Ceramic Period sites located along coastal Nova Scotia, Davis (1986, 1991a) postulated that these coastal sites were home bases which allowed people to exploit several ecological zones with common resource temporal availability. For example, in the spring both anadromous fish runs along interior rivers and lakes could be exploited by a special task group, while seasonally migrating waterfowl and their eggs could be utilized along the coast by another portion of the group (Davis 1986, 1991a). In addition to these resources terrestrial mammals associated with both River/Lake, Stream/Swamp and Forest Zones could be pursued.

A pattern similar to his overall model is illustrated at Gaspereau Lake (Refer to Figures 11-15). The clustering of sites around lake outlets, especially the Gaspereau River lake outlet, indicates locating in close proximity to several key resources was practiced. With the majority of sites located within 200 metres of lake outlets, it appears that the area was occupied on a seasonal basis in order to exploit the yearly anadromous fish runs. The narrow mouth of the Gaspereau River would have provided an excellent area for the building of a fish weir (Erskine 1968). Throughout the Early Historic and Historic periods there are numerous accounts of Native peoples and later Europeans utilizing these areas in a similar manner (Austin-Smith *et al.* 1992; Erskine 1969; Nash and Stewart 1991). By locating their

encampments here, prehistoric peoples were also positioned close to other ecozones. Lake outlet sites facilitated access to both the Gaspereau River and Gaspereau Valley, the Gaspereau Lake, the surrounding forest, and the marsh areas located along the lake's shores. In conjunction with the Gaspereau River and Valley providing food resources, the river would have facilitated access to the inshore and intertidal resources of Minas Basin and the Bay of Fundy. In addition to subsistence resources, Scots Bay chalcedonies and White Rock quartzites would also have been easily reached via the Gaspereau River.

On the western side of Gaspereau Lake is Schaffer's Camp. Located within 200 metres of the North River lake outlet, this area has a great deal in common with sites around the Gaspereau River lake outlet. Occupants would have had access to four ecozones: the Gaspereau Lake, the North River, the marshes located along the North River and the western side of Gaspereau Lake as well as the surrounding forests. As anadromous fish traveled up the North River to Aylesford Lake, and catadromous fish species traveled down the North River to the Gaspereau River and the Bay of Fundy, they would have been easily caught at the constriction of the river mouth. Swamps and marshes in the area would have provided bird, beaver and moose along with various other animal species. The forest would have provided access to seasonally available fruit and vegetable foods, terrestrial and avian species. Additional topographic features also appear to have been selected for when site locations were being chosen. For example, how well a camp site provides an area from which to view approaching parties, or a vantage point, appears to have been an important consideration. Both the North River lake outlet and the Gaspereau River lake outlet are

excellent vantage points for viewing the eastern and western portions of the Lake, respectively. The importance of vantage points has been documented among historic native groups within New Brunswick (Deal 1998:3). A similar prehistoric settlement pattern has also been illustrated elsewhere in North America by Kvamme (1985) in Glenwood, Colorado.

By locating at the mouth of the North River, people would also have been able to travel further into the interior of the province, to other lake and river systems, and thereby enabling the exploitation of resources found deeper in the province. It is believed that one of the more attractive lake destinations may have been Lake George. Today, this lake is known for the large cormorant population living here (Austin-Smith *et al.* 1992). Furthermore, sites at the Gaspereau River lake outlet and the North River lake outlet would have also been attractive for their exposure, as both areas have enough exposure to allow the removal of insects by westerly winds. This, too, was a noted site feature documented among historic natives of New Brunswick (Deal 1998:3).

Although the majority of sites are found near the lake outlet, a number of sites located along the north shore and on islands within its proximity that are not. The distance of these sites away from lake outlets needs to be explained. For example, Burnt Bone Beach is located on the eastern side of a small bay-like formation. The rationale for locating this site here is unclear and the multiple occupations add to this complexity. Beyond the lake and the forest there are no other ecozones in close proximity to the site. Also, part of the site is located on a spit of land that extends into the lake. This portion of the site is greatly

exposed to the elements, having little vegetation and no topographical features to shield it from prevailing winds. To its benefit though, the site possess a sandy beach that which would have been suitable for the landing of canoes, as well as for camping. The site also backs onto the forest which may have provided some protection from the elements for site occupants as would the bay-like formation in which it is located.

It is postulated that this site was utilized as a short-term hunting camp. This is documented through the copious amounts calcined bones recovered as well as the numerous projectile points found here. Furthermore, because of the quantity of flakes found here, it is believed that lithic reduction and tool maintenance may have taken place on the site.

Another multicomponent site located at a distance from either lake outlet is Cement Cross. With the absence of a lake outlet, a number of characteristics that may have encouraged settlement at this location are noted. First, there is adequate area to land a canoe. The beach here slopes gently to the water, unlike other portions of the shore which are rimmed with steep granitic outcrops. Second, the site is located on the eastern side of a peninsula, below a granitic outcrop or rise. This position would have afforded inhabitants protection from the oncoming winds.

The use of this camp for lake fish exploitation is suggested by the discovery of several plummets at the site. Furthermore, numerous projectile points dating throughout Nova Scotia's prehistory indicate hunting was carried out in the surrounding forests. In addition to these artifacts, numerous woodworking tools such as gouges, grooved axes, adzes and sharpening tools such as whetstones and a rod, indicate that the processing of wood was

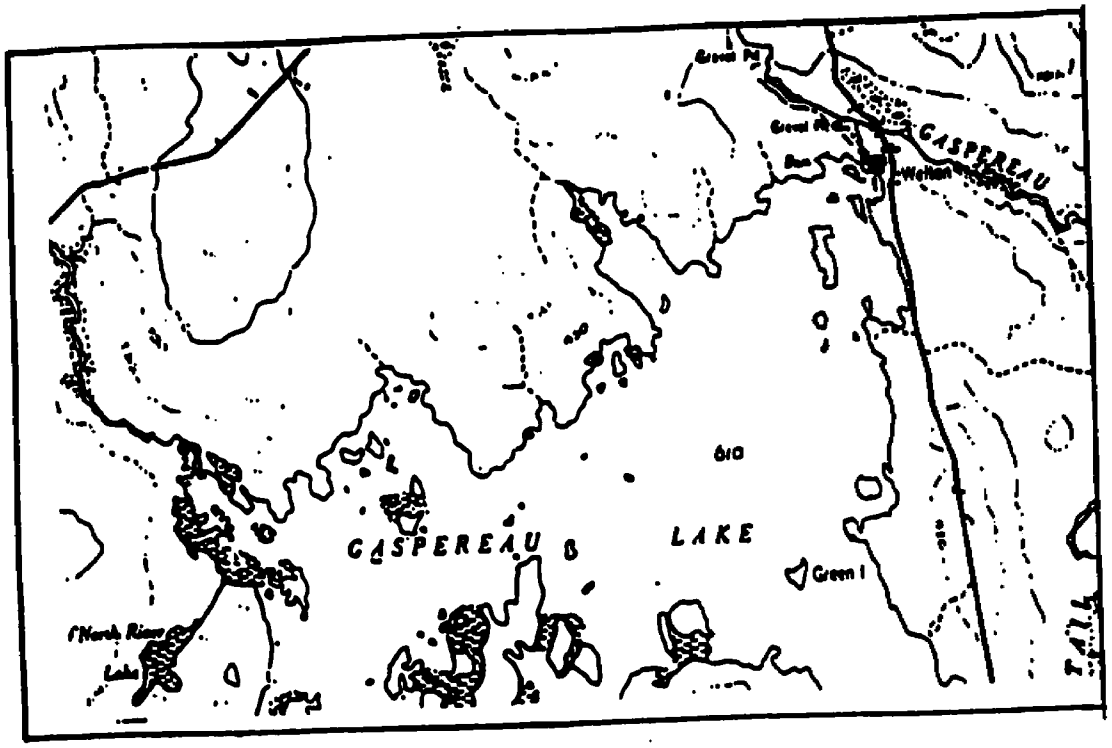


Figure 12. Paleoindian site locations at Gaspereau Lake.
1)Area of the Erskine Site (BfDd-5), Dam Site (BfDd-10), the Fish Ladder (BfDd-9) and the Landing (BfDd-14), 2) Schaffer's Camp Site (BfDd-7).

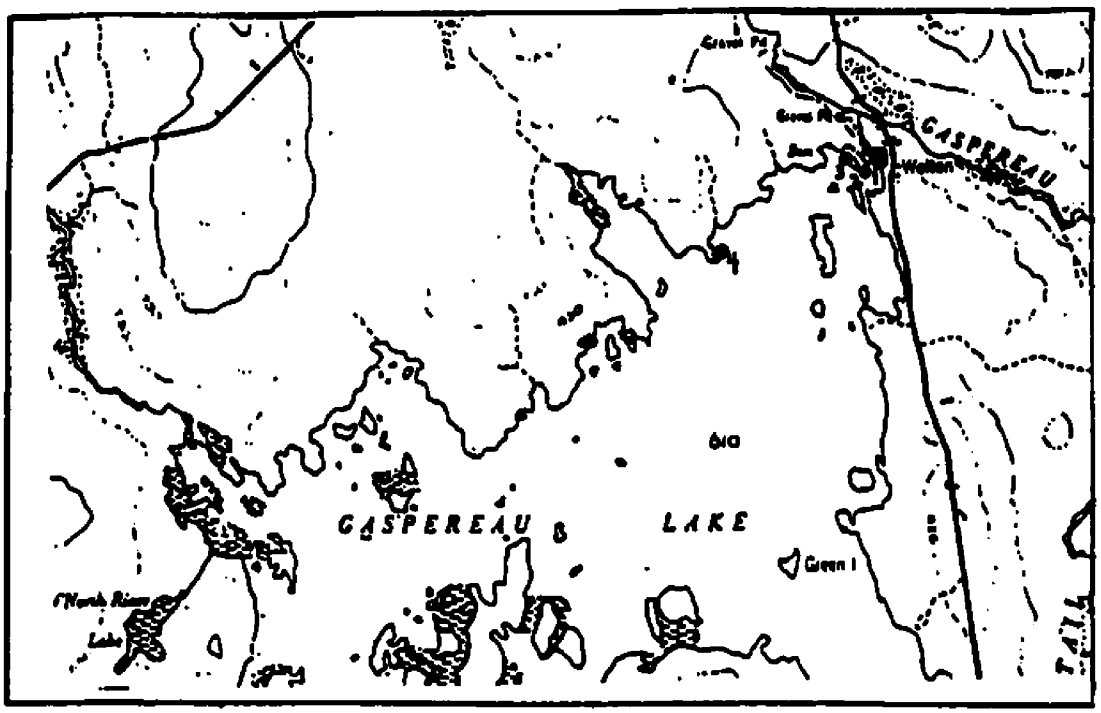


Figure 13. Early/Middle Archaic site locations at Gaspereau Lake. 1)Area of the Erskine Site (BfDd-5),Dam Site (BfDd-10), the Fish Ladder (BfDd-9) and the Landing (BfDd-14), 2) Heaven's Door (A98NS15-4), 3) The Other Side Site (BfDd-5), 4) Bottom Out Site (A98NS15-8)(area of three stites), 5) Cement Cross (BfDd-2).

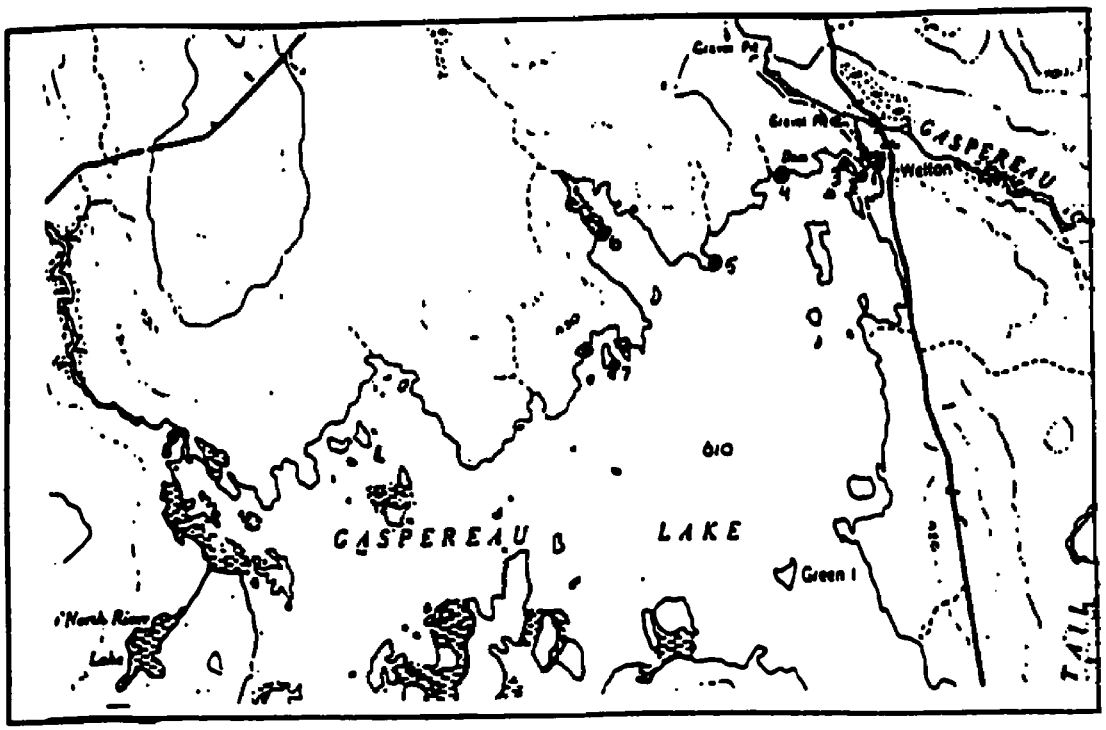


Figure 14. Late Archaic site locations at Gaspereau Lake.
1)Area of the Erskine Site (BfDd-5), Dam Site (BfDd-10), the Fish Ladder (BfDd-9) and the Landing (BfDd-14), 2) Heaven's Door (A98NS15-4), 3)The Other Side Site (A98NS15-5), 4) The Bottom Out Site (A98NS15-8), 5) Burnt Bone Beach (BfDd-8), 6) Cement Cross (BfDd-11), 7) JL7 (BfDd-13), 8) The Camp Side Site (A98NS15-6), 9) Schaffer's Camp site (BfDd-7).

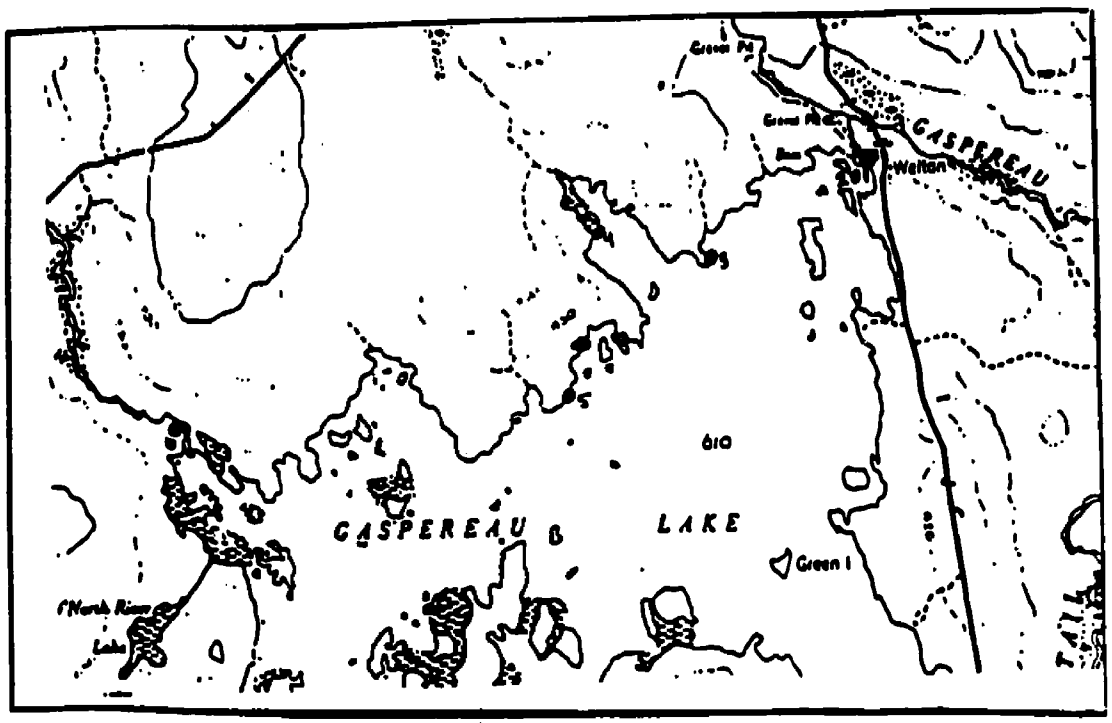


Figure 15. Terminal Archaic site locations at Gaspereau Lake.
1)Erskine Site (BfDd-5), Dam Site (BfDd-10), the Fish Ladder (BfDd-9) and the Landing (BfDd-14), 2) Heaven's Door (A98NS15-4), 3) The Other Side Site (A98NS15-5), 4) Cement Cross (BfDd-12), 5) JL6 (BfDd-13), 6) The Prize Site (A98NS15-7), 7) Schaffer's Camp Site (BfDd-7).

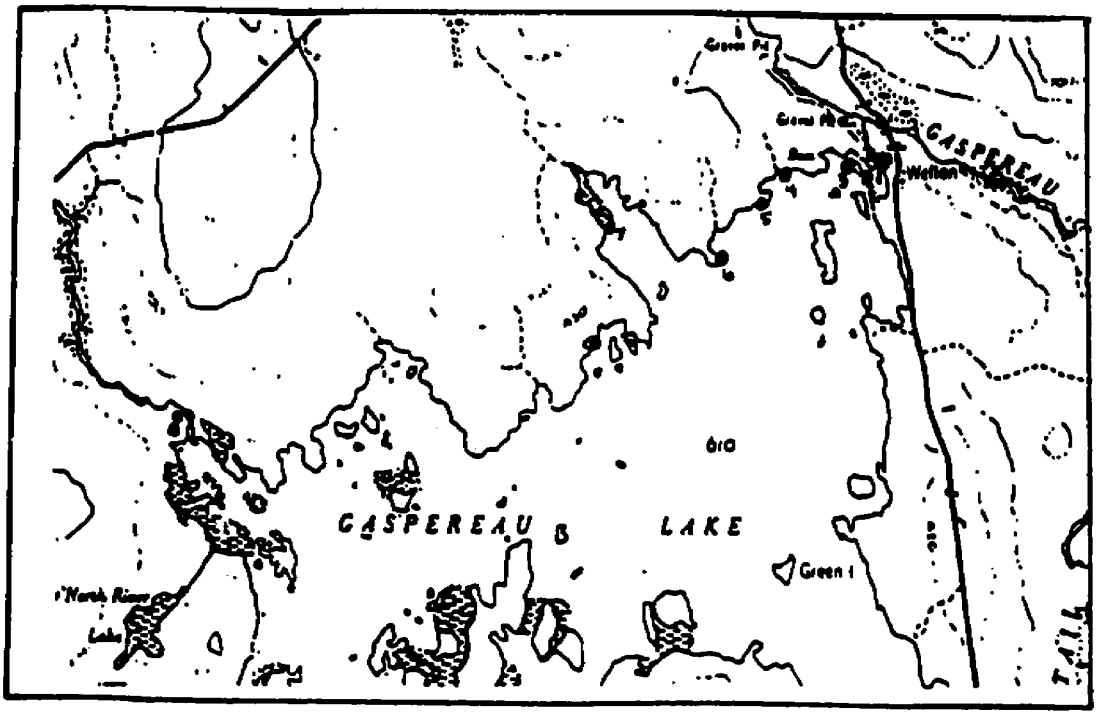


Figure 16. Ceramic Period site locations at Gaspereau Lake.
1)Area of the Erskine (BfDd-5), Dam Site (BfDd-10), the Fish Ladder (BfDd-9) and the Landing (BfDd-14), 2)Heaven's Door (A98NS15-4), 3) The Other Side Site (A98NS15-5), 3) The Bottom Out Site (A98NS15-8), 4) Burnt Bone Beach (BfDd-8), 5)Cement Cross (BfDd-11), 6)JL6 (BfDd-13), 7) Schaffer's Camp site (BfDd-7).

carried out on site. The number of discarded tools indicates an extensive amount of woodworking in which ground stone tools quickly become of little use and are subsequently discarded. Therefore, it is suggested that canoes were manufactured at Cement Cross. In addition to this the forest ecozone would have provided a nearby source of trees, while at the same time providing subsistence resources. Another point that must be considered when examining Cement Cross is its position along the lake shore itself. Cement Cross is located approximately a quarter of the way from the Gaserpeau Lake outlet and the North River lake outlet. Locating here may have been done in order to rest or camp for a short duration as groups moved between interior and the coastal locations.

Overall, while a season of occupation cannot be positively identified, it is believed that this site would have been inhabited during warmer months, likely late spring or summer, as it is postulated that the Gasepreau River lake outlet was occupied during the spring and the coast was occupied during the winter, Cement Cross would have been an excellent site for summer occupation. Food resources from the lake, forest, swamp and the spring area were nearby, and clearings within the forest would have possessed blueberry, strawberry and cranberry growths, as they do today.

The last multicomponent site not associated with a lake outlet is JL6. JL6 is located on the western shore near the head of Lower North Bay. Presently, the site occupies a swampy area containing a drowned forest further to the north. Undoubtedly this was not the case during the site's occupation and its current swampy position is due to the damming of Gaspereau Lake and the subsequent rise in water levels. Originally, JL6 would have been

within 20 metres or less of the shore and it would have been backed by the now-drowned forest. Similar to Cement Cross, several ecozones were available to site occupants. The first, the Stream/Marsh Zone was, and is today, located at the head of Lower North Bay. A small stream runs into the bay and it would likely have had an associated swamp or marsh environment in the past. The (River/)Lake zone was also close by, with the bay itself a part of this zone, as was the lake. Finally, the Forest Zone possessed numerous exploitable resources including terrestrial mammals, birds, fruit and edible roots which are found there today. In addition to the proximity to ecozones, and its location on the western side of the bay, with the forest to its back, the site would have been protected from the prevailing winds.

As there is evidence for only a short term occupation by the Late Archaic, Terminal and Early Ceramic Period peoples two possible scenarios are considered. The first is that the site may have been occupied over a greater amount of time, but subsequent looting and erosion has destroyed evidence for this. The second suggestion is that the site was occupied for only a short period of time and was used as a resting area as people traveled between lake outlets. By selecting for an area permitting access to a number of ecozones, it is believed that there was in fact a greater temporal occupation of this site and that evidence of this occupation has been destroyed.

The remaining sites which have not been discussed in association with lake outlets or a variety of ecozones are represented by isolated artifact finds. Because of the paucity of materials that have been recovered from these sites, there are few firm conclusions that can be made regarding their occupations. However, general patterns were found when the

placement of these sites was examined in more detail. All isolated artifact find sites were located within 40 metres or less of the shoreline and all, at the time of occupation, would have had the forest to the back of the camp. Additionally, topographic features appear to have influenced camp location decisions. Two sites, Dead Gull and the Prize Site are located at the base of a rise. Similar to a forest at the back of the site, protection from the elements would have been provided. Also, sites appear to have been located in areas suitable for the landing of canoes, with all but one, the Camp Side Site, being located on a gently sloping beach. At the Camp Side Site a ground stone adze was found on a granitic ledge which steeply slopes towards the water. It is postulated that the site was either on the top of the ridge above the ground stone adze, or at the base of this granitic outcrop, as both locations would have provided protection from the elements. Additional protection would have been provided by the site's location at the head of a small bay, which would have blocked both prevailing westerly winds and, if occupied during the winter, northerly winds.

6.4. Summary

In conclusion, all sites found along the shores of Gaspereau Lake were located in areas possessing specific ecological and topographical qualitites, such as specific elevation, distance to the lake and at the base of an outcrop or with the back of the camp to the forest. If there were no criteria acting upon people in choosing site locations, prehistoric and historic sites would illustrate random placement throughout the landscape, there by, displaying no specific, identifiable patterning.

All sites provided ample protection from the elements, were placed within 40 metres

of the lake shore and were on beaches facilitating the landing and launching of a canoe. Locating in these areas allowed easy access to several different types of resources and resource areas. Furthermore, areas near lake outlets which provided access to the greatest number of ecozones were occupied a greater number of times throughout prehistory.

Chapter 7 Conclusions

The major goals of this research were to review the prehistoric cultural chronology for the Gaspereau Lake area and develop a working model of settlement and subsistence patterning over time. The most striking research discovery has been the extent of the prehistoric occupation at Gaspereau Lake. Initial investigations by MacDonald (1965) and Erskine (1967, 1998) indicated the area had been home to several prehistoric cultures. Later research by Murphy (1996, 1998) supported this evidence, as did survey work by Deal (1988a, 1998b, 1989a, 1989b). The focus of the extended occupations was believed to be exclusively at the lake outlet, at the Erskine Site. This research has demonstrated that the lake was occupied more heavily and to a greater extent than was previously thought. In particular, lengthy occupations have been identified at Schaffer's Camp Site and the Cement Cross Site.

This research identifies occupation of prehistoric groups during all recognized time periods at Gaspereau Lake. Paleoindian Period artifacts were recovered at the Erskine Site, as well as Schaffer's Camp. A strong Archaic and Ceramic Period presence was recorded at Cement Cross, the Erskine, the Dam, the Fishladder and the Landing sites. Furthermore, an increase in the number of Late Archaic sites illustrates a steady population increase up to that time. Subsequent to this peak, population levels seem to have remained constant during the Ceramic Period.

The discovery of Paleoindian fluted points at both the Gaspereau River lake outlet and the North River lake outlet support the existence of a Paleoindian interior, riverine/lacustrine adaptation. To date, little recognition or discussion has been made of this

adaptation in Nova Scotia, while evidence for such an adaptation has been documented in Pennsylvania, New England. Paleoindian materials recovered from the drainage system also indirectly supports Keenlyside's (1985) and others' (Dumont 1981; Tuck 1984), suggestion of a Paleoindian marine adaptation. If people were utilizing interior aquatic resources, it is likely that they possessed the technology to exploit coastal resources as well. Paleoindians must have had water craft technology, which would have increased the efficiency of fishing and hunting, as well as transportation deeper into the interior of the province, or to the coast.

Cultural materials found in private collections have strengthened the recently documented Early/Middle Archaic occupation at Gaspereau Lake (Murphy 1996, 1998). A predominant hypothesis is that Early/Middle Archaic people were forced to rely more heavily on river and lake resources than did Paleoindians, because of the extinction of the megafauna and the development of a coniferous forest (Bonnichsen *et al.* 1991; Dumont 1981; Tuck 1984). The presence of Early/Middle Archaic artifacts cannot refute or prove this point, but it does support a continued importance of interior resources. Private collections also supply further evidence of a continued exploitation of interior river and lake resources by later peoples.

The multiple occupations of the same sites and within specific areas throughout prehistory also suggests Gaspereau Lake was an area with an abundance of resources. The amount of cultural remains found around the lake outlets especially, illustrates the importance of these areas in peoples' seasonal movements. This placement of campsites in order to facilitate the exploitation of resident and seasonally available fish species has been

documented in other areas of the Northeast. In their study of Archaic site distribution Spiess *et al.*(1983b:30) were able to illustrate that the majority of sites dating from the Middle Archaic were located on lake inlet-outlets or thoroughfares. The preference for Archaic peoples to locate at points in which rapids or small waterfalls along rivers has also been documented (Borstel 1982; Dincauze 1976; Sanger *et al.* 1977:469). Much like the constriction of the Gaspereau River where it meets the Gaspereau Lake, these areas facilitate the capture of anadromous and catadromous fish during their seasonal migrations, either by using dipping nets or constructing a weir (Borstel 1982; Dincauze 1976; Sanger *et al.* 1977).

Prehistoric settlement patterns in Nova Scotia, and in particular in the Gaspereau Lake area, can be compared to those in New England. Such comparisons are facilitated by similarities in the environments, coastal locations and cultural developments. For example, when Archaic site locations in the State of Maine and southern New England were compared, it was illustrated that sites in Maine were located along lake inlets/outlets and rivers (Spiess *et al.* 1983b:240). However, few sites in southern New England were situated in these areas. Similar to Spiess *et al.*'s (1983b:240) observations, Dincauze and Mulholland (1977) also illustrated a lack of Archaic Period sites along lake inlets/outlets and rivers in New England. This lack of river and lake sites is believed to be a function of the greater number of lakes found in Maine as compared to New England as a whole (Spiess *et al.* 1983b:240). Similar to Maine, the majority of Archaic Period sites in Nova Scotia are located at lake inlets/outlets and in association with interior waterways. A similar justification is applied to the evident clustering of Archaic, as well as later sites, along the Gaspereau Lake-Gaspereau River system, the Mersey Drainage, Tusket Falls and at Great

Barren Lake in Nova Scotia (Deal and Rutherford 1991:6). It is suggested that one of the primary reasons for this interior focus is the great number of lakes and rivers in the province. Numerous lakes and rivers facilitated water travel, as well as the exploitation of permanent fish species and forest fauna associated with this environment. Secondly, the apparent focus on interior river and lake resources is because of the inundation of coastal sites which are believed to have existed (Bourque 1971, 1975, 1995; Black and Turnbull 1986; Deal and Rutherford 1991; Sanger 1975, 1996b; Sanger and Kellogg 1989; Tuck 1975, 1984, 1991). Without the documented used of coastal sites our view of subsistence patterns during both the Early/Middle Archaic and the Paleoindian Period must remain incomplete.

As stated above, there is evidence for continued use of Gaspereau Lake during the Terminal Archaic and the Ceramic Periods. The continued use of similar interior locations has been illustrated outside the province in New Brunswick (Deal 1986), as well as in New York (Ritchie 1969a:69, 76, 96-99, 167, see Figure 4 pg. 40-41), and New England (Dincauze 1972:55; Sanger 1975:65-68; 1996a, 1996b:340).

The evidence for use of the Gaspereau Lake outlet throughout the Ceramic Period, is extensive, despite Nash and Stewart's (1990, 1991) belief that the lake outlet was not used at this time. Nash and Stewart (1990:192-196) postulated that Ceramic Period peoples followed the head of the tide toward the lake, and that by the Ceramic Period, people no longer used the lake outlet area, only tide head. This movement was illustrated at Melanson by the shifting placement of the site itself up river throughout its occupational history (Nash and Stewart 1990:192). After a literature review of Nash and Stewart's findings, it is suggested here that Nash was mistaken in his assessment of Melanson. Nash (1990:195-196) believed

this progressive movement, following the tide head, began after the Archaic Period, and facilitated the exploitation of anadromous fish runs. The discovery of Ceramic Period materials at the Gaspereau River outlet, as well as at the North River outlet, suggests that people were taking advantage of the topography offered at the two lake outlets and occupied these sites during the seasonal fish runs. In spring, it is postulated that special resource extraction groups left the Melanson village site and temporarily camped on Gaspereau Lake to capture and process anadromous fish.

It is also important to consider the role of Melanson in the Gasperau Lake-Gaspereau River system. As suggested by Nash and Stewart (1990, 1991), it is likely that Melanson was a central base camp. During the Ceramic Period, people may have become more sedentary. Nash believed that Melanson was settled in order to facilitate easy access to the greatest number of ecozones, as well as to travel with ease further into the interior and to the coast. This would have facilitated contact with other groups and would have provided access to additional interior resources. By locating in the Gaspereau Valley, people were able to access both river and valley resources. They were also close to the Southern Uplands which were home to numerous avian and terrestrial species (Nash and Stewart 1990, 1991). Additionally, the shellfish and fish found in the mudflats and littoral zone of Minas Basin, marine mammals within the Bay of Fundy and the interior itself were all within easy reach of Melanson. In addition to nearby subsistence resources, Melanson is fairly close to Scot's Bay, and White Rock, where quality chalcedonies and quartzites can be found.

It is postulated that Ceramic Period peoples may have divided into smaller groups during the spring. Part of the group moved to Minas Basin in order to exploit incoming

migrational birds, while another task group moved to the lake outlet. In accordance with Nash and Stewart's (1990:195) suggestion, it is believed that Melanson was occupied during the summer and fall. At this time people exploited interior terrestrial animals such as deer, moose, caribou which would have been found in the Gaspereau Valley and the Southern Uplands. Additionally, resident fish species and creatures living in the nearby bogs, marshes and swamps would also have been taken. It is unlikely that Minas Basin was exploited heavily during the summer, as the shellfish may have been poisonous to humans during this season as they are today, and several marine mammal species would have been absent from the area. During fall, the people of Melanson may again have split up, one group exploiting the returning migrational birds at Minas Basin while capturing returning anadromous fish and catadromous fish. Winters were likely spent at Minas Basin hunting marine mammals, inshore fishing and collecting shellfish.

It is suggested that Melanson was a semi-permanent camp which Ceramic Period peoples re-occupied during the summer months. In the spring and fall, resource extraction groups occupied the Gaspereau River lake outlet and Minas Basin exploiting seasonally-abundant species. Winter months were spent on the coast pursuing marine species. The discovery of one Paleoindian projectile point and a limited number of Archaic Period points at Melanson (Nash and Stewart 1990) may indicate that a similar pattern of movement may have began sporadically in earlier times.

Additional sites found along the shores of Gaspereau Lake are believed to have been special purpose sites. Groups of people, throughout all time Periods, occupied these interior lake side sites, utilizing the different ecozones and their associated resources, situated

nearby. In conjunction with this, isolated artifact sites indicate very brief occupations, which were likely overnight camps used as people traveled between the interior and the coast.

In general, the overall settlement patterning of multicomponent sites conforms to Davis (1986, 1991a) revised Contiguous Habitat Model. These sites are located in close proximity to several ecozones and their associated resources. Furthermore, people appear to have chosen sites which displayed specific criteria, such as higher elevations (192 metres), closeness to shore (40 metres), and sites that back onto the forest.

The Gaserpeau Lake data are also comparable to those from New England. Here, observed selection for sites located at higher elevations contradicts data collected on Archaic Period sites (Dincauze and Mullholland 1977; Spiess and Wilson 1983). Both studies found that sites were located at lower elevations (Dincauze and Mullholland 1977; Spiess and Wilson 1983). While at Gaspereau Lake the selection for higher elevations is believed to be in direct relation to the desire for a well drained site and an area which provides greater observation of the surrounding landscape. However, the greater elevations displayed at Gaspereau Lake are clearly features of the local topography.

In summary, the archaeological investigations at Gaspereau Lake provide only a brief glimpse at the extent of the prehistoric occupation of Nova Scotia. It is hoped that the present analysis will create a renewed interest in the prehistoric archaeology of the area. A great amount of research has yet to be done as cultural chronologies for the entire province, as well as subsistence patterns and distinct regional patterns displayed throughout all time periods are still in a preliminary stage of research.

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Appendix A: Data Collection Sheets and Attribute Illustrations

Projectile Points

Artifact Number_____ Collector_____

Site Number and Name_____ Photography No._____
Location_____
Surface Find or Excavated_____

Portion: Whole_____ Tip_____ Medial_____ Basal_____

Blade Edge	Stem Form	Base Form
Convex_____	Contracting Blunt_____	Convex_____
Straight_____	Contracting Pointed_____	Straight_____
Concave_____	Expanding_____	Concave_____
Recurved_____	Straight_____	Pointed_____
Asymmetric_____	Rounded_____	Bifurcate_____
	Parallel_____	

Edge Angle:_____

Notch Form	Shoulder Form	Barb Form
Basal_____	Wide Angle_____	Long_____
Wide corner_____	Narrow angle_____	Medium_____
Narrow corner____	Wide rounded_____	Short_____
Wide Side_____	Narrow rounded_____	Lateral_____
Narrow Side_____	Asymmetric_____	

Shoulder Angle:_____

Transverse Section	Longitudinal Section
Biconvex_____	Biconvex_____
Biplano_____	Biplano_____
Convex-Concave_____	Convex-concave_____
Plano-convex_____	Plano-convex_____
Edge Serrated_____	Basal thinning_____
Stem Grinding Lateral_____	
Basal____	Material_____
Lateral and Basal_____	

Measurements (in millimetres)

Length_____	Weight_____
Width_____	Length/Width ratio_____
Thickness_____	Width/Thickness ratio_____
Width of Neck_____	Width/Shoulder Height_____
Width of base_____	Index Neck W/Base W X 100 ____
Notch width_____	

Sketch

Gouges/Grooved Axes

Artifact No._____ Collector_____
Site No. and Name_____ Photograph No._____
Location_____
Surface Find or Excavated_____

Portion: Whole_____ Bit_____ Poll_____ Body_____

Bit
Planar View
A-1 Convex-Symmetric
A-2 Convex-asymmetric
A-3 Straight

Convexity Scale B (for bit)
1.1-2
2.1-3
3.1-4
4.1-5
5.1-6
6.1-7
7.1-8
8.1-9
9.1-10

Poll Element
Planar View
J-1 Rounded
J-2 Straight
J-3 Pointed
J-4 Oblique

Longitudinal Section
Bevelled
K-1 Symmetric
K-2 Asymmetric
Rounded
K-3 Symmetric
K-4 Asymmetric
K-5 Square

Bit Element-C-Degree of Curvature
C-1 - 0
C-2 - 1
C-3 - 2
C-4 - 3
C-5 - 4
C-6 - 5

Lateral Section
I-1 Plano Convex
I-2 Sub-rectangular
Triangular
Concavo-convex

Longitudinal Section
E-1 Symmetric
E-2 Asymmetric

Lateral Section
F-1 Bi-Convex-Symmetric
F-2 Bi-Convex-Asymmetric
F-3 Plano-Convex

F-4 Concavo-Convex

Body Element

Planar View
G-1 Parallel
G-2 Contracting
G-3 Expanding
G4 Expanding and Contracting
Longitudinal Section
Plano Convex
H-1 Symmetric
H-2 Asymmetric
Bi-convex
H-3 Symmetric
H-4 Asymmetric
Concavo-Convex

Lateral Section
I-1 Plano Convex (or Hemi-cylindircal)
I-2 Sub-rectangular
I-3 for gouges is sub-rectangular
Triangular
Concavo-Convex

Measurements: (in millimetres)

Length_____	Groove Depth_____
Width_____	Groove Length_____
Thickness_____	Total Length/Groove Length Index_____
Poll Width_____	(t.length/groove length X 100)
Bit Width_____	Width/Length Index _____
Weight_____	(W/L X 100)
	Thickness/Width Index_____
	(T/W X 100)

Sketch

Ground Slate Blades/Bayonets

Artifact No._____ Collector_____
Site No. and Name_____ Photograph No._____
Location_____
Surface Find or Excavated_____

Portion: Whole_____ Tip_____ Medial_____ Basal_____

Blade Element

Shoulder
A-1 Sharp
A-2 Rounded
A-3 Barbed
Miscellaneous

Margin
B-1 Straight
B-2 Convex

Lateral Section
C-1 - 8 Facets
C-2 - 7 Facets
C-3 - 6 Facets
C-4 - 5 Facets
C-5 - 4 Facets
Miscellaneous
C-6 Asym. Diamond
C-7 Pie-Wedge
C-8 Biconvex

Hafting Scars
D Present
Absent

Decoration
E Present
Absent

Margin
F-1 Contracting (straight)
F-2 Contracting (rounded)

Stem Element

Base
G-1 Straight
G-2 Pointed
G-3 Rounded

Lateral Section
H-1 - 8 Facets
H-2 - 7 Facets
H-3 - 6 Facets
H-4 - 5 Facets
H-3 - 4 Facets
Miscellaneous

Longitudinal Section
I-1 Symmetric

Marginal Roughening
J Present
Absent

Surface Roughening
K Present
Absent

Marginal Notching
L Present
Absent

Measurements (in millimetres)

Length_____ Neck/Base Index_____
Shoulder Width_____ (W.Neck/W. Base X 100)
Thickness_____ Length/Width Ration (X10)_____
Weight_____
Stem Width_____
Base Width_____

Sketch

Plummets

Artifact No._____ Collector_____
Site No. and Name_____ Photo No._____
Location_____
Circle: Surface Find Excavated

Body Outline

Circle Pointed Round

Shoulder

Pointed Round

Neck

Grooved Ungrooved

Measurements Material:_____
Length_____
Width_____
Thickness_____
Weight_____

Sketch

Abrasive Stones

Artifact No._____ Collector_____
Site No. and Name_____ Photo No._____
Location_____
Circle: Surface Find Excavated

Outline
Oval
Subrectangular
Rectangular
Triangular
Circular

Description
Marginal Notching_____
Perforation_____
Use Wear_____
Grinding_____
Pecking_____

Measurements Material:_____
Length_____
Width_____
Thickness_____
Weight_____

Sketch

Celts/Adzes

Artifact No._____ Collector_____
Site No. and Name_____ Photograph No._____
Location_____
Surface Find or Excavated_____

Portion: Whole_____ Bit_____ Poll_____ Body_____

Bit
Planar View
A-1 Convex-Symmetric
A-2 Convex-asymmetric
A-3 Straight

Convexity Scale B (for bit)
1.1-2
2.1-3
3.1-4
4.1-5
5.1-6
6.1-7
7.1-8
8.1-9
9.1-10

Bit Element-C-Degree of Curvature
C-1 - 0
C-2 - 1
C-3 - 2
C-4 - 3

Longitudinal Section
E-1 Symmetric
E-2 Asymmetric

Lateral Section
F-1 Bi-Convex-Symmetric
F-2 Bi-Convex-Asymmetric
F-3 Plano-Convex
F-4 Concavo-Convex

Poll Element
Planar View
J-1 Rounded
J-2 Straight
J-3 Pointed
J-4 Oblique

Longitudinal Section
Bevelled
K-1 Symmetric
K-2 Asymmetric
Rounded
K-3 Symmetric
K-4 Asymmetric
K-5 Square

Lateral Section
I-1 Plano Convex
I-2 Sub-rectangular
Triangular
Concavo-convex

Body Element

Planar View
G-1 Parallel
G-2 Contracting
G-3 Expanding
G4 Expanding and Contracting
Longitudinal Section
Plano Convex
    H-1 Symmetric
    H-2 Asymmetric
Bi-convex
    H-3 Symmetric
    H-4 Asymmetric
Concavo-Convex

Lateral Section
I-1 Plano Convex (or Hemi-cylindircal)
I-2 Sub-rectangular
I-3 for gouges is sub-rectangular
Triangular
Concavo-Convex

Measurements: (measurements in millimetres)

Length_____
Width_____
Thickness_____
Poll Width_____
Bit Width_____
Weight_____

Groove Depth_____
Groove Length_____
Total Length/Groove Length Index_____
(t.length/groove length X 100)
Width/Length Index _____
(W/L X 100)
Thickness/Width Index_____
(T/W X 100)

Sketch on back

Scrapers

Artifact No._____ Collector_____
Site No. and Name_____Photo. No._____
Location_____
Circle: Surface Find Excavated

Material:_____

Measurements:

Length_____
Width_____
Max. Thickness_____
Bit Thickness_____
Bit Angle_____

Sketch

Rod/Abraders
Artifact Number_____ Collector_____
Site Number and Name_____ Photograph No._____
Location_____
Surface Find or Excavated_____

Portion: Whole_____ Tip_____ Medial_____

Transverse shape:Proximal-looking at it horizontally at the point
Oval_____
Sub-rectangular(gouge shape I-3)_____
Plano-Convex (gouge shape I-2)____
Triangular_____
Circular_____
Flat____
Transverse Shape:Distal (other end):
Oval_____
Sub-rectangular____
Plano-convex_____
Triangular_____
Circular_____
Flat_____

Curvature	Perforation
Present_____	Present____
Absent_____	Absent_____
Facets	Expanding Head
Present_____	Present_____
Absent_____	Absent_____

Degree of Finish:-fully ground and polished, pecking present, similar treatment of both ends?

Measurements:
Length_____
Medial Width_____ Proximal Width_____ Distal Width_____
Thickness_____
Circumference_____ (for rods)
Weight_____

Sketch on back

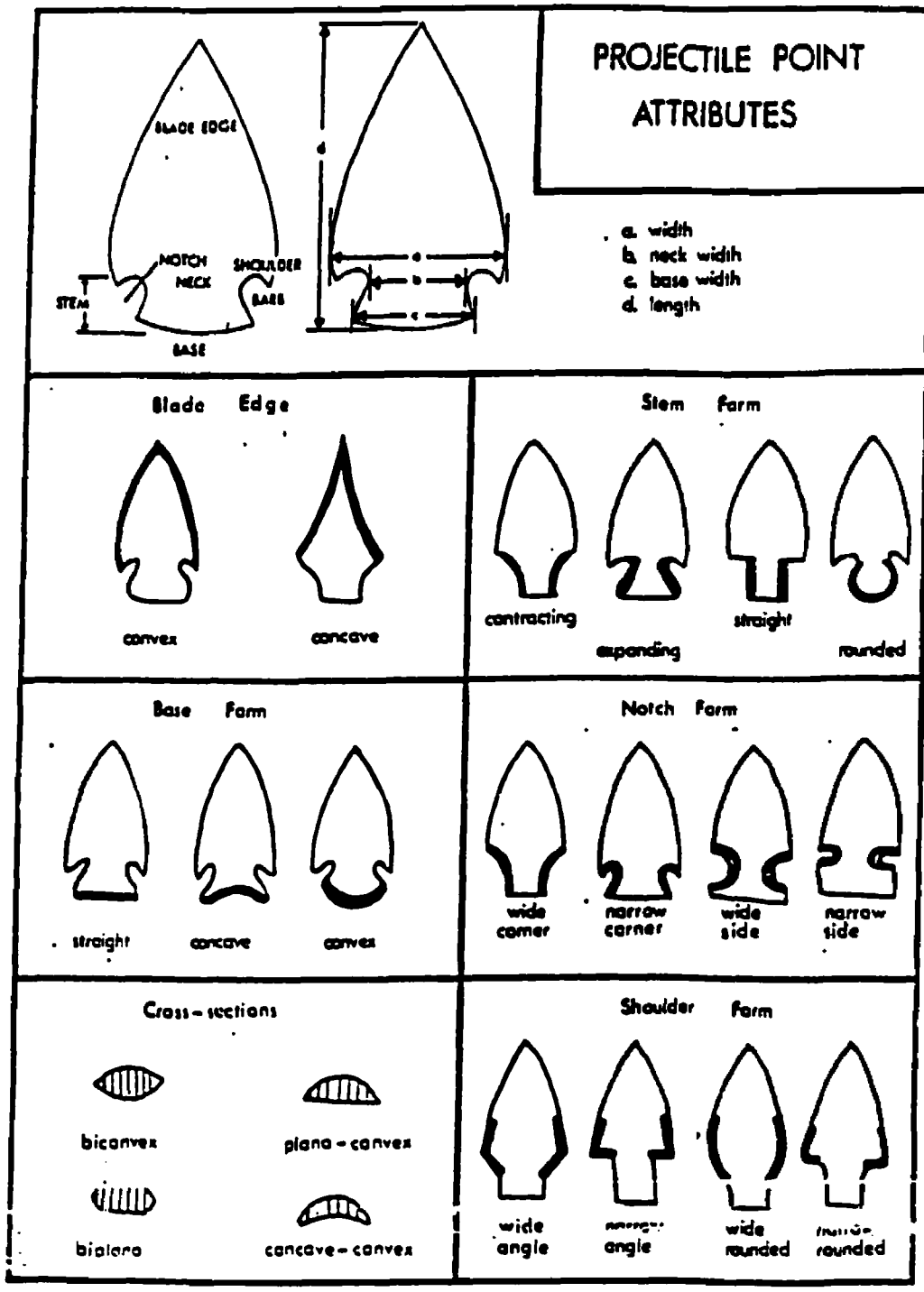

Figure 17.Projectile point attributes. (After D'Entemont and Moore 1977).

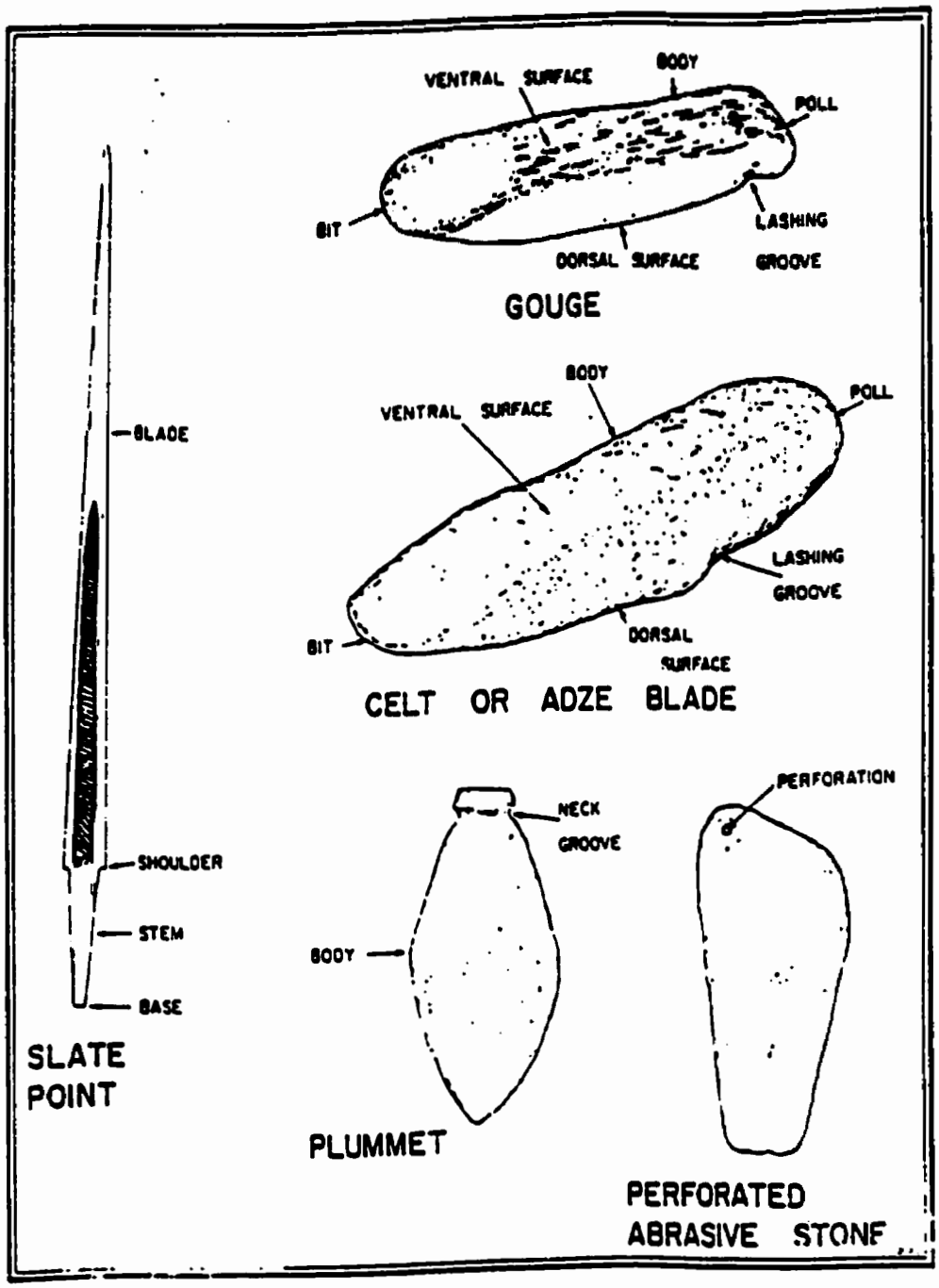

Figure 18. Gouge, slate point, plummet, perforated stone, celt or adze blade attributes (After Sanger 1973).

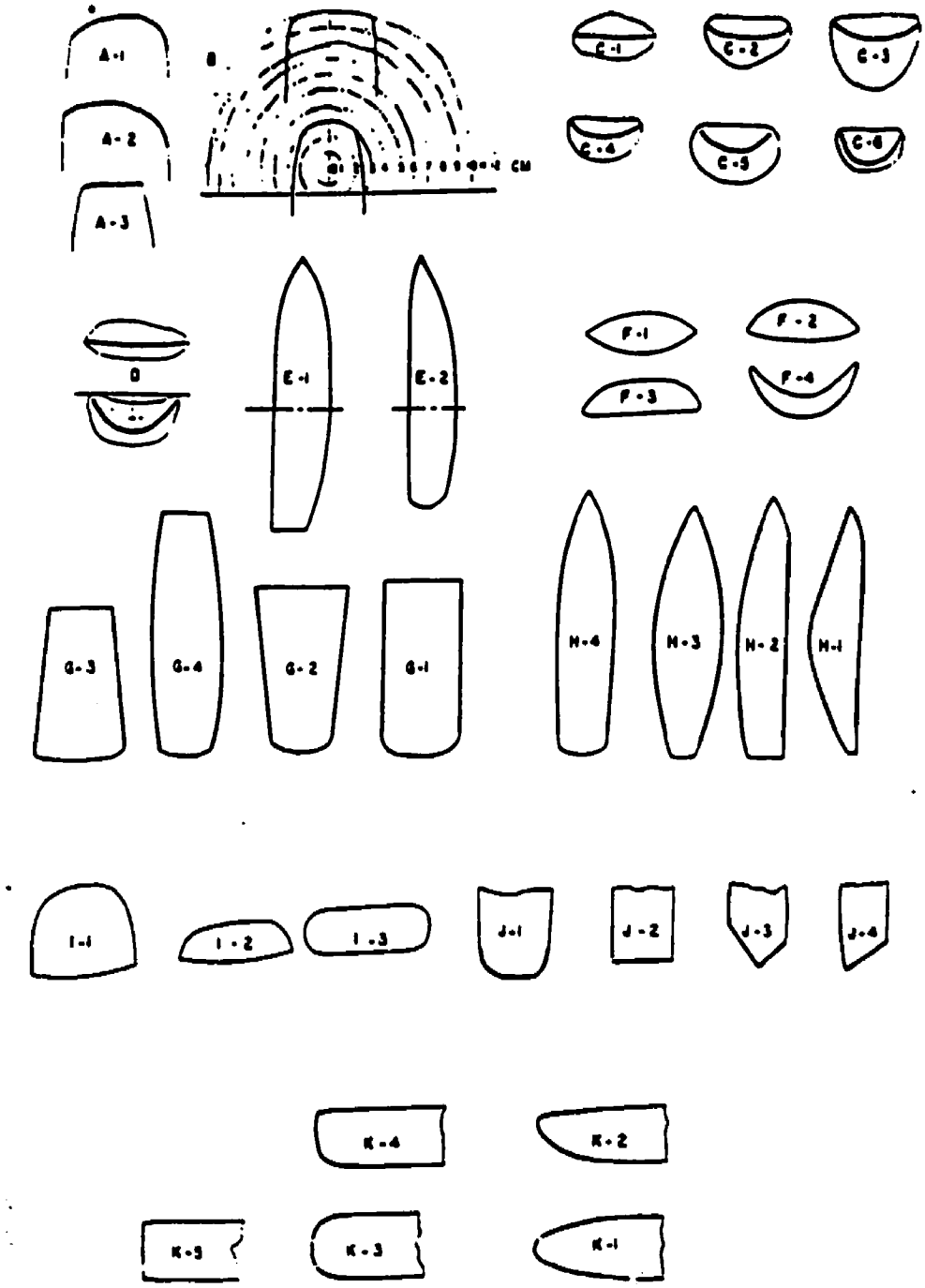

Figure 19. Gouge, adze, and celt attribute measurements (After Sanger1973).

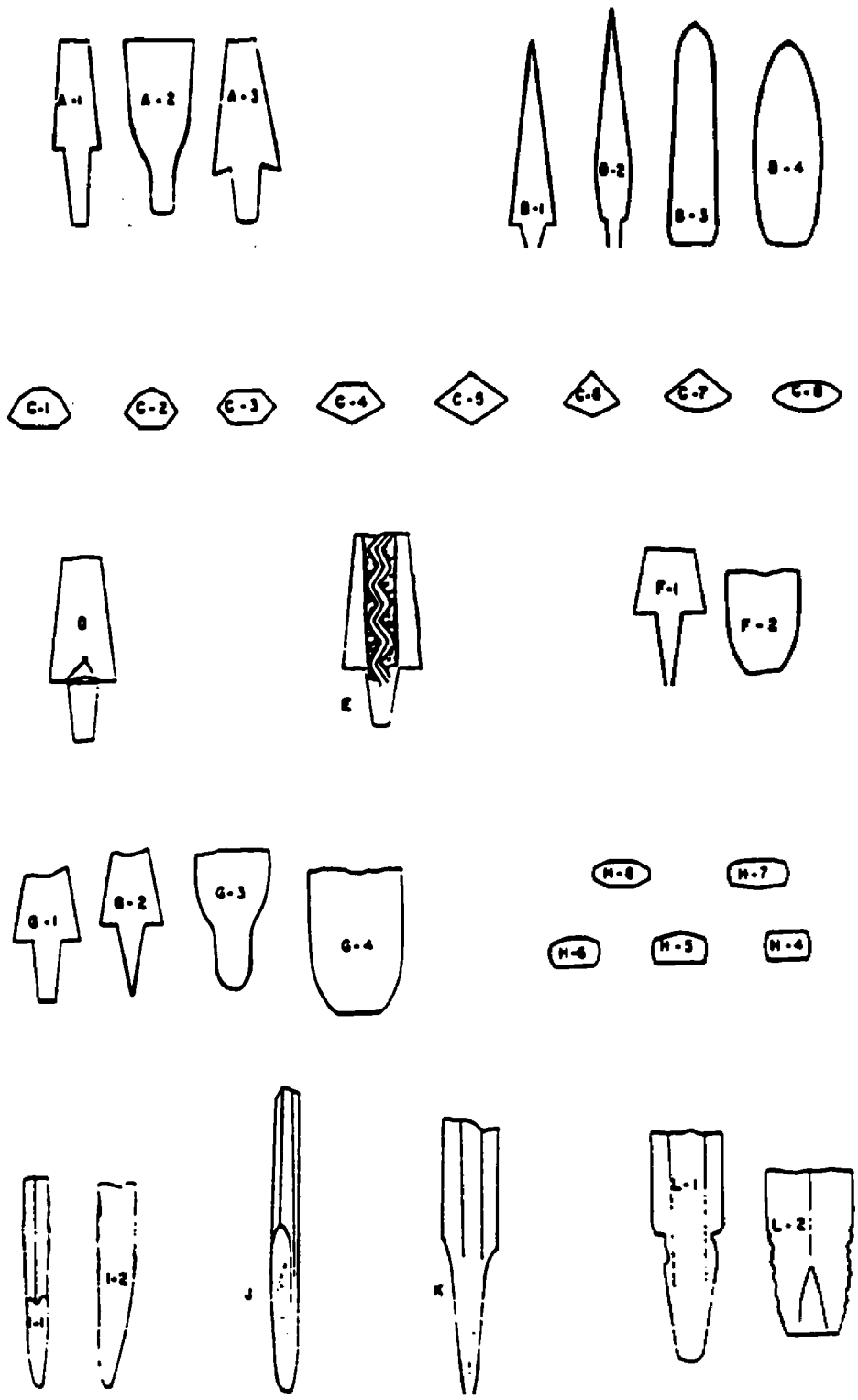

Figure 20. Ground stone blade and bayonet attribute measurements (After Sanger 1973).

Appendix B: Private Collections

Campbell Collection

The Campbell collection was the smallest collection viewed for this research. All the materials originating from the Gaspereau Lake area have come from the vicinity of the North River mouth, associating them with the Schaffer's Camp site (BfDd-7).

In the collection were 12 artifacts: one adze blade (8%), one whole projectile point (8%) and two projectile point bases (17%), three (25%) white or milky quartz scrapers, three (25%) white quartz point or biface tips, one chert end scraper (8%) and a white quartz flake (8.3%). The two point bases, one corner-notched (#2) and the other side-notched (#3), are both indicative of the Ceramic period, while the one whole projectile point is a Susquehanna Broad point (#1) (see Ritchie 1969:158). The presence of the adze blade, which was in very poor condition, also originates from the Late Archaic period. Unfortunately, the remaining artifacts can not be associated with any specific time period. Unlike the other collections viewed, this one is dominated by artifacts of white quartz. It is believed that this may be due to the visibility of this material type, as opposed to a cultural preference for it.

While there are few diagnostic artifacts within this collection, those that are present point to the existence of a Ceramic and Late Archaic occupation around the North River Lake outlet.

Campbell Collection List

Cat. No.	Artifact	Time Period	Material
1	Corner-notched Point	Terminal Archaic	Chert
2	Side-notched Point	Late Ceramic	Chert
3	Side-notched Point Base	Late Ceramic	Chert
4	Endscraper	Unidentified	Milky Quartz
5	Endscraper	Unidentified	Milky Quartz
6	Endscraper	Unidentified	Milky Quartz
7	Endscraper	Unidentified	Milky Quartz
8	Point Tip	Unidentified	Milky Quartz
9	Point Tip	Unidentified	Milky Quartz
10	Flake/Debitage	Unidentified	Milky Quartz
11	Point Tip	Unidentified	Milky Quartz
12	Adze Blade	Archaic	Basalt

All pieces from the collection originate from the mouth of the North River, the area of Schaffer's Camp (BfDd-7).

Corbin Collection

Unfortunately, it was not possible to catalogue this Collection and measurements were taken of only four culturally diagnostic artifacts. To off set the loss of information, all cultural materials displayed by the owner were photographed.

In conjunction with the lack of opportunity to catalogue the Collection, few artifacts could be associated with specific find locations. Overall, only the four measured artifacts are assigned to specific spots, while the remainder of the Collection is associated only with Gaspereau Lake as a whole.

Sites which artifacts are associated with include JL6 (BfDd-13) where a slate perforated pendant was found (#4); Burnt Bone Beach (BfDd-8) from which a grooved plummet originated (#3); A98NS15-4 and 5 (Heaven's Door and the Other Side Sites) produced an adze blade (#2); and the area near the dam and fish ladder yielded a poorly preserved adze blade.

The remaining artifacts could not be identified to the locations from which they came, beyond a general association with the north Gaspereau Lake shore line. In all likelihood, the majority of unprovenienced cultural materials originated from previously recorded sites such as the Erskine Site (BfDd-5), the Dam Site (BfDd-11), the Fish Ladder Site (BfDd-9) and the Landing Site (BfDd-9), as well as Cement Cross (BfDd-12), and Schaffer's Camp (BfDd-7). Overall, the majority of projectile points within the Collection date from the Ceramic Period. Some Archaic Period artifacts were present, including ground stone adze blades, pendants, a plummet, and a small number of Late Archaic projectile. An Historic component is also illustrated through the presence of a pipe bowl, many of which

have been found in other Collections originating from the Lake.

It should be noted that not all of the collector's material was from Gaspereau Lake. Much like other collectors of the area, some artifacts originated from Salmontail Lake. Of importance a partially grooved gouge dating from the Late Archaic was found. Unfortunately no measurements were taken but the researcher was able to photograph this item.

Corbin Collection List

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1*	Partially grooved gouge	Late Archaic	Basalt	155	41.5	30	Groove length-98 Poll width-35 Bit width-33
2	Adze	Archaic	Basalt	13.5	59	24	Poll-46 Bit-57
3	Grooved plummet	Late Archaic	Basalt	69	27	25.5	Neck-22.5
4	Perforated pendant	Archaic	Slate	98	28	12	

*Gouge was found at Salmontail Lake, not Gaspereau Lake, measurements taken for permanent record.
Note, additional contracting stemmed, Stark-like projectile point is within this collection, see Deal photo No. 11.

Cousins Collection

There is a limited amount of provenience for the Cousins Collection. However, the owner was able to map where some of the artifacts originated from. The majority of the cultural materials were found in the area around the Gaspereau River lake outlet, and are thereby associated with the Erskine(BfDd-5), Dam (BfDd-10), Landing (BfDd-14) and Fish Ladder (BfDd-9)Sites.

The Cousins Collection consists of 20 artifacts. These include one ground stone ulu preform (5%), one ground slate double grooved plummet (5%), one ground stone wedge or bayonet preform (5%), three projectile points (only one of which is whole #5) (15%), four biface or point tips (20%), three bifaces (15%), one piece of worked slate (5%), a drill (5%) and an iron button (4%) which appears to have been inlaid with gold metal (#8).

The numerous ground stone objects (#1,2,3,4), and what appears to be a Susquehanna tradition drill (#20), support an Archaic occupation around the Gaspereau River lake outlet. Additionally, the presence of Ceramic period projectile points (#5,6,7) and a button dating from the Historic period, indicate a continued use of this location throughout time.

Cousins Collection List

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Ground slate ulu blank	Archaic	Slate	181	59	21	Proximal-40 Distal-131
2	Ground slate grooved plummet	Late Archaic	Slate	68	24	13	Neck-1.5 Neck-2.5
3	Perforated pendant	Early Ceramic	Sandstone	54	54	6	
4	Ground stone bayonet blank	Late Archaic	Slate	16.1	51	13.5	Distal thickness-16
5	Straight blade, base and stem, corner-notched point	Late Ceramic	Red/tan chert	54	26	9	
6*	Straight narrow blade corner-notched point	Late Ceramic	Grey/purple chert	50	21	7	
7	Straight blade, straight base expanding base corner-notched point	Late Ceramic	Milky quartz	41	20	6	
8	Iron button inlaid with gold coloured material	Historic	Iron				
9	Biface tip	Unidentified	Chert				
10	Biface piece	Unidentified	Jasper				
11	Biface piece	Unidentified	White chert				
12	Biface/point tip	Unidentified	Chalcedony				
13	Point tip	Unidentified	Quartzite				
14	Biface	Unidentified	Quartzite				
15	Worked piece of slate	Archaic ?	Slate				
16	Endscraper	Unidentified	Jasper				
17	Endscraper	Unidentified	Brown Quartzite				
18	Biface	Unidentified	Milky Quartz				
19	Point tip	Unidentified	Pink chalcedony				
20	Drill	Susquehanna	Yellow chert (heat treated)	53	10	7	

D.A. Collection

Unfortunately, not all of this collection was available for photographing and cataloguing. Equally discouraging was that none of the artifacts were identified to specific find spots, only areas in which cultural materials had been acquired over the course of several years were indicated.

Despite this lack of provenience, areas from which materials were collected corresponded with Schaffer's Camp (BfDd-7), Cement Cross (BfDd-12), the Erskine Site (BfDd-5), the Dam Site (BfDd-10) and the Fish Ladder Site (BfDd-9), the Landing Site (BfDb-14), Burnt Bone Beach (BfDb-8), JL6 (BfDd-13), and Heaven's Door, the Other Side, and the Bottom Out Sites (A98NS15-4, 5 and 8). Among the artifacts available for viewing were numerous Archaic Period materials, including two ridged ulu fragments (#2 and 3), a grooved plummet (#1), a pre-plummet or plummet preform (#8), two grooved axes from the Terminal Archaic (#4 and 5) and a slate wedge-like tool (#6) and a Terminal Archaic projectile point. Other artifacts included: a spokeshave, numerous corner-notched points, side-notched projectile points and point bases, numerous scrapers and bifaces and a fragment of a ground stone gorget (#7). The majority of the projectile points viewed dated from the Ceramic Period. As in other collections, artifacts were made of a variety or raw materials including quartz, different coloured quartzites, jasper and chert.

In addition to material found on the shores of Gaspereau Lake, the collector possessed artifacts from Salmontail Lake. One which photographed was a large adze blade, the presence of which adds to evidence of an Archaic Period occupation.

D. A. Collection

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Grooved Plummet	Late Archaic	Slate	71*	36	11	Neck-25 Head-33
2+	Ridged Ulu Fragment	Early Archaic	Slate	72*	7*	5	
3#	Ridged Ulu Fragment	Early Archaic	Slate	37*	36*	10	
4	Grooved Axe	Susquehanna	Basalt	137	89	48	Poll-88 Bit-66
5	Grooved Axe Preform?	Susquehanna	Quartzite	154	87	27	Poll-80 Bit-85
6	Wedge/Bayonet Preform?	Archaic	Slate	91	8	8	
7	Perforated Gorget Half	Early Ceramic Meadowood	Slate	46*	44	11	
8	Plummet	Late Archaic	Unidentified	87	36	19	Neck-15 Head-17
9	Straight,broad blade, straight stem and base point	Susquehanna	Pink/grey chert	37*	31	8	
10	Convex blade, straight stem and base point	Susquehanna	Quartzite	47	32	8	
11	Bipoint	Unidentified	Quartzite	47	14	12	
12	Broad straight blade, straight stem convex base point	Susquehanna	Quartzite	43	35	6	
13	Convex blade, straight stem and base point	Susquehanna	Quartzite	broken	32	7	

*denotes an incomplete specimen
+this specimen is only a portion of the handle

Gaul Collection

This collection possessed the greatest amount of provenience compared to all others viewed. Locations in which artifacts were found were meticulously recorded and mapped by the collector. This careful documentation allowed the majority of artifacts to be associated with known sites.

Materials from Gaspereau Lake in this collection amount to 82 artifacts, originating from 18 different sites, including sites Schaffer's Camp (BfDd-7), Burnt Bone Beach (BfDd-8), the Landing Site (BfDd-14) the Dam Site (BfDd-10), Cement Cross (BfDd-12), and Heaven's Gate, the Other Side Site, the Bottom Out Site and the Prize Site (A98NS15-4, 5, 8 and 7 respectively). The majority of artifacts were found at the eastern end of the Lake along the north shore, near the outlet for the Gaspereau River. A considerable number also originated from the area of Schaffer's Camp (BfDd-7), which was previously recorded as only a small Ceramic site dating from approximately 500 B. P.+ (Deal 1989b).

In addition to material from Gaspereau Lake, artifacts from Lake Rossignol and Salmontail Lake were held within the collection. Both Lakes have illustrated Archaic Period occupations (Christianson 1985) and in all likelihood possess later ones dating from the Ceramic Periods.

Within the collection there are 21 (26%) projectile points, 17 of which date from the Ceramic period (21%) and two (2%) that date from the Archaic period. There are 26 (32%) scrapers, 17 (21%) bifaces and biface bases, 10 (12%) point and/or biface tips, two (2%) pieces of pottery, five (6%) worked pieces of various types of chert and quartzite, one (1%) drill and six (7%) ground stone artifacts, including two adze fragments, one plummet, one

possible plummet or adze preform one ground slate fragment and one fragment of ground slate. All artifacts are made of a variety of materials including chert, jasper, quartzite, quartz, slate and basalt.

Gaul Collection List, 5A98NS15, Associated with Schaffer's Camp (BfDd-7)

No.	Artifact	Period	Material	Length	Width	Thickness
1	Point tip	Unidentified	Chert			
2	Expanding stem long, narrow blade corner-notched point	Late Ceramic	Black/grey chert	69	218	6
3	Humpback endscraper	Unidentified	Red/pink chert			
4	Point tip	Unidentified	Brown Chert			
5	Biface tip	Unidentified	Jasper			
6	Endscraper	Unidentified	Jasper			
7	Biface tip	Unidentified	Pink/grey chert			
8	Point tip	Unidentified	Quartzite			
9	Worked material	Unidentified	Milky Quartz			
10	Biface tip	Unidentified	Chalcedony			
11	Bipoint	Unidentified	Grey Quartz	78	26	10
12	Straight blade contracting stem point base	Early Ceramic	Chert	60*	29	15
13	Biface tip	Unidentified	Pink/grey white chert			
14	Large, thick endscraper	Unidentified	Brown Chert			
15	Biface tip	Unidentified	Quartzite			
16	Split perforated pendant	Late Archaic	Slate	70	40	7
17	Long narrow blade point tip	Unidentified	Black chert			
18	Small broad blade corner-notched point	Late Ceramic	Quartz			
19	Straight blade, expanding stem, corner-notched point	Late Ceramic	Black Chert	44	22	6.5
20	Hafted endscraper	Unidentified	Milky quartz			
21	Large broad bit hafted endscraper	Unidentified	Milky quartz			

No.	Artifact	Period	Material	Length	Width	Thickness
22	Broad bit hafted endscraper	Unidentified	Tan quartzite			
23	Hafted biface	Unidentified	Grey quartzite			
24	Expanding bit hafted endscraper	Unidentified	Milky quartz			
25	Hafted endscraper	Unidentified	Milky quartz			
26	Expanding bit hafted endscraper	Unidentified	Milky quartz			
27	Large broad bit triangular endscraper	Unidentified	Grey quartz			
28	Expanding bit hafted endscraper	Unidentified	Milky quartz			
29	Expanding bit hafted endscraper	Unidentified	Grey quartz			
30	Humpback expanding bit, hafted endscraper	Unidentified	Brown mottled chert			
31	Humpback thick bit endscraper	Unidentified	Pink chert			
32	Biface base	Unidentified	Pink chert			
33	Hafted endscraper	Unidentified	Jasper			
34	Large, thick expanding bit, endscraper	Unidentified	Pink/grey chert			
35	Thin endscraper	Unidentified	Pink/grey/ brown chert			
36	Large, expanding bit, hafted endscraper	Unidentified	Red quartzite			
37	Neck and rim pottery shard	Late Ceramic				

No.	Artifact	Period	Material	Length	Width	Thickness
38	Biface base	Unidentified	Black chert with white crystal inclusions			
39	Biface base	Unidentified	Grey quartzite			
40	Long narrow, steep bit, hafted endscraper	Unidentified	Grey/black mottled chert			
41	Short, broad blade, contracting stem, straight base point	Middle Ceramic	Grey/brown quartzite	28	19.5	5
42	Thick broad blade, convex base biface	Unidentified	Grey quartzite	55	34	16
43	Broad convex blade, expanding stem, corner-notched point	Late Ceramic	Chalcedony	55	22.5	6.5
44	Biface	Unidentified	Quartzite			
45	Long thick humpback, hafted endscraper	Unidentified	Purple/red chert			
46	Short, broad blade biface	Unidentified	Red/grey chert			
47	Plummet/Axe preform ?	Archaic	?	107	71	43

Gaul Collection, 6A98NS15, Associated with Cement Cross (BfDd-12)

No.	Artifact	Period	Material	Length	Width	Thickness
1	Biface base	Unidentified	Grey quartzite			
2	Long narrow straight blade point (base missing)	Ceramic (may have) been corner-notched)	Tan/brown chert		17	8
3	Biface base	Unidentified	Burgundy quartzite			
4	Long narrow thick endscraper	Unidentified	Chalcedony			
5	Steep bit hafted endscraper	Unidentified	Amber quartz			

Gaul Collection, 7A98NS15, Associated with Burnt Bone Beach (BfDd-8)

No.	Artifact	Period	Material	Length	Width	Thickness
1	Drill	Un- identified	Pink/grey chert	47	21.5	11
2	Convex blade straight stem and base	Archaic	Quartzite	56	26	9
3	Convex blade contracting stem point	Early/ Middle Ceramic	Milky quartz	41	21	9

Gaul Collection, 11A98NS15, Associated with Black Island

No.	Artifact	Period	Material	Length	Width	Thickness
1	Grooved plummet	Late Archaic	Granite	67	34	30

Gaul Collection, 14A98NS15, Associated with Stovepipe Island

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Biface	Unidentified	Grey quartzite				
2	Heat treated piece of chert	Unidentified	Red/black chert				
3	Convex blade straight stem and base Point	Late Archaic	Brown/rust/ grey quartzite	48	20	6	
4	Broad convex blade point Tip	Unidentified	Grey/blue/ brown quartzite				
5	Convex blade expanding stem corner-notched point	Late Ceramic	Milky quartzite	33	23	6	
6	Expanding bit Hafted endscraper	Unidentified	Chalcedony				appears to have been heat treated
7	Large convex blade straight base biface	Unidentified	Chalcedony red/grey/ white				
8	Worked piece of chert-biface preform?	Unidentified	Quartzite				

Gaul Collection, 16A98NS15, Associated with the Landing (BfDd-14) and the Fish Ladder (BfDd-9) Sites

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Adze blade	Archaic	Basalt	141	54	23	Poll-53 Bit-50

Gaul Collection, 17A98NS15, Associated with Schaffer=s Camp (BfDd-7)

No.	Artifact	Period	Material	Length	Width	Thickness
1	Straight, long broad blade point (stem missing)	Ceramic	Milky quartz	44	25	7

Gaul Collection, 18A98NS15, Associated with Combined Site Area 7982

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Expanding bit endscraper	Unidentified	Jasper				
2	Broad blade expanding stem corner- notched point	Late Ceramic	Red/grey chert				
3	Convex broad blade expanding stem corner-notched point	Middle Ceramic	Grey/ black chert	42.5	20	8.5	
4	Thick biface tip	Unidentified	Quartzite				
5	Worked piece of chert	Unidentified	Red/ brown/ white chert				
6	Narrow blade biface	Unidentified	Pink/grey/ red chert				
7	Long narrow blade straight stem point	Late Archaic	Quartzite	51	18	8	
8•	Prehistoric pottery	Ceramic					Neck piece

Gaul Collection, 19A98NS15, Isolated Artifact Find

No.	Artifact	Period	Material	Length	Width	Thickness
1	Hafted endscraper	Unidentified	Milky quartz			

Gaul Collection, 20A98NS15, Associated with Combined Site Area of 7982

No.	Artifact	Period	Material	Length	Width	Thickness
1	Biface base	Unidentified	Grey quartzite			
2	Straight blade slightly convex base expanding stem corner-notched point	Late Ceramic	Grey quartzite	42	19	5
3	Long narrow straight blade straight base expanding stem corner- notched point	Late Ceramic	Grey quartzite	45	20	7
4	Broad straight blade and stem slightly convex base point	Terminal Archaic	Brown quartzite	75	34.5	8.5
5	Biface, unstemmed, unnotched	Paleoindian	Grey/ brown chert	41	23	7
6	Worked piece	Unidentified	Milky quartz			
7	Fragment of ground slate pendant	Archaic	Slate	55	19	6
8	Small narrow blade expanding stem corner-notched point	Late Ceramic	Burgundy chert	17.5	9	
9	Worked debitage	Unidentified	Grey/pink quartzite			
10	Thumbnail endscraper	Unidentified	Grey chert			
11	Point preform	Unidentified	Milky quartz	31	13.5	
12	Long narrow straight blade stem and base point	Unidentified	Black chert	38	16	7
13	Broad blade biface	Unidentified	Quartzite			
14	Adze bit	Archaic	Basalt	70	54.5	15

Gaul Collection, 21A98NS15, Isolated Artifact

No.	Artifact	Period	Material	Length	Width	Thickness
1	Biface	Unidentified	Milky quartz			

Alder Collection

The Alder Collection was created in conjunction with the Gaul Collection, as artifacts were collected when fishing together at the Lake. Unlike the Gaul Collection though, there is not a similar level of provenience. It was only possible to associate artifacts with the Schaffer's Camp Site (BfDd-7) at the North River, all other artifacts could not be linked to specific areas of discovery.

Overall, the Alder Collection possesses a wide range of artifacts from a variety of time Periods. There is a total of 61 artifacts, of which 37 (61%) came from the Schaffer's Camp Site (BfDd-7) area. Identification of artifacts illustrates there are nine (15%) bifaces, nine (15%) scrapers, seven (12%) whole projectile points, three (5%) projectile point bases, one (2%) biface tip, one (2%) point preform, one (2%) Historic period pipe bowl, one (2%) drill, three (5%) pottery sherds, one (2%) fragment of slate, an (2%) adze blade and a (2%) grooved plummet.

Although a variety of Periods are represented within this Collection, similar to Gaul Collection artifacts from this area, the Archaic Period is strongly represented. Dating from the Late Archaic are a ground stone adze, a plummet, a Terminal Archaic (#75) period drill and two Terminal Archaic projectile points (#72,79). While additional Archaic Period materials were found amongst the unprovenienced artifacts, the majority originated from the Ceramic period (#7,8,17,18,19).

Similar to other local Collections, a variety of lithic raw material types were represented, including milky quartz, quartzite, jasper, chert, slate and basalt.

Alder Collection List, Associated with Gaul's 5A98NS15 (Schaffer's Camp, BfDd-7)

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
48	Grooved plummet	Late Archaic	Basalt	87	42	27	Neck-24 Head-20.5
49	Adze blade	Late Archaic	Basalt	143	42	12	Poll-36 Bit-37
50	Long narrow convex blade and base expanding stem corner-notched point	Late Ceramic	Red/brown chert	66	25.5	7	
51	Biface	Unidentified	Quartzite				
52	Thumbnail hafted endscraper	Unidentified	Red chert				
53	Preform/biface tip ?	Unidentified	White/ brown/ black quartz				Striations Present
54	Slate fragment	Archaic	Slate				
55	Convex blade concave base possible fluting point	Paleoindian	Brown quartzite	60	30	10	Large flakes Removed from base for Thinning
56	Broad blade biface	Unidentified	Banded chert				Base broken
57	Expanding bit hafted endscraper	Unidentified	Black/ purple quartzite				Poll looks Burnt
58	Biface/point preform?	Unidentified	Grey chert				
59	Biface tip missing	Unidentified	Banded black and grey chert				Heat treated
60*	Prehistoric pottery	Ceramic					
61* •	Prehistoric pottery	Ceramic					
62* ••	Prehistoric pottery	Ceramic					
63	Humpback steep bit endscraper	Unidentified	Jasper				

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
64	Long narrow blade biface	Unidentified	Pink Chert				
65	Narrow blade biface	Unidentified	Tan/grey chert				
66	Thumbnail hafted endscraper	Unidentified	Milky quartz				
67	Steep bit thumbnail endscraper	Unidentified	Red/black chert				
68	Wide bit endscraper	Unidentified	Brown/blac k chert				
69	Biface	Unidentified	Milky quartz				Tip missing
70	Large thick biface	Unidentified	Milky quartz				Base broken
71	Small thin narrow blade biface	Unidentified	Brown/grey chert				
72	Asymmetrical broad blade straight stem convex base point	Terminal Archaic	Quartzite	73	39	11	
73	Long narrow straight base and blade expanding stem wide corner-notched point	Middle Ceramic	Grey/ brown/ red chert	56	19	5	
74	Large expanding bit endscraper	Unidentified	Unidentified				
75	Drill	Terminal Archaic	Grey quartzite	48	17.5	8	Tip missing
76	Hafted thumbnail endscraper	Unidentified	Jasper				
77	Thumbnail endscraper	Unidentified	Jasper				
78	Narrow blade expanding stem corner-notched point base	Late Ceramic	Grey/black quartzite				

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
79	Asymmetrical blade expanding stem convex base point	Terminal Archaic	Grey quartzite	56	26	9	
80	Straight broad blade expanding stem corner-notched point	Late Ceramic	Black/white rhyolite?	39	20.5	8	
81	Broad straight blade corner-notched convex base point	Terminal Archaic	Pink chert	50	29	7	
82	Straight blade small expanding stem corner-notched point base	Late Ceramic	Brown/ black chert				
83	Broad straight blade and stem point base	Terminal Archaic	Quartzite				
84	Fragment of convex blade point	Unidentified	Slate				
85	Ceramic pipe bowl	Historic					Stains from burning on inside

60*Pottery sherd-cord-wrapped stick impressions, grit temper, may have a been a portion of a lug.
61*Pottery sherd-cord wrapped stick impressions, body piece, interior smoothed, fine grit temper.
62*Pottery sherd-medium grit temper, interior smoothed, dragging decorations on exterior.

Alder Collection, 22A98NS15, Isolated Artifact

No.	Artifact	Period	Material	Length	Width	Thickness
1	Broad straight blade and base side-notched point	Early Ceramic Meadowood	Jasper	25*	20	4
2	Straight narrow blade expanding stem corner-notched point	Late Ceramic	Milky quartz	44	19	5.5
3	Steep bit hafted thumbnail endscraper	Unidentified	Jasper			
4	Expanding steep bit thumbnail endscraper	Unidentified	Brown/black chert			
5	Expanding steep bit hafted endscraper	Unidentified	Tan chert			
6	Expanding steep bit hafted endscraper	Unidentified	Unidentified			
7	Broad blade expanding stem corner-notched point	Late Ceramic	Milky quartz			
8	Broad blade expanding stem corner-notched point base	Late Ceramic	Quartzite			
9	Steep bit hafted humpback endscraper	Unidentified	Unidentified			
10	Biface	Unidentified	Jasper			
11	Biface	Unidentified	Pink/white quartz			
12	Broad blade straight stem point	Middle Ceramic	Red chert			

No.	Artifact	Period	Material	Length	Width	Thickness
13	Mid-section of point of chert	Unidentified	White/grey quartzite			
14	Worked piece of chert	Unidentified	Chert			
15	Blade ?	Unidentified	Quartzite			
16	Worked piece of chert	Unidentified	Chert			
17+	Prehistoric pottery	Ceramic				
18	Narrow straight blade convex base expanding stem corner-notched point	Late Ceramic	Pink quartzite	42	17	6.5
19	Broad straight blade and base corner-notched point	Late Ceramic	Quartzite	40	20	5
20	Unstemmed unnotched concave base blade/point	Paleoindian	White chert	91	39	9
21	Worked piece of igneous rock	Unidentified	Basalt			

*Denotes an incomplete specimen.
+Prehistoric Pottery Sherd-undecorated body sherd, coarse grit temper, smooth interior and exterior.

Jim Legge Collection

With 178 artifacts from Gaspereau Lake alone, this is the largest collection of artifacts from Gaspereau Lake. All artifacts are associated with specific areas, all which correspond to recorded sites, including the Erskine (BfDd-5), Dam (BfDd-10), the Landing (BfDd-14) and Fish Ladder Sites (BfDb-9), Heaven's Door, Other Side and the Bottom Out Sites (A98NS15-4,5, and 8), Burnt Bone Beach (BfDb-8), Cement Cross (BfDd-12), and JL6 (BfDb-13). The majority of artifacts originate from the area of the Gaspereau River lake outlet.

Due to the size of the collection, only a general overview of it is given. Overall, artifacts span the entire prehistoric time period, there are numerous examples of gouges, slate points, projectile points, grooved axes, adzes, plummets, pottery shards, scrapers and bifaces were seen, the majority of which are almost or entirely complete.

The array of raw materials which the artifacts were made of is also similar to other collections with various quartzites, chert, jasper and quartz being present as well as slate and igneous rock.

Legge Collection List, BdDf-1, AssociatedwithCombined Site Area of 7982

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Water worn pebble	Unidentified	Unidentified	147.5	71	33	
2	Biface	Unidentified	Quartzite	64	26	13	
3	Endscraper	Unidentified	Tan chert	19	19	6	
4	Side-notched straight blade point	Early Ceramic Meadowood	Chalcedony	35	16.5	6	
5	Straight stem and base point stem	Susquehanna	Silt stone				
6	Perforated whetstone fragment	Late Archaic	Slate		31.5	5	
7	Straight base narrow side-notched point	Late Ceramic	Milky quartz	31*	20	5	
8	Convex blade striaght base fluted point	Paleoindian	Tan quartzite	63.5	31	10	
9	Convex blade and base fluted point	Paleoindian	Chert	54	27	9	
10	Convex blade contracting stem convex base point	Early Ceramic Adena	Black/white banded quartzite	56.5	23	8	
11	Expanding stem corner-notched point	Late Archaic	Pink quartzite	52	30	9	
12	Wide convex blade contracting stem and base point	Middle Ceramic	Chalcedony	39	24	8	
13	Side-notched slightly convex base point	Late Archaic	Silt stone	42*	19	5	

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
14	Ground slate bayonet fragment	Late Archaic	Slate	31.5*	27	7	
15	Side-notched contacting stem point	Early Ceramic Adena	Quartzite	57*	25	7	
16	Contracting stem straight blade point	Early/Middle Ceramic Tusket	Milky quartz	41.5	20	7.5	
17	Broad convex blade point	Susquehanna	Quartzite	38	28	11.5	
18	Straight blade contracting stem point	Early/Middle Ceramic Tusket	Quartzite	34.5	26.5	6	
19	Broad straight stem, base and blade point	Susquehanna	Quartzite	57	34	8	
20	Convex blade expanding stem corner-notched convex base point	Middle Ceramic	Jasper	52.5	28	7	
21	Narrow convex blade biface	Unidentified	Brown quartzite	53	16	7	
22	Ground slate point base	Late Archaic	Slate	45*	30.5	5	Blade-22 Stem Width-22
23	Incised ground stone gorget fragment	Early Ceramic Meadowood	Slate	41	40	8.5	
24	Convex blade convex base point or biface	Unidentified	Chert	52	29	13	
25	Point tip	Unidentified	Tan quartzite	35*	19	7	
26	Biface	Unidentified	Silt stone	52.5	22	6	
27	Biface	Unidentified	Tan quartzite				
28	Long narrow blade biface	Unidentified	Chert	70	29	7	

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
29	Straight broad blade contracting stem point	Early/Middle Ceramic Tusket	Quartzite	44*	26	5	
30	Broad blade, leaf shaped biface contracting stem point	Unidentified Ceramic	Quartzite quartz	74	39	11.5	
31	Long narrow contracting stem point	Early Ceramic	Milky quartz	54	21	11	
32	Biface preform	Unidentified	Quartzite	55	33	12	
33	Steep bit endscraper	Unidentified	Jasper	26	22	6	Bit-5 Bit Angle-80
34	Carinated endscraper	Unidentified	Black/red quartzite	27	20	10	Bit-4 Bit Angle-60
35	Hafted endscraper	Unidentified	Chert	21.5	18	6	Bit-6 Bit Angle-70
36	Adze blade	Archaic	Basalt	88*	43	16	
37	Contracting stem broad blade point	Early/Middle Ceramic Tusket	Milky quartz	36.5	25	10	
38	Biface	Unidentified	Tan quartzite	46	23	7	
39	Endscraper	Unidentified	Grey/pink chert	36	21	7	Bit-5 Bit Angle-70
40	Endscraper	Unidentified	Purple/grey/ white chert	30	24	7	Bit-5.5 Bit Angle-70
41	Expanding bit enscraper	Unidentified	Grey/pink/ purple chert	55	26	13	Bit-6 Bit Angle-70
42	Possible chopper	Unidentified	Quartzite	58	30	9	
43	Adze bit	Archaic	Basalt	43*	52.5	25.5	
44	Utilized flake	Unidentified	Jasper	43	17	5	
45	Long narrow biface	Unidentified	Pink/grey/ white chert	68	26.5	8	
46	Convex blade side-notched point	Early/Middle Ceramic Tusket	Milky quartz	44	18	6	

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
47	Convex blade straight base expanding stem point	Early/Middle Ceramic	Quartzite	55	23	5.5	
48	Contracting stem point	Ceramic	Quartzite	51*	23	7	
49	Broad straight blade and stem point	Late Archaic	Quartzite	51	26	8	
50	Biface of preform	Unidentified	Chert	79.5	26	13.5	
51	Broad straight stem and blade point	Susquehanna	Milky quartz	68	31	8	
52	Narrow convex blade expanding stem corner-notched point	Late Ceramic	Grey/brown quartzite	64	24	7.5	
53	Drill	Unidentified	Grey/pink chert	58	12	8	
54	Narrow bit expanding base drill	Susquehanna	Grey/pink chert	64	19	9	

Legge Collection, BfDd-2, Associated withCombined Sites of A98NS15-4,-5,-8

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Slate bayonet	Late Archaic	Slate	164	35	6	
2	Slate bayonet	Late Archaic	Slate	129	34	7	
3	Grooved axe	Susquehanna	Quartzite	227	137	33	Poll-132 Bit-102
4	Broad blade straight stem point	Susquehanna	Brown/black quartzite	84	43	9	
5	Straight narrow blade contracting stem point	Early/Middle Ceramic	Grey quartzite	50	19	6.5	

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
6	Small broad convex blade point, stem gone	Unidentified	Milky quartz	25*	17	6	
7	Preform	Unidentified					
8	Grooved hand maul	Ceramic?	Granite	97	69	69	Poll-68 Bit-55
9	Grooved axe	Susquehanna	Basalt	179	80	35	Poll-56 Bit-78
10	Partially grooved gouge	Early/Middle Archaic	Basalt	134	52	33	Poll-43 Bit-43.5
11	Broad straight blade and stem point	Early Ceramic	Quartzite	39	26	7	
12	Biface	Unidentified					
13	Side-notched point base	Middle Ceramic	Quartzite				
14	Broad convex blade expanding stem side-notched convex base point	Late Ceramic	Milky quartz	48	28	9	
15	Straight narrow blade contracting stem point	Early/Middle Ceramic Tusket	Milky quartz	58	21	8	
16	Small convex blade contracting stem point	Early Ceramic	Milky quartz	38	19	8	
17	Long narrow blade straight stem point	Late Archaic	Brown quartzite	82	23	7	
18	Endscraper	Unidentified	Jasper				
19	Endscraper	Unidentified	Jasper				

Legge Collection, BfDd-3, Associated with Stovepipe Island

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Plummet	Late Archaic	Basalt	98	50	34	Head Width-17.5 Neck Width-16
2	Adze blade	Late Archaic	Basalt	159*	68	41	Poll-51 Bit-59

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
3	Plummet	Late Archaic	Quartizite	63	38.5	27	Head Width-19 Neck Width-17
4	Perforated whetstone	Late Archaic	Quartizite	112		11	Proximal Width-44.5 Distal Width-19
5	Biface, leaf shaped	Unidentified	Quartizite	120	75	13.5	
6	Ovid shaped endscraper	Unidentified	Jasper	88	35	14	Bit-9 Bit Angle-70
7	Biface	Unidentified	Quartizite	52	26	11	
8	Humpback endscraper	Unidentified	Chalcedony	42	24.5	17	Bit-6 Bit Angle-80
9	Waterworn pebble	Unidentified	Quartizite	53	44	28	
10	Long narrow convex base point	Middle Ceramic	Grey quartzite	68	24	9	
11	Biface,tear shaped	Unidentified	Chert	56	31.5	14	
12	Long narrow biface	Unidentified	Grey quartzite	72	25	6	
13	Straight blade contracting stem point	Early Ceramic	White quartzite	72	27	10	
14	Steep bit, hafted endscraper	Unidentified	Jasper				
15	Convex blade expanding stem wide side-notched point	Middle Ceramic	Brown quartzite	80*	33	11	
16	Small narrow blade expanding stem wide side-notched point	Middle Ceramic	Pink quartzite	44	18	7	
17	Narrow blade concave base side-notched point	Late Archaic	Pink quartzite	45	17	5	
18	Narrow blade straight base contacting stem point	Late Archaic Maritime	Pink quartzite	53.5	19	6	
19	Biface/point?	Unidentified	Quartizite	40.5	15	4.5	
20	small, long, narrow Long narrow blade straight stem point	Late Archaic Maritime	Quartizite	67	24	6	

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
21	Narrow convex blade straight base side-notched point	Middle Ceramic	Chert	64	21	7	
22	Biface	Unidentified	Quartizite	48	23.5	8	
23	Biface	Unidentified	Quartizite	44*	19	7	
24	Convex blade straight stem and base point	Middle Ceramic	Quartizite	41	21	6	
25	Long narrow point	Unidentified	Grey/brown quartzite	51	18	4.5	
26	Broad convex blade expanding stem, wide side-notched point	Middle Ceramic	Pink/purple quartzite	42	19	4.5	
27	Long narrow straight blade corner-notched point	Late Ceramic	Grey/black chert	45	19.5	6	
28	Long narrow concave base point	Paleoindian?	Chert	62	22*	7	possible fluting
29	Straight stem and base point base	Archaic?	Quartizite		23	6.5	
30	Narrow blade straight stem point	Early/Middle Ceramic	Quartizite	46	19	5	
31	Asymmetrical blade contracting stem point	Ceramic	Pink quartzite	45	17	6	
32	Biface	Unidentified	Grey/pink chert	58	20	7	
33	Biface	Unidentified	Pink quartzite	44	26	8	
34	Hafted endscraper	Unidentified	Black/red quartzite	43	21.5	8	
35	Biface	Unidentified	Tan quartzite	51	50	10	
36	Biface	Unidentified	Quartizite	44	22	7	
37	Debitage	Unidentified	Quartizite				
38	Biface	Unidentified	Grey quartzite	53.5	16.5	5	

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
39	Endscraper	Unidentified	Tan quartzite	29	27	8	Bit-7 Bit Angle-80
40	Ground stone rod	Early/Middle Archaic	Slate	68*	20	8	Neck Width-13 Head Width-14
41	Rod fragment	Early/Middle Archaic	Slate	75*	16	7	Proximal Width-17.5 Distal Width-13
42	Straight blade contracting stem point	Early/Middle Ceramic Tusket	Chert				

Legge Collection, BdDf-4, Associated with Cement Cross (BfDd-12)

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Full-channelled gouge	Early/Middle Archaic	Basalt	146	42	27	Groove Length-140
2	Full-channelled gouge	Early/Middle Archaic	Basalt	94	39	28	Groove Length-94
3	Grooved axe	Susquehanna	Basalt	159*	63.5*	11	Groove Length-48
4	Rod	Early/Middle Archaic	Slate	125*	19	8	
5	Ground slate atlatl	Late Archaic	Slate	93.5	54	10	
6	Broad blade straight stem point	Susquehanna	Chalcedony	55	35	7	
7	Full-channelled gouge	Early/Middle Archaic	Basalt	180	52	32	Groove Length-165
8	Full-channelled flared bit gouge	Early/Middle Archaic	Basalt	88*	40	14	Groove Length-85
9	Adze blade	Archaic	Basalt	164*	54	28	
10	Grooved axe	Susquehanna	Basalt	113*	92	37	Groove Length-79
11	Plummet	Late Archaic	Basalt	86	48	37	Neck Width-19 Head Width-21
12	Plummet	Late Archaic	Basalt	84	41	36	Neck Width-16 Head Width-14
13	Pre-plummet	Late Archaic	Quartzite?	69	29.5	11	Groove Width-23

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
14	Ground slate point	Late Archaic	Slate	102	33	6	
15	Ground slate gorget	Early Ceramic Meadowood	Slate	110	32	10	Proximal Width-44 Distal Width-35
16	Ground stone pendant/whetstone	Late Archaic	Igneous rock?	111	64	14	
17	Long narrow blade side-notched point	Middle Ceramic	Quartzite	78	25	5	
18	Broad blade straight stem point	Susquehanna	Milky quartz	69	38	8	
19	Broad blade convex base point	Early Ceramic Adena	Silt stone	61	28	8	
20	Broad blade short contracting stem point	Early Ceramic	Quartzite	41	22	7	
21	Whetstone	Late Archaic	Basalt	171	34	10	Proximal Width-28 Distal Width-27
22	Adze blade	Archaic	Basalt	11.5	41	28	
23	Broad blade expanding stem side-notched point	Late Ceramic	Milky quartz	35.5	28	6	
24	Straight stem broad blade point	Early/Middle Ceramic	Quartzite	40	19	7	
25	Long straight narrow blade contracting stem point	Early/Middle Ceramic	Silt stone	82.5	26	12	
26	Wide blade side-notched point	Middle Ceramic	Silt stone	37*	20	13	
27	Short broad blade contracting stem straight base point	Early Ceramic	Milky quartz	28	16*	6	
28	Straight edge blade	Slate?	58*	17			
29	Biface	Unidentified	Chalcedony				
30	Large thick biface	Unidentified	Quartzite	62	28.5	14	
31	Flake	Unidentified	Red/white quartzite				
32	Adze preform	Archaic	Basalt	148	59	35	

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
33	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	71	17.5	8	
34	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	56	16	9	
35	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Milky quartz	55	14	7.5	
36	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	77	18	9	
37	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	46.5	18	8	
38	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	50.5	17	8	
39	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	48	17	10	
40	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	49	15	8	
41	Long narrow straight blade and stem point	Early/Middle Ceramic Tusket	Quartz	31	21	9	
42	Convex blade contracting stem point	Early Ceramic	Milky quartz	38.5	17	5	
43	Broad blade contracting stem short point	Early Ceramic	Milky quartz	38	21	7	
44	Broad blade contracting stem convex base point	Early Ceramic	Chert	46	24	9	
45	Endscraper	Unidentified	Jasper	31	26.5	8	
46	Broad blade contracting stem point	Early/Middle Ceramic	Chert	42	26	13.5	
47	Adze blade	Archaic	Basalt	243	58	28	Poll Width-44 Bit Width-54

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
48	Bipoint/biface?	Unidentified	Chert	71	16	10	
49	Broad blade contracting stem point	Early/Middle Ceramic	Jasper	47	30	10	
50	Adze blade	Archaic	Basalt	166	51	28	
51	Corner-notched point	Late Ceramic	Jasper				
52	Straight blade and stem point	Ceramic	Milky quartz				
53	Large battered rock	Unidentified	Jasper				
54	Endscraper	Unidentified	Quartzite				
55	Endscraper	Unidentified	Red chert				

Legge Collection, BdDf-5, Associated with Burnt Bone Beach (BfDd-8)

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Long narrow straight stem and base point	Early/Middle Ceramic Tusket	Quartzite	61	18	7	
2	Perforated whetstone	Late Archaic	Unidentified	21		9	Proximal Width-56 Distal Width-26
3	Broad straight blade contracting stem point	Early/Middle Ceramic	Quartzite	50	31	9	
4	Biface,long narrow convex blade straight base	Possible Meadowood cache blade	White chert	115	37	11	
5	Adze blade	Late Archaic	Basalt	195	67.5	45	Poll-45 Bit-69
6	Contracting stem point base	Early/Middle Ceramic	Quartzite	44*	22	6	
7	Convex blade expanding stem wide side-notched straight base point	Middle Ceramic	Milky quartz	38*	21	8	
8	Convex blade corner-notched point	Late Ceramic	Black quartzite	46.5	25.5	6	
9	Endscraper	Unidentified	Milky quartz				

Legge Collection, BdDf-6, Associated with JL6 Site (BfDd-13)

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Convex blade contracting stem Point	Early Ceramic	Red/grey quartzite	52	20	4.5	
2	Convex blade side-notched straight base point	Early Ceramic Meadowood	Grey/brown/ tan chert	56	21	6	
3	Partially grooved Gouge	Late Archaic	Basalt	168	40.5	39	Poll Width-24 Bit Width-39 Groove Length-75
4	Celt	Archaic	Basalt	119	47	24	Poll Width-37 Bit Width-54
5	Broad convex blade straight stem and base Point	Susquehanna	Milky quartz	79*	37	8	
6	Blade tool?	Unidentified	Black slate?	43.5*	16.5	4	
7	Chopper	Unidentified	Milky quartz				
8	Biface	Unidentified	Black quartzite	100	33	10	

Long Collection

The Long collection is one of the smaller collections viewed containing only 38 artifacts, 17 of which originated from the Melanson site (BgDb-1/2/3/4/5/7). All remaining artifacts (N=21) originated from along the Gaspereau Lake shore, but no additional provenience exists for any of these artifacts.

Material from Gaspereau Lake includes six (24%) projectile points (only two #1 and 7 are whole, the remainder are point bases), nine bifaces and biface tips (38%), and six (24%) end scrapers. From Melanson there are four (24%) decorated pottery shards, two of which are rim pieces (#25 and 23), three projectile points, two point tips (12%), four bifaces (24%), one clay Historic period pipe bowl (6%), and three end scrapers (18%).

The material from the Lake contains what appears to be a Late Archaic eared-notched point (#1) of milky quartz. There are also five examples of Ceramic period projectile points (#2,4,7,9, and 10). No other artifacts are culturally diagnostic, and similar to other Collections, artifacts were made of different coloured quartzite, chert, jasper, and milky quartz.

2A98NS15, No provenience beyond Gaspereau Lake Association

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
1	Point tip	Early Ceramic Meadowood	Milky quartz	31	1/7	4	
2	Straight blade contracting stem point	Early/ Middle Ceramic	Grey quartzite	49	1/7	7	
3	Unstemmed un-notched biface/ point	Unidentified	Black chert?	40	2/4	7	
4	Straight stem and blade point base	Middle Ceramic	Milky quartz				
5	Thick bit endscraper	Unidentified	Jasper				
6	Biface	Unidentified	Milky quartz				
7	Convex blade contracting stem point	Early Ceramic	Grey quartzite	49	2/5	9	
8	Endscraper	Unidentified	Jasper				
9	Broad blade straight base corner-notched point base	Late Ceramic	Grey quartzite				
10	Broad blade straight base corner-notched point base	Late Ceramic	Milky quartz				

11	Broad blade biface tip	Unidentified	Milky quartz				
12	Biface tip	Unidentified	Tan/ black chert				
13	Expanding bit endscraper	Unidentified	Pink chert				
14	Biface	Unidentified	White/ purple chert				
15	Thick endscraper	Unidentified	Milky quartz				-cortex still on outer surface
16	Thumbnail endscraper	Unidentified	Grey/ purple chert				
17	Expanding bit endscraper	Unidentified	Grey chert				
18	Large biface	Unidentified	Quartzite				
19	Biface	Unidentified	Milky quartz				
20	Biface	Unidentified	Milky quartz				-base broken
21	Biface	Unidentified	Milky quartz	74	33	9	

2A98NS15 , Associated with Melanson

No.	Artifact	Period	Material	Length	Width	Thickness	Miscellaneous
22	Broad straight blade and base corner-notched point	Late Ceramic	Grey/red chert				
23	Decorated pottery	Ceramic					-dentate stamping
24	Decorated pottery rim	Ceramic					-punctates with cord-wrapped interior
25	Decorated pottery rim	Ceramic					-punctates with decorated rim
26	Decorated pottery	Ceramic					-interior and exterior cord-wrapped
27	Point tip	Unidentified	Quartzite				
28	Point tip	Unidentified	Jasper				
29	Broad blade convex base corner-notched point	Late Ceramic	Milky quartz				
30	Clay trade pipe bowl fragment	Historic					
31	Biface base	Unidentified	Red chert				
32	Endscraper	Unidentified	Jasper				
33	Biface base	Unidentified	Milky quartz				
34	Biface	Unidentified	Milky quartz				
35	Straight stem point	Unidentified	Milky quartz				
36	Endscraper	Unidentified	Milky quartz				
37	Biface base	Unidentified	Milky quartz				

38	Endscraper	Unidentified	Jasper

Redden Collection

Similar to many Collections, no catalogue could be created. Aiding research though, the collector was able to identify the areas from which the artifacts were collected. Therefore, it was possible to establish site associations and Military Grid coordinates for some artifact find spots.

Most of the Collection's cultural materials originated from the area near the Gaspereau River lake outlet. Artifacts from this location included a Early/Middle Archaic fully channelled gouge (#1), a Late Archaic pre-plummet (#4), a Late Archaic ground slate point tip, a perforated pendant (#2); Terminal Archaic broad bladed points and Ceramic Period projectile points. In addition to material from Gaspereau Lake, this Collection possesses artifacts from Salmontail Lake, such as a grooved plummet and Ceramic Period points. There was not opportunity to catalogue the entire collection, and thus, no specific count can be given of the total number of artifacts.

A98NS15 Redden Artifacts, Associated with various areas at Gaspereau Lake

1	Fully-channeled gouge	Early/ Middle Archaic	Basalt	150	49	28	Poll-40 Bit-47	788827 or 790826
2	Ground slate perforated pendant	Early Ceramic	Slate	82	12	9		790826
3	Ground slate point tip	Late Archaic	Slate	57	10	5		790826
4	Preplummet	Late Archaic	Chert	72	31	10		791827
5	Ground slate convex base point	Late Archaic	Slate		19		Notch-width-12	790826
6	Ground slate object	Late Archaic	Slate					790826
7	Drill	Susquehanna	Chert	65	24	9	Blade width-15 Base width-19	
8	Convex blade, expanding base, narrow corner-notched ground slate point	Late Ceramic	Slate	38	19	3		790826
9	Narrow blade straight stem, round base point	Archaic ?	Grey chert	39	13	5		
10	Broad convex blade, corner-notched point	Middle Ceramic	Red/brown chert	65	37	7		792826
11	Ground stone object	Late Archaic ?	Basalt	56	54	21		792826

Note- Additional Susquehanna point identified to area 790826 which was unmeasured.