Nova Scotia

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Curatorial Report Number 67

Melanson: A Large Micmac Village in Kings County, Nova Scotia

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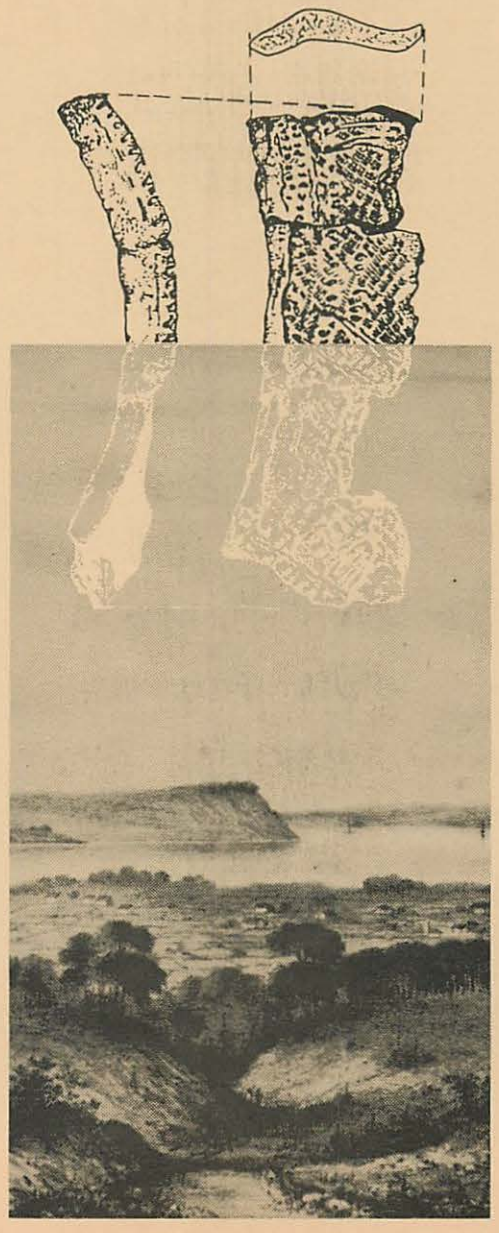
Ronald J Nash
and
Frances L Stewart



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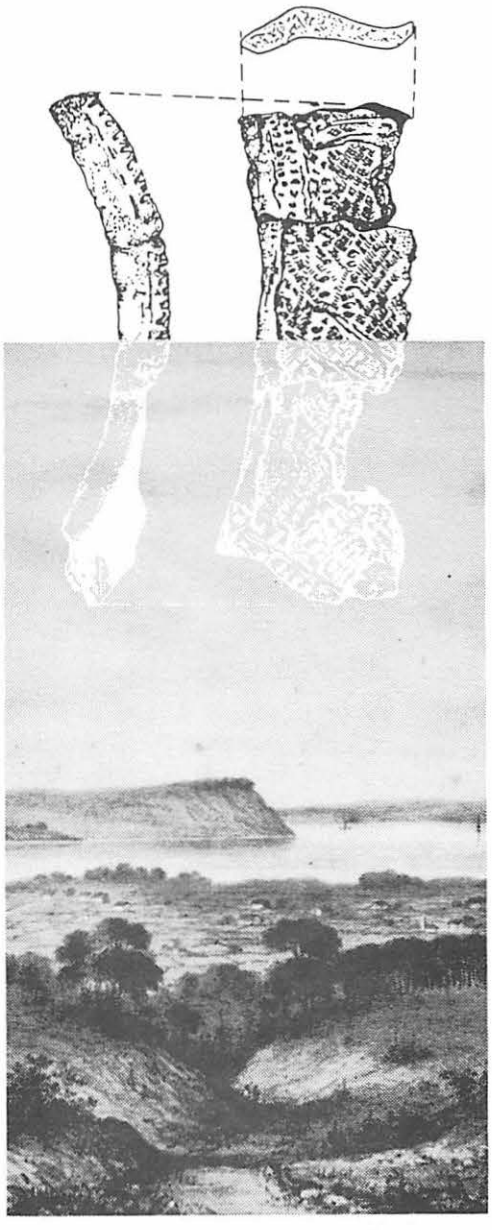

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Abstract

The Melanson Site (BgDb-7) is a Ceramic Age village on the Gaspereau River in Kings County, Nova Scotia. While known to collectors and archaeologists for some time, the site remained an unknown entity, curiously large in size and unconnected to the arrival of the Acadians. The Melanson project was initiated in 1985 and involved excavations in 1986 on the western end of the site. The project sought to define the economic base of the village and to comprehend its patterns of growth.

Ecological examination of the Gaspereau catchment area plus the recovery of a good floral sample and small faunal sample indicate primary reliance on the spring fish runs coupled with a variety of secondary economic pursuits. Analysis of the material culture reveals a typically Micmac occupation spanning the last 2000 years. During this time, the Middle and Late Ceramic Periods, the village apparently expanded upriver and grew in size, the operative social group likely being a composite band. Distinctive features of the Melanson Site include large pits on the latest part of the site and the use of the chalcedonies from nearby Scots Bay on North Mountain. Also on North Mountain is Cape Blomidon, the home of Glooscap, and it is argued here that the pre-eminence of the Melanson Site is a product of the availability of gaspereau, the proximity of the stone quarries and the supernatural qualities of Blomidon.

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Acknowledgements

Our attention was directed to the Melanson Site by Dr. Virginia P. Miller and following a tour of the site with Mr. Ellis Gertridge on April 30, 1985, the Melanson Project was initiated. Five years later, the final report was completed, the product of considerable assistance along the way. Our principal benefactors were Doris and Medford Coldwell who not only gave us permission to excavate on the lower terrace of their farm, but also acted as hosts and friends to the entire field crew.

Financial support for the project came from the University Council for Research (grants 803, 818, 840), and Dr. R. B. MacDonald, the Dean of Arts, St. Francis Xavier University. External support was provided by the Nova Scotia Museum through the courtesy of Mr. Robert W. Frame, while Employment and Immigration Canada supplied a Jobs Strategy Program grant for Ms. Sharon Jan and three field assistant positions under the Challenge '86 program.

At Wolfville in 1986, affiliation with Acadia University and the provision of laboratory space was made possible by Dr. Paula Chegwidden of the Sociology Department and Mr. William White of Continuing Education. Mr. Gary Boats of Acadia's Audiovisual Department facilitated the video-taping of the excavations, while professors Barry Cameron, George Stevens and other members of the Geology Department offered their expertise in mineral identification on numerous occasions. We are also indebted to Dr. Donald Dodds of the Biology Department for his comments pertaining to the natural history of the region. Mrs. Rachel Erskine of Wolfville donated some of her husband's little known manuscripts as well as giving her permission to republish in this volume, John Erskine's 1958 account of his Melanson investigations. Our fieldwork at Wolfville in 1986, also enabled us to examine the Ellis Gertridge and James Legge collections from Melanson. We are grateful for their co-operation, and summaries of what was recorded are included in the appendices. Finally, Dr. Vernon Rodd of the Kentville Research Station visited Melanson in order to examine the soil profile.

In 17th century England, the grunt work of scientific investigations was carried out by anonymous technicians often depicted as putti or cherubs or faceless assistants whose contributions remained invisible (Shapin 1989). Such is also sometimes the case with archaeological field crews. In an effort to avoid treating the 23 quality students of the Melanson field school as putti or cherubs, and to acknowledge their critical role as excavators, we identify these archaeologists in Figure 1. From left to right are:

Bottom Row:	Terri Scott, Sue McNeil
Second Row:	Helen Kristmanson, Suzanne Bouchard, Megan Burley, Sheryl Leask
Third Row:	Kate Buckland-Nicks, Karen Rennie, Lisa Metallic, Sheila Denny, Dwight Kerr, Heather Hueston
Fourth Row:	Frank Himsl, Jim Churchill, Marylou Wilson, Lori Kempton, Gayle Hogans, Linda McVeigh, Mary Lou Gervais, (Frances Stewart), Margo Gessor
Top Row:	Larry Bjarnason, Scott Buchanan, Firouz Bakhtiar, Kevin Leonard (Ron Nash)

Laboratory analysis of the material culture took place at St. Francis Xavier University, while preparation and assembly of the final report proceeded before, during, and after Nash's 1988/89 sabbatical at the University of Victoria. Those who provided special assistance during the analysis and writing phase include: Dr. George MacDonald for permission to write-up the 1965 data and for providing the field records and artifacts from the NMC collections; Dr. Winston Jackson who ran the quantitative tables and tests, Megan Burley (ceramic illustrations), Sharon Jan (Figure 38 sketch), Ian Lancaster (artifact photography), John Huczel (computer graphics), Deborah Gurfinkel (residue analysis), B. M. Jessop (fisheries statistics), Frances Baker (word processing), Robert Ferguson, Anita Campbell, Denise Hansen and Janet Cameron of the Canadian Parks Service (historic artifact identifications), Gloria Talbot, and M. Van Doren.

Our final thanks goes to the Public Archives of Nova Scotia for permission to reproduce William Eager's lithograph "View from the Horton Mountains", and Dr. Brian Preston of the Nova Scotia Museum for editorial duties.

This study is dedicated to the memory of Madge Nash, who visited Melanson in 1986.

FIGURE 1: 1986 FIELD CREW, MELANSON SITE

Chapter 1

INTRODUCTION

Melanson

> Some fifty years ago attention was first called to this camp site, of course called 'a battle field', and many collections were made, the first man having to borrow a bucket to carry all that he had found. A fairly large collection went to the Carillon Museum near Montreal, a smaller one to the Provincial (now Nova Scotia) Museum in Halifax, and there have been many private collections, mostly now scattered (Erskine 1958b).

John Erskine, too, did some collecting, testing and mapping in 1957, but while recognizing that Melanson ranked in importance with the Indian Gardens site in Queen's County, he concluded that bulldozing and cultivation had destroyed much of the site. Yet, in 1965, George MacDonald of the National Museum of Canada came to Melanson in hopes of finding a buried Paleo-Indian occupation such as had been recovered from Debert, Nova Scotia (MacDonald 1968). Using both a backhoe and conventional trowelling, his crew excavated a series of trenches and test pits on the north-central part of the site. No Paleo-Indian occupation was found, the substantial pottery sample identifying Melanson as a Woodland or Ceramic Period settlement, but the results of the investigation remained unpublished.

The Melanson site has remained a large Woodland site, curiously unconnected to the arrival of the Acadians and of no special significance except to collectors. The presence of this large, rich and neglected site was brought to our attention by Virginia Miller who had visited local collectors in the course of an ethno-historical inventory during the early 1970s. In 1985, Nash and Stewart began a series of visits to assess the site's potential for hosting a field school and addressing both general problems of Micmac economic patterns and specific problems of regional prehistory.

Location

The Melanson site is on the Gaspereau River which flows east through Kings County to Minas Basin at the upper end of the Bay of Fundy, west-central Nova Scotia (Fig. 2). In Micmac, the Gaspereau River was Magapskegechk, "tumbling

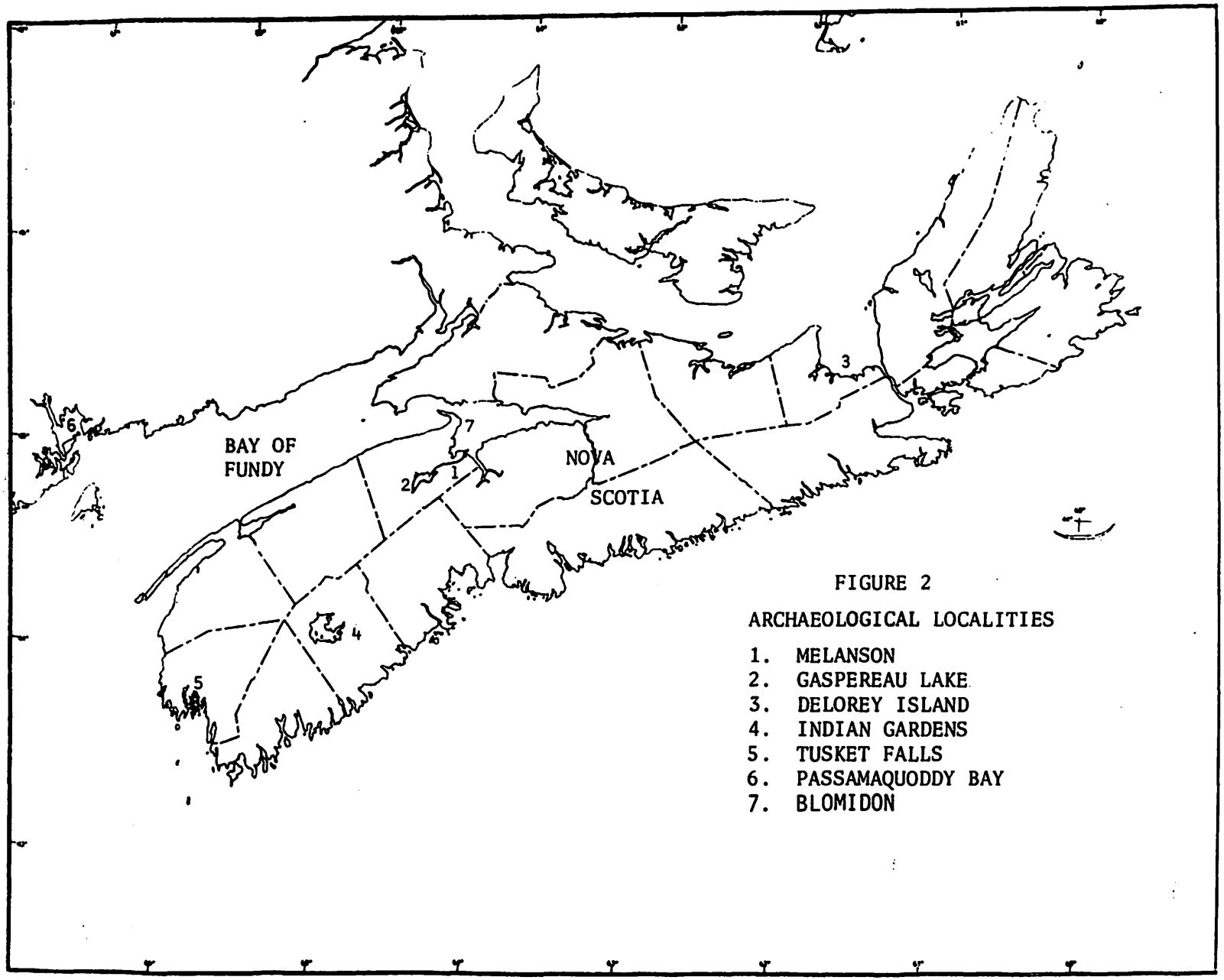


FIGURE 2

ARCHAEOLOGICAL LOCALITIES

1. MELANSON
2. GASPEREAU LAKE
3. DELOREY ISLAND
4. INDIAN GARDENS
5. TUSKET FALLS
6. PASSAMAQUODDY BAY
7. BLOMIDON

over large rocks" (Eaton 1910:22) while today, as Wright observes, "The GASPEREAU is a fish, a river, a village, a valley, a lake or two and a state of mind" (1957:58).

The river flows through a narrow, somewhat hidden valley described as follows:

> The Gaspereau Valley is a flat-bottomed valley with steep sides where it is flanked by the 'Ridge' and South Mountain. The Valley is about two miles wide at the eastern end and narrows to about one mile south of Wolfville, pinching to a narrow V-section ravine at the western end beyond White Rock. The eastern section is a mature river valley, while the western section beyond the point of piracy of the Black River is youthful in aspect. The valley presents a very pleasing appearance to the visitor, with its winding river and apple orchards on the slopes and valley bottom. There has been considerable erosion along the sides of the valley, giving it a slightly rolling appearance, especially in the lower section of the valley (MacNeill, 1951:11).

Figure 3 shows the valley at the upper end of the Melanson site. The eastern end of the archaeological site is at the present head of tide on the river where a bridge plus a few buildings comprise the community of Melanson. From this point, there are a series of semi-continuous occupational loci extending to the west, 1.5 km upriver.

This locality is 8-10 km from Minas Basin and is thus in a near-coastal, ecotonal position. The ecology of this locality is considered below, but it can be noted here that the valley's pre-eminent resource remains the gaspereau (alewife), a small, bony fish which ascends the river in great numbers each spring. In 1986, there were about a dozen dip nets on the river above the head of tide (Fig. 4) and in a good year, such as 1975, several thousand barrels of these fish are exported to the Caribbean.

History

Given the concentration of gaspereau and the presence of a large Indian village in protohistoric times, it is surprising that the early French sources have little to say concerning the Gaspereau River. In the Micmac political district system, this region belonged to **SEGEPENEGATIG**, or ground nut place (Hoffman 1955:534). The Minas district was also important in a supernatural sense, for Cape Blomidon was home to the culture-hero, Glooscap.

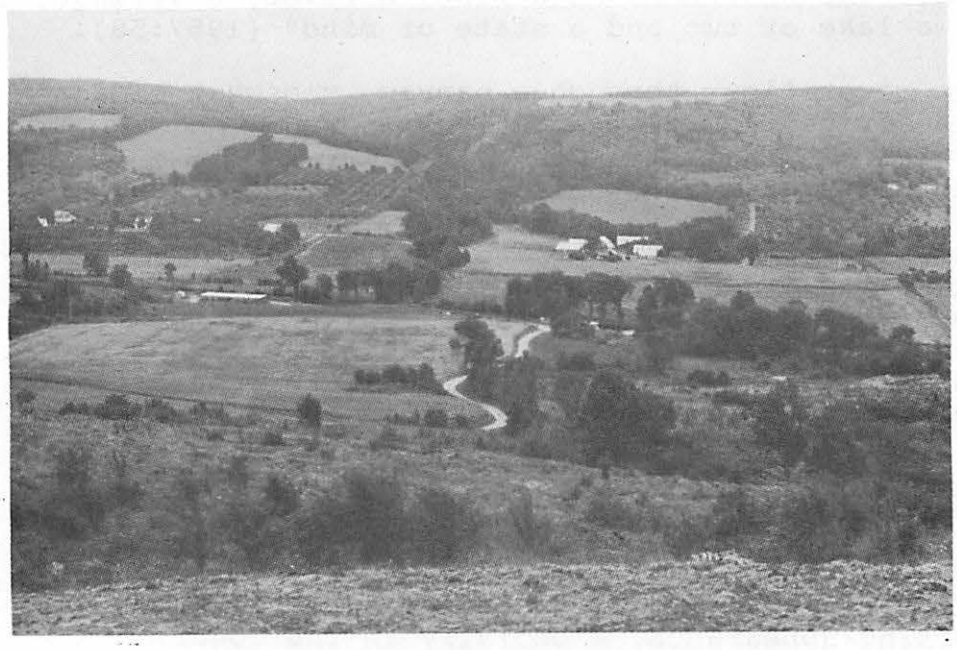


FIGURE 3. GASPEREAU RIVER VALLEY

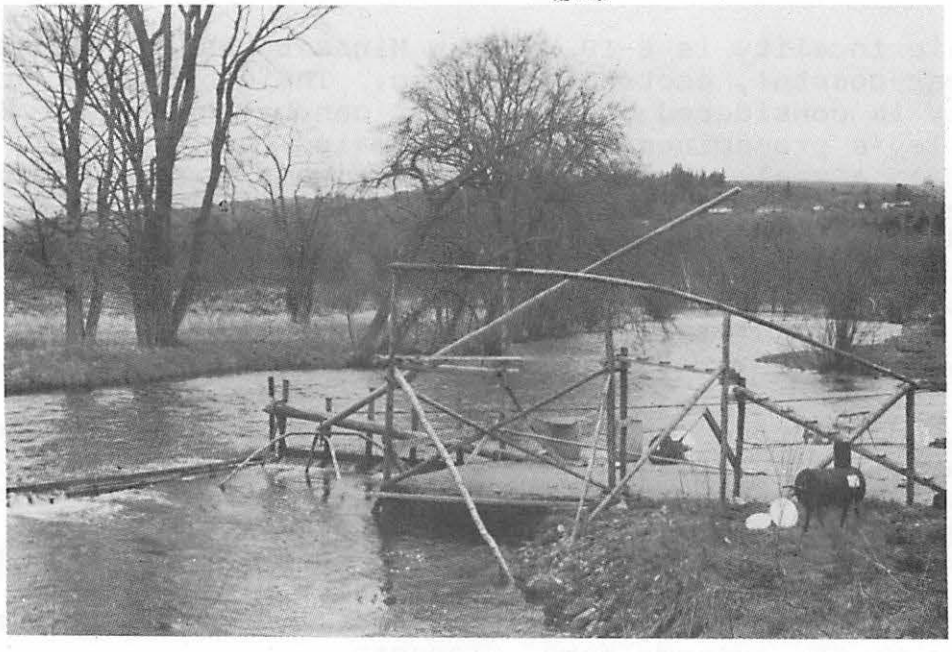


FIGURE 4. DIP-NET ON THE GASPEREAU RIVER (1986)

The initial settlements in the Fundy region began in 1604/05 at St. Croix and Port Royal, but according to Roy (1982) the European population began a remarkable growth after 1632. One farming community near Port Royal was Melanson Settlement (ca. 1664-1755; Crepeau and Dunn 1986) and it was another Melanson (Pierre) who started the settlement at Grand Pre in 1682. By 1686, there were 57 persons in the Grand Pre area and by 1707, some 580 (Clark 1968:148).

During the Acadian Period, the lower Gaspereau became something of an overflow area from the Grand Pre settlement with 37 persons by 1714 (ibid:215). There were farms on the floodplains and mills on the streams coming off South Mountain, the cellars, roads and other historic remains having been approximately relocated by Erskine (1975). A larger agricultural settlement, Pisiquid (Windsor) existed further east on the Avon River.

It has been argued by Clark (1968:68), Daigle (1982:28) and others that the arrival of the Acadians in the early 17th century did not seriously disrupt the existing Micmac economy. In particular, since the Acadians concentrated on the marshlands, the Micmac were free to pursue their migratory subsistence-settlement patterns, thereby permitting a loose economic symbiosis between the two groups.

While relations may have remained amicable without any interest in farming among the Micmac, there would seem to have been ample opportunity for troubles in the fishery. As Clark comments (ibid:246), there was little Acadian commercial fishing, but there was river fishing for needs at home. As early as 1687, Gargas, a census taker travelling in Acadie, discusses the reasons why the Acadians failed to apply themselves to fishing. They did, however, use "niraguans" (weirs) at Port Royal and Minas (Morse 1935:191-93). Writing about this same region in 1699, the commandant in Acadia, Joseph Robineau De Villebon states:

> The settlement of Minas, the census of which the Sr. de Villebon sent last year to Count Pontchartrain, is at the head of the Bay of Fundy. There is no cod-fishing in that region, and the settlers can only take advantage, in summer time, of the shad, which, with a variety of herring named the gaspereau, appear in sufficiently large numbers to provide food for everybody (Villebon in Webster 1934:132).

At the time of contact, the Micmac had a mosaic of different economies incorporating a mix of land mammals, sea

mammals, fish and birds. They were not fishing societies in a general sense, and the mix varied by season and area (Nash and Miller 1987). Stewart's chapter in this volume offers an economic reconstruction of the Melanson site--a place devoted largely, but not exclusively, to gaspereau fishing in the spring.

With the expansion of hunting activities under the pressure of the fur trade (ibid:1988) and competition over river fishing a probability, we can suggest that any model of early symbiosis or reciprocity is likely to be inaccurate. Unfortunately, neither Gargas nor Villebon remark on this situation of inherent conflict, but their lack of commentary should not encourage us to conclude that the Micmacs and the Acadians exploited completely different ecological niches, with mutually exclusive strategies.

The Micmac might have been displaced upriver to the interior lakes, such as Gaspereau Lake, in any struggle over the gaspereau fishery. But, the archaeology of the early historic period remains practically unknown. The historic material recovered from the Melanson site is English rather than Acadian which might suggest that there was in fact no expulsion or deportation of the Micmacs. The site may have been abandoned prior to the establishment of Grand Pre (1682), owing to the presence of contagious diseases such as typhus, already present in Acadia in the 17th century, and which ravaged the Micmac population of western Nova Scotia in the 18th century.

Despite any French-Micmac competition in the fishery, the Micmacs maintained better relations with the French, than with the English. The following account taken from Beamish Murdock's A History of Nova Scotia represents a more typical encounter with the English. The Micmac did not often score such successes.

> 1737. On the 1st June, Stephen Jones, an English trader, who was peaceably engaged in his business in Piziguit river, (now the Avon, at Windsor), was surprized and captured in the night while he and his men were asleep--forced by them to sail down the river to cap Fendu, (cape Split), and there plundered of money and goods to the value of £700 or £900, New England currency; and his account books, which he considered worth £700 more, were taken from him. This robbery was committed by nine or ten Indians (1865, Vol. 1:521).

In the mid-nineteenth century, a Baptist missionary, Silas T. Rand, began anthropological studies among the

Micmac at Hantsport and in neighbouring camps and communities. His publications on language, geography, mythology and culture are still of area wide interest, but of particular value for anthropologists working in Kings County or Hants County today (Miller 1980). Another century was to pass before the archaeology of this region began to receive systematic examination.

Research Design

The following sections on the research interests together with the kind of data sought and the decisions on survey, excavation and scheduling constitute the research design as of February 1986. The success achieved in carrying out this research design is in large part due to the efforts of the students who demonstrated the contribution that a field school can make to a problem-oriented project. In an effort to avoid the usual anonymity accorded to student excavators, Figure 1 shows the field school crew who are also identified in the acknowledgements.

The following sections on study area, general considerations and excavations was written prior to fieldwork. Many, but not all of the objectives were realized.

Archaeological Investigations at Melanson, 1986:some considerations

The 1986 archaeological work at the Melanson site will concentrate primarily on past economic activities and secondarily, on consideration of population size and density--in short, the infrastructure of the cultures once resident at Melanson. The site is of particular interest because of its size (rivaled only by Indian Gardens) and the fact that the prehistory and economic lifeways of the Kings County region are unknown. In reconstructing the economic system, it will also be necessary to reconstruct the site's culture history as well as the paleoecology of the Gaspereau River-Minas Basin locality.

The Study Area

In the spring of 1986, field survey and mapping will focus on the Melanson catchment area, that is, the area from which a site (or more properly its inhabitants) derived its resources (Roper 1979:120). Ethnographically, this area tends to be 6 mi. (10 km) in radius from a given site. Thus, surveys in the spring can cover the Gaspereau River from Horton Landing on the Minas Basin to White Rock on the Gaspereau River. Moving north-south across the valley is more difficult and might involve a time contour of 2 walking

hours. Library research aimed at establishing the baseline ecology as of 1600 A.D. will concentrate on this catchment area as well.

General Considerations

An investigation of the economic basis at Melanson within its catchment context assumes a general causal flow of exploitative pattern-->settlement pattern-->community pattern-->intrasite variability represented by activity areas and group/subgroup clusters. That is, the presence or absence of artifacts and ecofacts as well as their patterning at Melanson will reflect the changing (or static) adaptive patterns over the past thousand years vis-a-vis the changing local economic resource availabilities. At Melanson, we are particularly concerned with the changing geomorphology of the Gaspereau River and its fish populations, so that economic analyses must take into account old river channels, patterns of flooding, shifts in the river mouth and tide head with respect to sea levels etc., as well as the dyking begun by the Acadians and the dams and diversions of modern times.

As Roper notes (1979:126), "Even the simplest models of site location specify location as being determined by the interaction of several variables." We can assume that Melanson was important for more than just its fish runs. Library research based on ethnographic, historic and ecological sources can establish what flora and fauna was available historically, while pollen records can assist in bridging the gap to prehistory. There is enough data available to indicate the past availability of resources and perhaps even enough information to discuss carrying capacity.

Unfortunately, we will be unable to compare observed vs. expected resources and the patterns of selective procurement owing to poor preservation at the site. Bones have not been recovered in earlier excavation or by collectors, although flotation and fine sieving have not been attempted and slides (1965) reveal some shell in the lower levels of the site.

Accordingly, it seems most feasible to concentrate not on all the catchment area resources or on the critical minimal resource (Liebig), but on the principal resources. Based on the well-founded assumption that people tend to live nearest their principal resources, we can hypothesize, as Erskine did, that the Melanson site was occupied in the spring during the fish runs. The site size and population would seem to correlate with the productivity of the fish runs.

Excavations at Melanson

Any excavations at Melanson must be structured by the following specific considerations:

1) The site has a long history of land alteration by ploughing, dyking and leveling in historic times.

2) It has a checkered archaeological history of local collecting (Martin, Gertridge, Eaton etc.) and archaeological excavations (Erskine, MacDonald).

3) There is differential access to the site as a consequence of present crop usage and owner co-operation.

4) The entire (?) site has been ploughed to a depth of 10" or so and it is, in large part, an exposed surface site.

To a considerable degree, therefore, the 1986 investigations constitute a final, synthetic chapter in the site's history and involve what can be called archival archaeology.

The specific aims of the 1986 survey and excavations will be concerned with intrasite analysis, i.e., before we can research the faunal and floral aspects we must define the site itself in terms of spatial clustering.

1) areal extent. It will be necessary to establish the east-west and north-south perimeters of the site using oral information from E. Gertridge, J. Erskine's estimated dimensions and ground surveys in 1986. Together with a Pleistocene geologist, we can define the various terraces.

2) clustering. This will involve definition of activity areas and then, group clusters consisting of multiple clustered activity areas (as per Ferring 1984). This will involve information on artifact concentrations from E. Gertridge and the MacDonald field notes together with surface collecting in 1986.

Excavations in July and August 1986, in the field school context can involve:

1) a series of 2x2 m pits, 2 person/pit allocated with respect to the artifact clusters and distributed so as to:

1) maximize artifact recovery for the students;
2) test areas beyond the MacDonald zone;
3) provide some linear coverage rather than a block excavation.

2) pits placed where fish bone is most likely to be recovered (ethnographic models of processing) perhaps closer to the river where shell or water-logged deposits might assist preservation, or at the old channel. This is one way of testing Erskine's hypothesis on site function.

3) pits placed in areas of charcoal/organic concentration as per MacDonald to recover charcoal samples for dating and charred seeds for floral analysis.

4) pits placed where there is the greatest depth below the plough zone, as per MacDonald, in an effort to locate undisturbed deposits below the plough zone. The intent is not to move a lot of dirt, but to instruct students in archaeological methods and attempt to recover the kind of ecofactual data not obtained by G. MacDonald in 1965.

The Ecological Framework

The economic and demographic interests behind the Melanson project required an understanding of the ecology within the Melanson site catchment area. Accordingly, between January and June of 1986, Sharon Jan attempted a baseline reconstruction of the ecology ca. 1600 AD, the time at which contact became regular, rather than intermittent between natives and Europeans. A limited amount of selected survey was carried out, not within a sampling framework, but at least within the ecozonal framework as defined by Jan. The following "LIST OF ECOZONES . . ." is Jan's working paper, used to structure the survey and the videotaping/photography of the regional ecology. This chapter has been expanded by Nash, following Jan's unpublished 1986 paper on the ecology and carrying capacity.

Chapter 2

LIST OF ECOZONES IN THE GASPEREAU RIVER VALLEY AREA AVAILABLE FOR EXPLOITATION PRIOR TO EUROPEAN ARRIVAL

The ecozones are divided into two main areas: aquatic and terrestrial. Figure 5 illustrates the catchment area and some of these zones.

A) AQUATIC ZONES

1) Marine (Figure 13)

The marine ecozone is that area of the Minas Basin below low tide level, i.e., always covered with salt water and supporting marine varieties of organisms. Flounder (in shallows), haddock, halibut, some cod and many more species would be available, but the extreme tidal range, the currents and sediments washing into the sea combine to reduce the biological productivity of Minas Basin. Sea birds and their eggs in nesting season along cliffs and rocky shore areas are another resource.

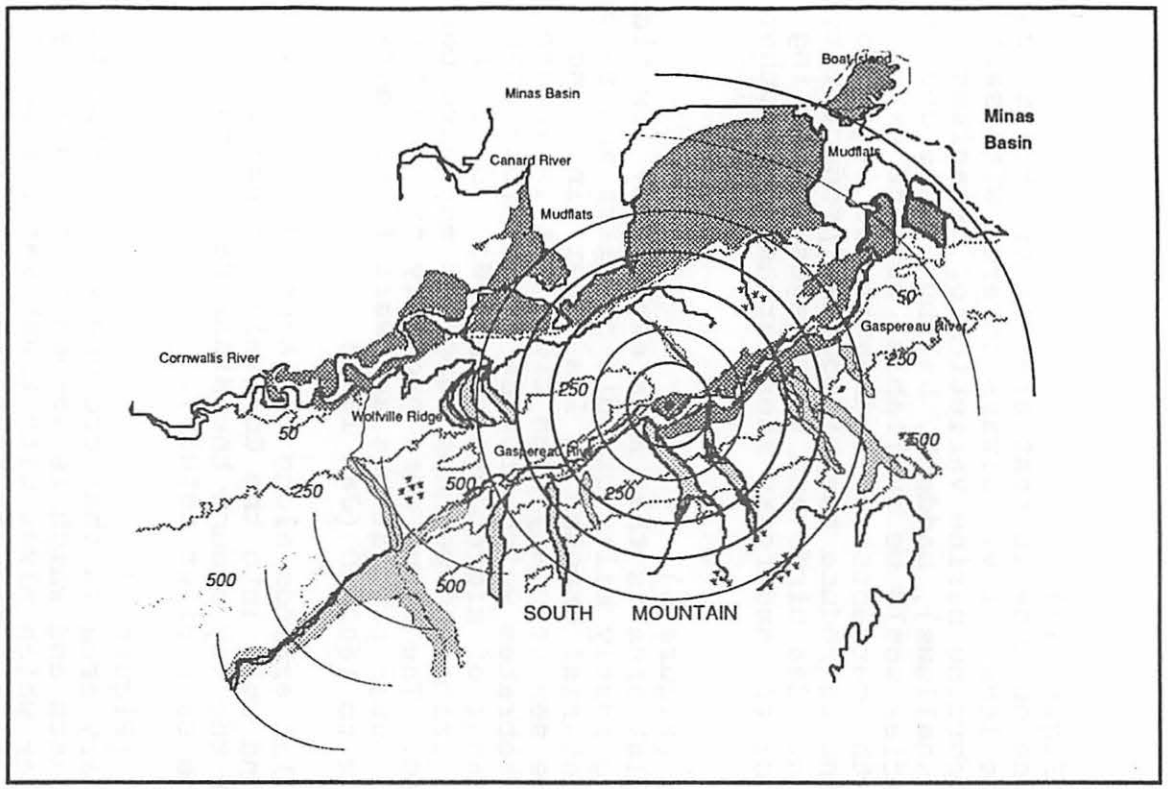
2) Mudflats (Figure 6)

The mudflat area is that area exposed by low tide and comprising mostly silt, organic detritus and sand, bordered by esturial grasses at its upper limit and covered by the sea at every high tide. It is an area rich in invertebrates which provide a rich food base for a broad range of migratory shorebirds and waders. Shellfish and crabs and perhaps lobsters may have been available also. The clams were probably of greatest importance to human populations and were likely more abundant prior to 1600 AD (Jan 1986).

The mudflat extends along the Avon river, around Boot Island and well into the Cornwallis area; it continues all the way around the Minas Basin and a short way into each river estuary.

3) Estuary (Figure 7)

The estuary area is that ecozone which supports halophytic plants and which is washed over regularly by tidal saltwater which mixes with fresh water from the river. While some areas are inundated twice daily, others are washed by water only during rare very high tides. The estuary extends to the head of tide. This ecozone is characterised by a colony of marsh grasses, mostly Spartina spp. Most of the Gaspereau and Cornwallis estuaries were dyked by the European settlers



MELANSON SITE AND ITS CATCHMENT ZONES

FIGURE 5

FIGURE 6: MUDFLATS/ESTUARY NEAR HORTON LANDING

FIGURE 7: ESTUARY/GASPEREAU RIVER
(FROM TRENHOLM TOWER)

and are now under pasturage thus shrinking the marsh-estuary ecosystem. They comprise those areas of low-lying meadow to be seen along both sides of the river behind the dykes. They extend to just above the Melanson Bridge on the Gaspereau and also include the large meadow between Grand Pre and Long Island.

The principal resources of the estuary are birds, including some of the migratory shorebirds and waders who will use its lower reaches for food and roosting, and the waterfowl. The fish of the estuary are primarily anadromous and include the smelt, Atlantic Tomcod, eels and gaspereaux, while mammals at the edges of the estuary include moose, racoon and fox.

The large estuary areas of the Minas Basin are a product of the encroachment of the sea onto the land. This means that the extent of estuary would either have expanded overtime or gradually moved inland, in much earlier times.

4) River (Figure 8)

The Gaspereau River is tidal to just above the Melanson Bridge. It was probably not always so. With rising sea level it has moved up since c.3000 B.P. from a point a little down river from Wallbrook.

The Gaspereau River is fed by a number of streams, including its capture river, the Black river. Most of the streams drain down off at right angles from the North face of the South Mountain into the main river. The river is slower and more meandering in its lower reaches, while above White Rock it has all the characteristics of a young river as it rushes down through the V shaped ravine.

The main resources of the river are fish. Many of the fish common to shore and estuary are the same fish to be found in the river. They include the Gaspereau (alewife only, not blue back herring), Rainbow Smelt, Eel, American Shad (few in number), American Atlantic Sturgeon, White Perch, Yellow Perch (mostly lakes), Striped Bass, Salmon, Brook Trout, Atlantic Tomcod and White Sucker (Jan 1986:20-21).

Owing to their abundance, the gaspereaux (Alosa pseudoharengus) merit additional comment. Fisheries biologist B. M. Jessop is of the opinion that:

> Gaspereau production in many river systems seems proportional to lake surface area. Consequently, the

> production of gaspereau in the Gaspereau River is probably much higher now than it was historically due to expansion of the lake area for hydroelectric use (letter of May 13, 1986).

The following table, provided by Jessop, lists catch statistics, in tons, which ". . . derive mostly, but not exclusively from the Gaspereau River." It should also be noted that ". . . the commercial catch on the Cornwallis River is very small relative to that of the Gaspereau River" (letter from B. M. Jessop to F. L. Stewart, 1989), a difference which probably goes a long way towards explaining why the Melanson Site is on the Gaspereau, rather than the Cornwallis River.

Jessop also states that: "Data from other rivers with major fisheries indicate that exploitation rates for gaspereau typically range from 70-85%. Precolonial, native fisheries probably had much lower exploitation rates" (Letter, March 13, 1986).

While it is hard to understand just why today's commercial dip nets are a more effective technology than native weirs and bag-nets, it is true that Gaspereau Lake --the source of the river -- was enlarged in 1929 following construction of a dam at the outlet, a positive development for gaspereau.

If the quantities of gaspereau have recently increased, the same cannot be said of salmon which were "always plentiful" in the 1800s (Jan op cit:27). Jessop comments as follows:

> It is difficult to reliably assess the historical capacity of this river to produce Atlantic salmon. We have no records of the quantity of salmon caught prior to hydroelectric development. Recent (1951-1983) angling catches have not exceeded 50 fish annually (weighing <160 kg). My guess is that the river might once have supported annual runs of 1000-1500 fish (letter, May 13, 1986).

Finally, it can be noted that there has been commercial eel fishing at White Rock on the Gaspereau River (Eales 1966:8).

TABLE 1

Commercial Gaspereau Fishery Landings
Fishery Statistical District 41

Year	Catch (t)
1957	143
1958	33
1959	95
1960	49
1961	188
1962	189
1963	118
1964	252
1965	166
1966	168
1967	71
1968	144
1969	141
1970	143
1971	206
1972	176
1973	301
1974	374
1975	458
1976	643
1977	551
1978	605
1979	248
1980	134
1981	53
1982	43
1983	53
1984	62

These fish and the water itself, attracted a variety of mammals -- black bear, deer, moose and sub-aquatic mammals -- beaver, otter, mink, muskrat, raccoons and the occasional marten and fisher plus fish-eating birds.

5) The Lake

Upriver, at the periphery of the catchment area, is Gaspereau Lake, now somewhat larger than it was prior to dam construction in 1929. Many of the resources of the river are also resources of the lake. In some cases, only the season is different; for instance, gaspereaux may be caught during their runs in the spring in the river, or during summer in the lake. Animals attracted to the lake would have included moose, deer, caribou, bear (a predator of the moose), cougar (a predator of the deer), wolf, otter and a large number of birds, including water fowl (particularly loons and ducks), cormorants, kingfishers and raptors.

Summary -- Aquatic Ecozones

While it is helpful to divide the region into ecozones for analytical purposes, it should not be forgotten that it is really a dynamic ecosystem. Three thousand years ago, the mean high tide was lower, probably less extensive and it was probably possible to walk overland to Boot Island and beyond. The area of mudflat may also have been smaller. The river at this time probably had increased volume and flow rate, owing to the lower sea level. Freshwater marshes may have been more extensive and the present upper esturial region of the river was probably freshwater floodplain and marsh.

The dyking, damming and effluent discharge of historic and modern times has almost certainly had a negative effect on the animal populations of the aquatic system. Dodds (1982:7) concludes that the ". . . available fish, marine invertebrate and marine mammal resources were clearly greater in 1500," for most of the Maritimes. While early writers were prone to exaggeration, Biard, La Gorce and others leave little doubt that there existed a superabundance of gaspereaux and other fish. The numbers declined in historic times, but have risen again following expansion of Gaspereau Lake in 1929.

B. TERRESTRIAL ECOZONES

The terrestrial ecozones are much less clearly defined than the aquatic ones. They are defined by the sort of cover they support, the amount of sunlight, the nature of soil or the amount of water available, and the efficiency of their decomposing systems.

6) Thickets and Borders (Figure 9)

These are areas supporting shrub and small tree species. They are generally small and patchily distributed throughout the catchment area. They may, in places be described as ecotones, being areas of transition between open and wooded zones, or along the edges of bogs, estuary, streams, along ravines; or they may occur in patches in wooded areas as a successional stage after windfall or fire. Thicket plants include about five species of willow, two species of alder, hazelnuts, red maple, ash, balsam poplar, birch, berries and fruit trees such as cherry, apple, berries. Low shrub berries such as raspberry also occur in these areas.

These plant types attract deer, hare and other small mammals and birds which, in turn, attract birds of prey.

Most thicket plants in this area demonstrate a tolerance for wet conditions and many tree types, north in their range, grow only to shrub height. They are to be found along the streams and rivers, at the edge of the estuary as well in upland zones.

The agriculture and land clearing in historic times have expanded thicket areas, but in earlier times, forest fires provided opportunities for the establishment of successional thicket vegetation and type interspersion. Other areas in which thickets were established were beaver meadows and areas of abandoned human activity. Thicket growth of a more permanent nature would occur around saltmarshes and other riparian areas. Prior to contact, the smaller thicket ecozone might have affected deer and rabbit populations moreso than caribou and moose.

7) Ravines (Figure 10)

These are steep sided valleys cut by stream action over thousands of years. The area above White Rock through which the Gaspereau flows is a ravine as is the

FIGURE 8: RIVERINE ECOZONE (with S. Jan) GASPEREAU RIVER AT MELANSON BRIDGE

FIGURE 9: THICKETS, UPPER GASPEREAU RIVER, BENJAMIN BRIDGE

wind gap. The streams running off the South Mountain have also formed ravines.

The rocky sides of the ravine tend to support softwood evergreens such as hemlock, white spruce, balsam fir, red and white pine. While the slopes might be very well drained, the ravine bottom supports species characteristic of wet woods -- sedges, horsetails, swamp currants, violets, buttercups, woodland strawberries and dogwoods are some of the plants which form an understory to taller hardwood and thicket plants.

Beaver meadows may be found at the lower end of the ravine. Once beavers move in, their tree-felling and dam building activities lead to the opening up of the ravine to sunlight and calamagrostis establishes itself in the extensive flooded areas of the beaver meadows. There are beaver meadows and dams not only along the lower reaches of the rivers running off South Mountain, but also on the upper Gaspereau River between White Rock and Gaspereau Lake.

8. Bottom Lands (Figure 11)

There are areas at the bottom of the U-shaped valleys such as the Gaspereau and the Cornwallis with rich alluvial soils brought down and deposited by the rivers through flooding and the normal accumulations created by flow patterns. Sandy depositions also occurred in tidal areas. The Melanson site is situated at the present day juncture of the bottomlands, riverine and estuary ecozones.

Much of the alluvial land supported open woodlands of elm and maple, oak on the slightly higher areas while conifers, including eastern white pine and red pine established themselves on the sandier places. Closer to the river, where there is the possibility of flooding, early successional stages of plants, including hawthorne, cherry, poplar, willow with an understory of shrubs such as gooseberry, serviceberry and raspberry, elder and groundnut probably occurred. Groundnuts (Alpios americana), which can be found today, are a good source of protein in summer and fall and can be stored for winter consumption.

These plants provide good spring/summer/fall herbaceous food for snowshoe hare, deer and grouse which may have formerly been fewer in number as a consequence of fewer thicket and field places as habitat. And there are other small mammals such as

FIGURE 10:
RAVINE ECOZONE,
BURNTLAND
(INDIAN)
BROOK BELOW
ROCK MILLS

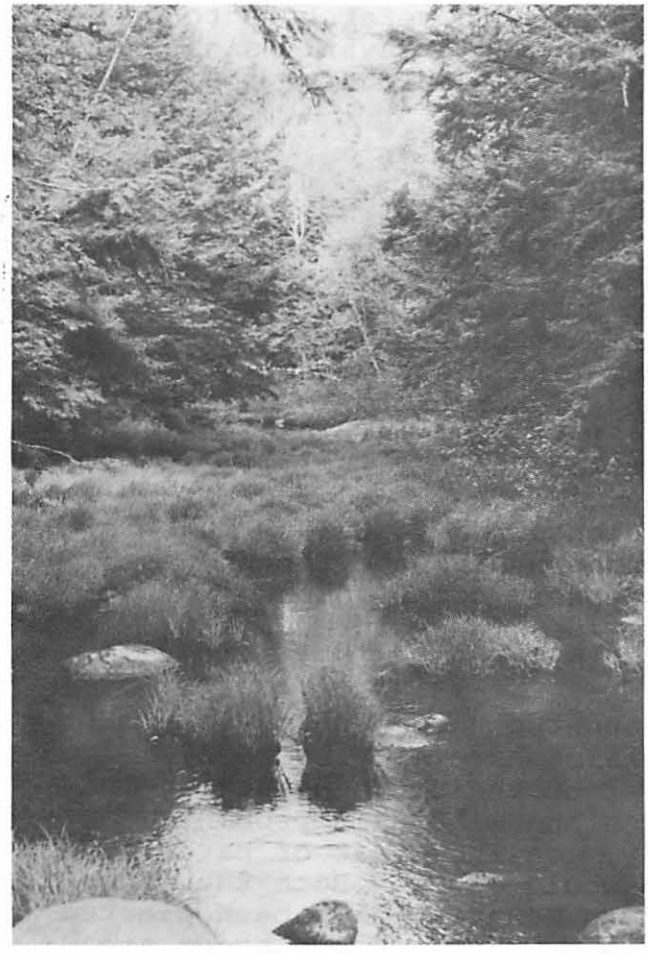


FIGURE 11:
BOTTOMLANDS ABOVE
THE MELANSON
SITE

groundhog, mink and muskrat plus beaver, otter and woodchuck which have been recovered archaeologically (see Stewart chapter below). The top level consumers attracted to this area would have included the bobcat, the lynx, the wolf and the fox.

The bottomlands, from the edge of the estuary at Melanson extending back to the low hills and up to White Rock probably supported open hardwood or mixed (hardwood dominant) stands of trees. When the Europeans arrived, they favoured areas of hardwood cover, believing these soils to be superior to the soils which support coniferous species. Today, the bottomlands are almost entirely agricultural with occasional stands of oak and elm and early successional stages near the river with a grassy, herbaceous understory. The soils here and in the Annapolis Valley are the best soils in the province for farming, but while there are shadowy legends and references to corn being grown by native peoples, the excavations on the Melanson bottomlands produced no evidence of indigenous farming.

9) Uplands

This zone includes South Mountain and the Ridge. South Mountain rises to c.750 ft. and the Ridge to about 650 ft. above sea level. While Loucks (1960) characterises this area as Spruce/Hemlock/Pine zone there were most likely a higher proportion of hardwoods on dryer south facing slopes and Titus Smith (1801) states that most ridges and higher elevations were covered with Beech trees. This sort of mixed forest existed at the time of contact and had a similar species composition as long ago as 3000 years (Ogden 1960). Since such forest contained features characteristic of more southern hardwood forests as well as features of the northern boreal (spruce/birch) forest, it was able to provide niches for faunal species favouring different areas.

Both South Mountain and the Ridge (which is in fact a spur of South Mountain) have many bedrock outcrops and the soil cover on the South Mountain, in particular, is thin. Fires and windfalls probably occurred fairly frequently, leaving areas of patchiness where successional growth would occur. Both the ridge and to a lesser extent South Mountain have been cleared for agriculture and in this century, spruce trees are on the increase as they invade old fields. But at the summit of both mountains, bogs and swamps still remain, having no doubt been more extensive in the past.

The varied environment of the uplands has been home to moose, caribou and deer. All three of these ungulates would have been present in prehistoric times, but in varying proportions. The shifts in population frequencies have been attributed to climatic oscillations which alter the food resources particular to each species. Thus, the near absence of deer between 1600 and 1900 A.D. has been attributed to the onset of the "little ice age" which would have favoured boreal species (c.f. Benson and Dodds 1977).

Other resources of the Upland areas would include small mammal species of the forest such as the squirrel and chipmunk and predatory species like the black bear and wolf.

10) Boglands (Figure 12)

The poor drainage of the South Mountain Uplands has resulted in a number of bog/swamp areas. These are essentially hydrophytic seres -- in transition from water to land. The first successional stage is the growth of Sphagnum spp. and its accompanying organic accumulation which lays the foundation for the development of a compacted dry bog -- the climax stage. This stage may support larch (tamarack) and black spruce, two very acid tolerant trees and a number of ericaceous species.

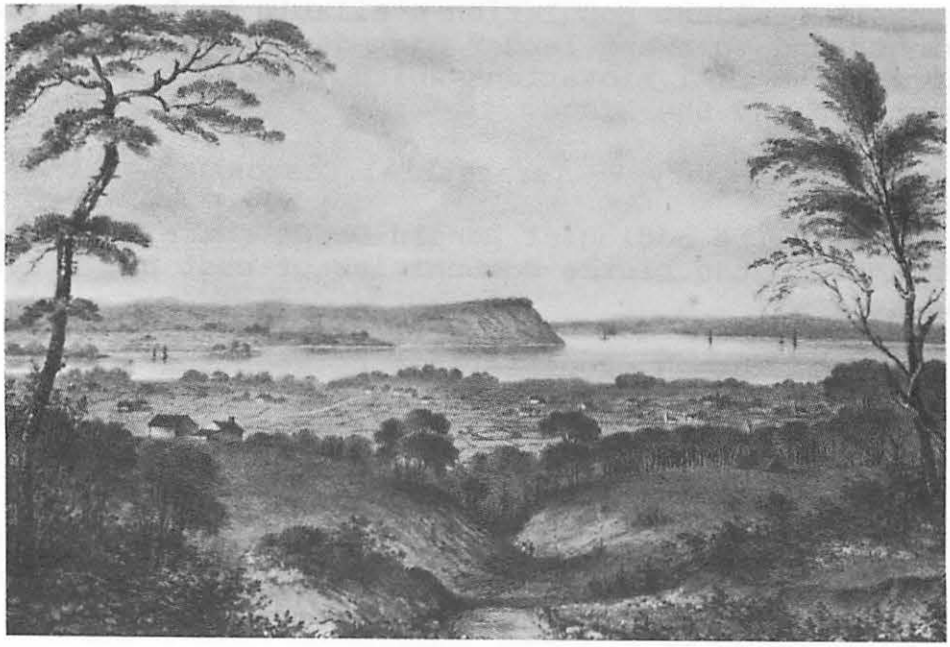
Probably the most common mammal using the bogs was the now extinct woodland caribou. There may have been a small resident population available to hunters during winter and somewhat larger aggregations during the spring and fall migrations which likely followed South Mountain and the Ridge.

Summary -- Terrestrial Ecozones

Wildlife ecologist Donald Dodds summarizes the changes in the biotic communities of past and present as follows:

> The major difference between the Maritime vegetation of 1500 and 1982 is that in 1500 the greater part of the land was covered with climax or, at least, old growth vegetation while today it is primarily early successional growth, fire climax or a disturbed subclimax spruce forest. The carrying capacity for deer (Odocoileus virginianus), grouse (Bonsa umbellus), and

FIGURE 12: UPLAND BOGLANDS; ROWE MEADOW, SOUTH MOUNTAIN
FIGURE 13: WILLIAM H. EAGER, VIEW FROM THE HORTON MOUNTAINS, CIRCA 1836



snowshoe hare (Lepus americanus), all important at one time or another to the Micmac and other Indians would have been much lower than today. The carrying capacity for moose (Alces alces) would have been about the same and for caribou (Rangifer tarandus), much greater (1982:4).

But if the carrying capacity for land mammals and birds was lower in 1500 (except for caribou and water fowl -- shore birds), it was higher for fish, marine invertebrates and marine mammals (ibid:7). The increases in gaspereaux in recent decades may in fact be returning this fish to its prehistoric pre-eminence.

Population Ecology

As discussed in the Introduction, the principal problem-oriented objective for the Melanson Project was in understanding population size and change as it related to this large site on the Gaspereau River. While interest focused on the sizes of the local group at the Melanson site itself, a catchment area (Fig. 5) model was used to define a likely area for resource exploitation and to assess the distribution of other local groups or the dispersal of an aggregated, composite Melanson population.

The survey remains to be completed, but based on the preliminary results of the survey (Chapter 3), the other sites consist of small lithic scatters, workshops and a small shell heap -- i.e., there is no other significantly large sites within 10 km of Melanson. For the present, it seems legitimate to use Melanson as an independent group, while admitting their participation in an exchange system based on the Scots Bay chalcedonies -- a topic tackled in the final chapter.

One attractive, but elastic, population parameter is carrying capacity meaning the theoretically maximum number of people that can be supported within the constraints of available subsistence practices and technology. Hayden (1975) and others have pointed out the difficulties in determining carrying capacity but as Hassan also points out, even rough estimates ". . . are quite important in simulating changes in technology or food resources and culture change" (1978:66).

The difficulties notwithstanding, it would seem desirable to estimate at least some range for a supportable population at Melanson. One could use a standard series of concentric zones, each with a radius of 1 km to divide up the catchment area into 10 zones (Fig. 5) and apply a weighting system (cf. Vita Finzi and Higgs 1970:30) to compensate for travel time (foot or canoe) and the increased

energy expended in obtaining resources from the more distant zones. Jan (1986) has calculated the present-day composition of each zone, the results of which appear in Table 2.

But while Jan is able to identify the resources of each zone and do some rankings, in only a few cases are quantitative estimates feasible even for the particular resource today. There is the larger problem of bridging the gap to 1500 or earlier, some of the resource shifts having already been noted -- a familiar obstacle in all studies of early carrying capacities.

A shortcut to carrying capacity lies in the application of Leibig's Law of the Minimum, but in the case of the Micmac, the carrying capacity "bottleneck" involving the critical minimum resource occurs in winter. There is, however, no good evidence that the Melanson site was occupied in winter, rather the floral samples and the meagre faunal sample indicate non-winter occupation.

Perhaps the most profitable approach would be to argue that the gaspereaux, which run in the spring, were the most significant single resource within the catchment (even though the bones have not been recovered archaeologically). A village in Zone 1, operational at least in the non-winter months, could, on the basis of today's landings, get from 33 to 643 tons of gaspereaux based on the catch figures in Table 1, or an average of 207 tons (414,000 lbs.).

Several comments can be made about these figures. They are catch statistics from 1957-1984, not 1600 A.D., however, given Dodd's conclusions about the generally greater fish populations in prehistoric times we can suggest that the post-1929 rise in gaspereaux numbers may merely have restored something resembling the ancient population levels. Also, the dip net technology of today, applied to the same part of the river, does not seem to be more efficient than the weir and bag net techniques described for the 17th century Micmac. Finally, Dodds (pers. comm. 1986) is of the opinion that the range of variation between good and bad years would be less than at present. There would, however, remain broader cycles of natural depletion.

Jan assumes an annual average of 350,000 lbs. of which say 10% is not useable being bone, fins and guts, leaving some 315,000 pounds of food available for the spring. This amount could support a population of 1000 for 2 months at about 5 lbs./person/day or about 150 persons for a year if

TABLE 2: CATCHMENT ZONE COMPOSITION

ZONE 1

Total Area	100%	3 sq. km
Bottomlands	14%	0.4 sq. km
Thickets	10%	0.3 sq. km
River	6%	0.2 sq. km
Ravine	6%	0.2 sq. km
Estuary	14%	0.4 sq. km
Wooded Uplands	50%	1.5 sq. km

ZONE 2

Total Area	100%	10 sq. km
Estuary	16%	2 sq. km
Ravine	5%	0.5 sq. km
Bottomland	5%	0.5 sq. km
Thicket/Border	10%	1 sq. km
Wooded/Upland	50%	5 sq. km
River	10%	1 sq. km

ZONE 3

Total Area	100%	15 sq. km
Estuary	11%	0.5 sq. km
Bottomland	13%	2 sq. km
River	2%	0.5 sq. km
Ravine	2%	0.5 sq. km
Thicket/Border	10%	1.5 sq. km
Upland	62%	9 sq. km

ZONE 4

Total Area	100%	22 sq. km
Estuary	13%	3 sq. km
Mudflat	9%	2 sq. km
Ravine	8%	1.75 sq. km
Bottomland	9%	2 sq. km
River -- less than	1%	
Thicket	10%	2 sq. km
Bogland	8%	1.75 sq. km
Uplands	43%	9.5 sq. km

TABLE 2: CATCHMENT ZONE COMPOSITION (continued)

ZONE 5

Total Area	100%	29 sq. km
Estuary	20%	6 sq. km
Mudflat	10%	3 sq. km
Ravine	3%	1 sq. km
Bottomlands	6%	2 sq. km
Thicket	10%	3 sq. km
Bogland	4%	1 sq. km
Upland	47%	13 sq. km
River -- less than	1%	

ZONES 6 - 10 UPRIVER

Total Area	100%	est. 24 sq. km
Ravine	60%	est. 15 sq. km
Lake	5%	est. 1 sq. km
Upland	35%	est. 8 sq. km

ZONES 6 - 10 DOWNRIVER

Total Area	100%	est. 60 sq. km
Estuary	66%	40 sq. km
Mudflat/Beach	24%	15 sq. km
Lowland	10%	5 sq. km

the catch was dried or otherwise preserved (1986:67). These calculations, with their modern context and bias, are not to be taken in any absolute sense, but rather as a background for thinking about the limits to growth. One can also add that hunters and gatherers typically (but not always) kept their numbers low and at 20-60% of carrying capacity (Hassan 1978:76). If Jan's figures are adjusted for the spring, summer and fall (6 months) and then adjusted again at the 20-60% level, the population total compares favourably with that obtained from site area and ethnographic analogy methods, attempted in the final chapter.

Chapter 3

THE GASPEREAU SURVEY

No attempt was made to survey the entire catchment area, the time and resources were simply not available. Thus, in the spring of 1986, survey focused on the productive riverine zone down river from the Melanson site to the marine zone of Minas Basin. Even here, there was differential access to the ploughed fields on either side of the river. The survey remains to be completed; the sites listed below are those which were found or reported within the catchment area and are mostly small, lithic scatters in the lowlands.

It had been hoped that Archaic sites might be found down river, but such was not the case.

Ecozone: Riverine-Estuary

1. BgDb-11. North side of Gaspereau River, Wallbrook. A scatter of small cores and flakes of chert in an orchard on the 50 foot contour. Site dimensions ca. 130 m (E-W) x 30 m (N-S).
2. BgDb-12. Field, north side of Gaspereau River opposite Deep Hollow Brook; 15-40 feet above the river. Red and white chert flakes and small cores, one triangular end scraper over an area ca. 75 m (E-W) x 64 m (N-S).
3. Wallbrook-Melanson. A small amount of material has been collected along a creek on the north side of the river between those two localities (E. Gertridge).

Ecozone: Bottomlands-Riverine

1. Melanson Site: BgDb-1/7. Description and analysis in subsequent chapters.
2. BgDb-8. A few flakes and historic items were collected from a ploughed field on the Biggs farm near Martin Cross Road, some 300 metres north of the river and the Melanson site.

Ecozone: Riverine-Ravine

1. New Canaan/Chase Pools. A projectile point has been reported from a high terrace above the river east of New Canaan, upriver from Melanson (W. Cousins).

Ecozone: Mudflats-Estuary

1. BgDb-13. Flakes, cores and historic artifacts were collected at the Allen farm above Horton Landing
2. BgDb-14. Historic pipestems from Curry farm at the Horton Landing shoreline.

Ecozone: Marine

1. BgDb-15. The fields of the Palmeter farm on Long Island contained historic material and a few possible lithic pieces. Another collection was said to have come from the old Ferris farm in the 1930s (E. Gertridge).
2. Starr's Point. John Herbin (1907:17) reported both a cemetery and shell heap at Starr's Point on the west side of Minas Basin.

And there have been reports of other finds--a projectile point at Mud Creek (Wolfville), a burial at New Minas, a cemetery and Acadian finds at Avonport, etc. On Scots Bay, beyond the catchment area is a series of small workshop and habitation sites (Deal 1989). None of these sites are comparable in size or complexity to what is certainly the key site not only for the catchment area, but the entire region-- Melanson.

Format of the Melanson Report

Following the Introductory chapter are two short chapters covering the principal earlier investigations at Melanson--John Erskine's 1958 investigations (Chapter 4) and George MacDonald's excavations in 1965 (Chapter 5). Erskine's brief summary is reproduced in its entirety from Micmac Notes, 1958.

Chapter 6 by Nash, covers the 1986 field school excavations at BgDb-7 on the northwest corner of Melanson. Subtopics include excavation strategy, field procedures, stratigraphy and features. The material culture from BgDb-7, both prehistoric and historic, is described in Chapter 7 and analyzed from the perspective of intra-site variability by Nash. The material culture under consideration is mostly lithics, the ceramics being the subject of a separate study by Kristmanson (Chapter 8). Attribute descriptions not deemed essential for analysis are placed in the appendices along with some supplementary photos and observations on the Gertridge and Legge collections gathered from the Melanson site over the past 30 years.

In Chapter 9, Frances Stewart examines the economic basis of life at Melanson as reflected in the meager faunal sample. With a satisfactory sample of macroplant remains, mostly charred seeds, Michael Deal discusses prehistoric plant use and the seasonality of occupation at BgDb-7 (Chapter 10).

Chapter 11, Melanson In The Ceramic Age, is an overview chapter by Nash, one which integrates much of the above data and interpretations in an effort to model the growth and population dynamics of this 60 acre Woodland site.

The Melanson site has had a long and checkered history and although it is one of Nova Scotia's greatest prehistoric sites, it has languished in the shadow of Evangeline. It is hoped that this site report, made possible by a variety of institutions and many individuals will generate the historical interest in this locality which, in fact, it deserves. The size and socio-economic complexity of prehistoric Melanson testify to the continuing advances and evolution of the Micmac culture before 1600 AD. In addition to this report, many of the 1986 archaeological operations were recorded on videotape which offers another educational resource. These tapes, field notes, photos and other records, as well as the artifacts from the 1986 fieldwork are presently housed at St. Francis Xavier University in Antigonish. It is our hope, however, that the artifacts will eventually form part of a permanent Melanson Site display at the Wolfville Museum and that a memorial cairn and plaque will be erected on the site itself.

Chapter 4

MICMAC NOTES, 1958
by J. S. Erskine, Wolfville, Nova Scotia
for Nova Scotia Museum of Science, Halifax, N.S./MS No. 754

During the summer of 1958 I was again in the field in the service of the Nova Scotia Museum of Science, investigating the archaeological picture of Indian life in Nova Scotia. My first intention had been to repeat in Cape Breton the kind of superficial survey that I had begun in 1957 in southwestern Nova Scotia. Before starting I investigated a site near Melanson in Kings County. Then I set out for Cape Breton where I dug the remains of a small site near Little Narrows, and then investigated vainly the rumours of sites throughout the island and the eastern half of Nova Scotia. The results here were scanty. During August I returned to Bear River to continue the excavation of the site found last year at the mouth of the river. However, I found that my samplings had given me an inadequate idea of the site which was so large and deep that a month was insufficient for complete digging of more than the central wigwam.

This report, therefore, is again merely a statement of progress. It includes:

1. Observations on the Melanson site.
2. Details of the excavation of the Odaskwanokh site.
3. Details of the partial excavation of the Bear River site.
4. A miscellany of observations and supplements to Notes, 1957.
5. Summary to date.

1. Melanson

On the northwest bank of the Gaspereau River, beginning about a quarter-mile above the Melanson bridge, is the site of a scattered encampment where for a generation or more local families have picked up arrowheads. A great part of the site had been ploughed in the autumn of 1957, so that it was possible to mark down the ancient wigwam-sites by the concentrations of conspicuous chips of white quartz. These concentrations avoided the lower areas and were scattered for about four hundred yards and never more than thirty

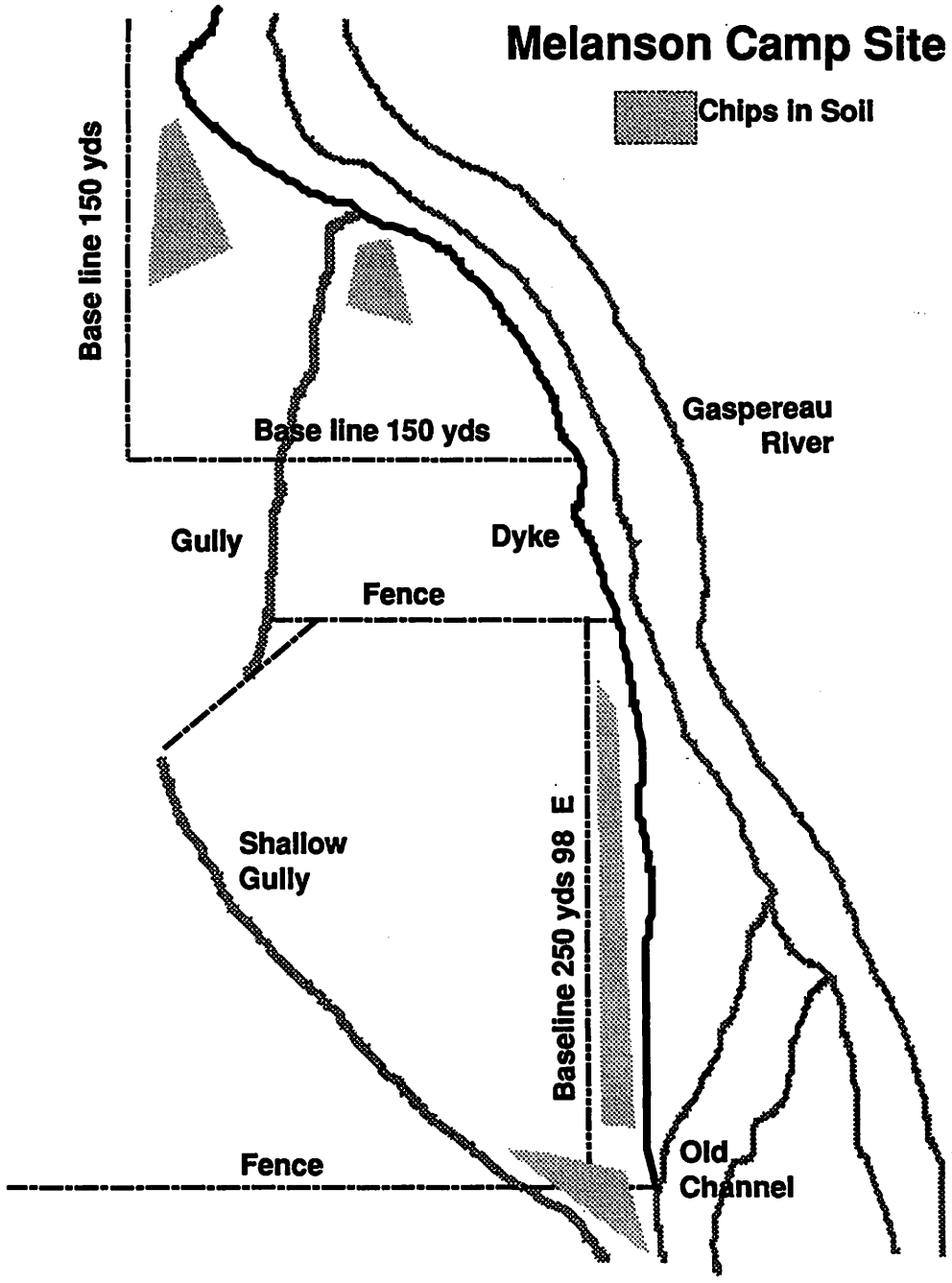

Melanson Camp Site
Chips in Soil
Base line 150 yds
Base line 150 yds
Gaspereau River
Gully
Dyke
Fence
Shallow Gully
Baseline 250 yds 98 E
Fence
Old Channel

FIGURE 14

yards from the river. Farther upstream and on the other bank of the river occasional chippings could be found.

The reason why this had been chosen as site for a camp became obvious when, on my visit on 20th April, I found the river bank lined with families dipping smelts. A month later a great net on the farther shore was scooping up gaspereaux. No doubt, salmon too would have been common in Indian times. The obvious season for occupation, then, would have been late April and May. A marsh still discharged a rivulet along a ditch through the centre of the camp, and this would probably have provided the Indians with drinking water. (Many sites suggest that the Indians preferred spring or brook water to river water.)

Mr. Bud Martin who owns part of the site, showed me what remained of his collection of "arrowheads". One of chalcedony was round-based long-triangular; one of amethyst-tinted quartz was long-triangular, corner-notched; a broken spearhead of whitish chalcedony? was pressure-flaked; and there was a piece of grayish flint, round-pointed and jagged-edged, which seemed to have been the business end of some tool. In answer to Mr. Martin's query, I could only venture that it was some sort of knife. He told me that he had picked up many more points, as well as a French iron tomahawk, but that these had been given away. During the spring I searched the site many times and picked up a few points, mostly broken, and some scrapers and curious long pieces of slate suggesting whetstones. A few sherds of pottery were found in the ploughed area, but these were much eroded, and it seemed to me that most pieces must have crumbled as a result of rough treatment and exposure. There were many fragments of American and British chinaware of the nineteenth century, fragments of iron and rusty nails both of wrought iron and of drawn wire. This suggested that the gathering for fishing had gone on until the beginning of this century, which older Indians confirm.

Only one spot showed black ash. I dug there and found fire-reddened hearthstones but nothing else, so that this camp probably dated from an age more recent than flint-working. An old dyke ran along the edge of the encampment, and at the upper end there were a few square yards of undisturbed turf outside the dyke, and here I dug some test-holes. In almost every hole I found black ash, but the depth of stained soil was never more than one inch, and in other places there were successive layers of black ash and yellow silt about one-quarter of an inch thick. In so diffuse a camp, where wigwams could be pitched anywhere and only for a short period at each occupation, it could never have been profitable to dig. At one spot I found thirty small sherds of a single pot, many chips and a beautifully

worked arrowhead of violet quartz which had been discarded when almost complete because of an intractable flaw in the stone.

Points. I found only two entire points and eight broken ones, too few for adequate generalization. Three (including both entire ones) are of quartzite, one stemmed, two triangular, which group them into Lower Woodland technique, though it seems that the technique was continued into the Middle Micmac period. All the rest can be assigned to typical Middle Micmac technique.

Pottery. The only two pot-rims were of Middle Micmac type: firm and large, with almost vertical rims, elaborately corded and punched outside and well scarified inside.

Food. No traces of food were found. We have presumed that fish was the staple. The neighbouring fence-line is crowded with chokecherries and hawthorns; but I could find no comparable fence-lines to serve as a control for numerical study. In its upper part the camp is bordered by an old channel of the river, now marshy and choked with bogbean, Menyanthes trifoliata L. In Europe the roots of this plant were used as a famine food and as a medicine, but Victorin (Flore Laurentienne) notes only medicinal uses of the plant in Canada, and Wallis does not list it among the plants used by the Micmacs. However, this is one of the only two stations of this plant within forty miles.

Summary. There is no doubt that this encampment was used seasonally by the Indians during many centuries, probably only during the five weeks of the year when smelt and gaspereaux were running. No tools suggest the Red-Paint people, about one-quarter might have been made by the Lower Woodland culture, the rest belong to the Middle Micmac period. As usual, the Acadian period is poorly represented. One piece of clay pipe-stem is so thick as to suggest the hand-made pipes of French sailors, and the "French iron tomahawk" may have been a trade-axe like the ones in the Picou burial. However, it is ill building on possibilities and hearsay. I turned away from Melanson convinced that, while much might be picked up, little could be learned from scattered and ploughed sites.

During the summer a new dyke was bulldozed and draglined along this section of river, and the greater part of the camp was destroyed.

Chapter 5

The 1965 Excavations

In the spring and summer of 1965, George F. MacDonald, then Atlantic Provinces archaeologist for the National Museum of Canada, supervised exploratory excavations at the Melanson Site. This chapter is a summary account of these excavations in so far as they can be reconstructed from available records and information from local informants. According to MacDonald (letter of 17 January 1985), the objective of the work was to determine whether some Debert-like, Paleo-Indian pieces in a local collection came from Melanson. Eventually it became apparent that these pieces came from the Debert Site itself and not Melanson, a conclusion verified by the excavations at the Melanson Site. The absence of any Paleo-Indian occupation plus MacDonald's transfer to west coast archaeology meant that the results of the field work have remained unpublished. For 21 years, the material remained the only excavated collection from Melanson which in MacDonald's view, is a site "... obviously mixed, over a large period of time, with lots of archaic evidence mixed in with much later ceramic varieties." (Ibid., 1985).

In this chapter and the pottery section, these materials are analyzed as a kind of archival archaeology. Melanson, like Indian Gardens, Tusket Falls and other sites in Nova Scotia are second generation sites in the sense of having had some prior investigation by amateur or professional archaeologists. These workers have left records of varying completeness about an archaeological record that is itself incomplete, thus posing some questions about the limits of inference and the strategy of later fieldwork at the same site. From the Archaeological Survey of Canada came the 1965 Melanson collection complete with charcoal samples, the later surface collections by Keenlyside and Hall (1981), artifact catalogues, slides and Ms. No. 3, the field notes of George MacDonald which consisted of the profile drawings and observations for each pit. The black and white photos could not be relocated, nor was there any daily diary log book or preliminary reports. Accordingly, the following summary does not aspire to be a site report, but instead, focuses on questions of vertical stratigraphy and chronology which can be addressed with the available records. One strength of the collection is the large pottery sample and since few sherds were recovered in 1986, this earlier pottery sample receives particular attention.

Excavations

"I excavated a very rich cache with a good deal of ceramics on the road face of the cemetery and also in the field behind the farmer's house overlooking the interval" (MacDonald ibid., 1985). MacDonald's excavations were on the north side of the Gaspereau River on what can be considered the central and eastern parts of the site. A small surface collection was made from the south side of the river. Five Borden numbers were assigned to the various sections of the site: BgDb-1 (Martin's farm); BgDb-2 (Melanson Dyke); BgDb-3 (Merck's farm); BgDb-4 (areas of BgDb-1 and 2 combined) and BgDb-5 (Melanson cemetery).

BgDb-1: Martin's Farm. Although identified as Martin's Farm, this surface collection from a ploughed field is almost certainly not from the present Martin farm, but from adjacent property now owned by Dr. Wellwood and Basil Smith where the 1965 excavations took place (Figure 15). The catalogue in fact links the collection with test pit 14 located in this latter area.

The catalogue lists 286 artifacts, not counting unretouched flakes. Most of the material is lithics of every description.

BgDb-2. This site, also identified as Melanson Dyke, was initially tested in April of 1965 with "field test No. 1" along the edge of the river. Six additional squares were apparently done in July, although the later material was catalogued as BgDb-4. The initial field test involved excavation in four levels to a depth of 1'11" "below string"; a hearth being encountered in level 2. The catalogue from this initial field test lists 50 artifacts, exclusive of chips. Twenty-two additional items were collected from the surface and there were three charcoal samples collected.

BgDb-3. The 1965 collection contains 10 items, exclusive of flakes, collected from Merck's farm on the south bank of the Gaspereau River. This total includes a single potsherd. However, the 1986 surveys revealed a much more extensive occupation of the south bank than this small collection suggests.

BgDb-4. This site is the same as BgDb-1 and 2 combined. Materials with this catalogue number came from July excavations near the dyke and from excavations on the Smith/Wellwood properties further away from the river. At the dyke, a line of 9 squares were excavated in an east-west line. Materials in the catalogue are assigned to the plough zone, layer 1 and layer 2. At least one rim sherd from

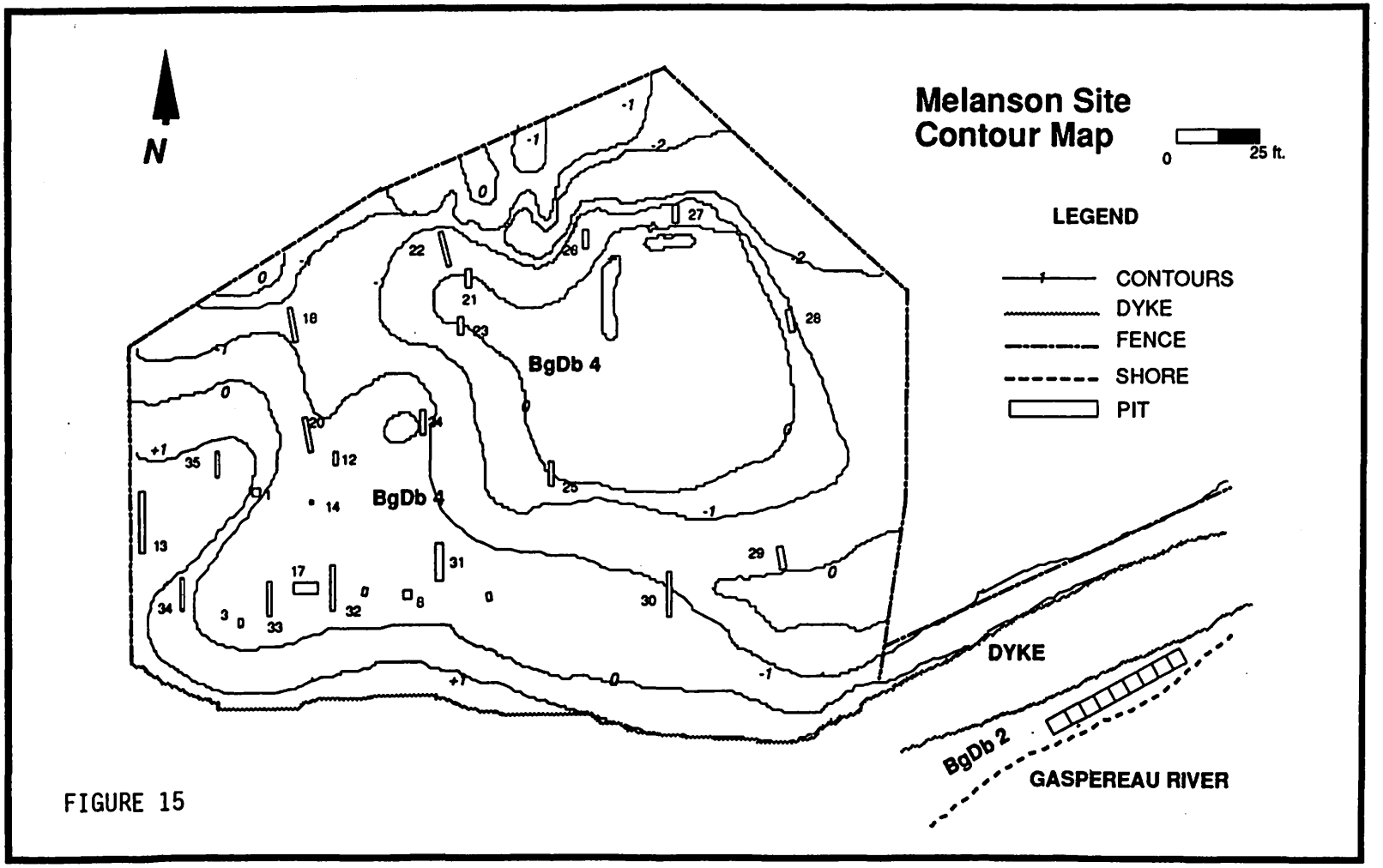

N
Melanson Site
Contour Map
0
25 ft.
LEGEND
CONTOURS
DYKE
FENCE
SHORE
PIT
BgDb 4
BgDb 4
DYKE
BgDb 2
GASPEREAU RIVER

FIGURE 15

these squares can be matched up with a rim from BgDb-2 indicating the close proximity of the excavations.

North from the river and the dike, 36 test pits were excavated, some 5x5', others such as pit 17 were 5x10'(Fig. 15). There was also an A to E series of test pits. Most were routinely excavated, although pit 21 for example, was excavated with a back hoe. A sketch map of some of the pits indicates testing well back from the river on the 10 metre terrace where the crew were camped. The fields were under cultivation, but occupation and stratification were present in about half of these 36 pits as far down as the water table at 24-30".

The BgDb-4 collection contains over 400 artifacts, not counting chips, a total slightly greater than what appears on the catalogue. This total includes over 300 potsherds.

It should be noted that the fields north of the dyke (i.e., not BgDb-2) have been intensively picked by collectors especially in the last 30 years. Arrowhead Alley is a productive strip which is particularly black after ploughing and MacDonald's test pits 9, 10, 14 and 17 may be located here. As one moves east beyond the old drainage channels and into the 20 acres presently owned by Basil Smith, the surface is more irregular in having a number of small low knolls. Ellis Gertridge has observed a greater tendency for artifacts to cluster on these rises, suggesting perhaps individual camps situated on the better drained spots.

BgDb-5. This site, also termed the Cemetery Site, is situated at the modern cemetery beside the Melanson bridge (Figure 36). Here, near the present head of tide, the 10 metre terrace extends closer to the river and offers an attractive place for living and fishing. Excavations were not possible, but some cutting and collecting were accomplished along the road at the edge of the cemetery. The catalogue lists some 398 items, including 7 points, 3 point fragments and 354 potsherds.

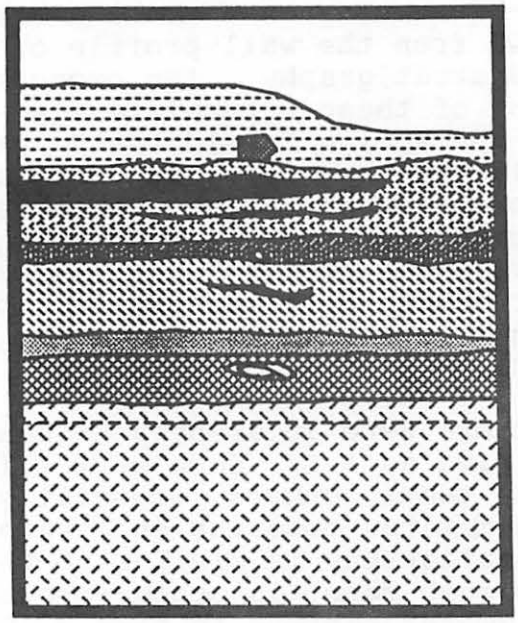
Stratigraphy

The central part of the Melanson Site, where the 1965 excavations took place, has a more complex stratigraphy than that to be found on the Coldwell farm at the upper end of the site. Except perhaps for the river banks, the entire central area had been ploughed to a depth of about 7 inches. Below the plough zone are a series of soil, clay and sand layers beyond which the water table or gravels appear.

Judging from the observational notes accompanying the profile drawings, the occupation zones in the squares near the dyke were largely coincident with the plough zone and the black strata below. There is much variation, but the most common stratification below the plough zone consisted of 2 dark strata, several inches in thickness, separated by several inches of orange-brown clay or a mottled black zone. Figure 16 has been redrawn from the wall profile of square W5N10 and illustrates the stratigraphy. The excavations at Melanson Dyke took account of these natural levels, but were not controlled by them. The spring "field test", probably at the river, was accomplished in 4 apparently arbitrary "levels". There are no profiles or excavation notes, just a catalogue with some descriptive notes. The later squares, such as W5N10, were excavated as plough zone, "layer 1" and "layer 2". It is unclear how these layers relate to the stratigraphy, but it cannot be assumed that the two layers relate to the two dark strata mentioned above.

North of the dike, there were apparently 36 numbered test pits/trenches identified as A-E. Some were evidently merely unproductive shovel tests, others, especially 1-17 were more informative and merited observational notes and profile drawings. The stratigraphy is similar to that found closer to the dyke -- a plough zone, an orange-brown sand/clay soil and gravel/water table. In pits 8, 9, 10, 12, 14, 15 and 17, the black layers appear, often as two separate bands, sometimes as a single layer. The artifacts and features correlate with the plough zone and these black strata. Figures 17, 18 show some of this stratigraphy in pit 17 and the observational notes read as follows:

> Test Pit 17 was 5'x10. Sod and plow zone were shoveled off and contained many chips (6 bags) and several artifacts. The rest of the square was taken down by trowel. Beneath the plough zone there were a number of poorly defined black strata (see profile sheets, pp2-17). In the plow zone and these black strata there were a number of fire cracked stones. At approximately 1.6' three post molds appeared (see floor plan above). A and B were only 0.4' deep but C extended to 3.4'. At 1.7 and for several inches deeper there appeared long gray stains, perhaps root molds; one was very straight and 2.5' long. There was a concentration of pottery around a cluster of broken stone (appeared not to be fire cracked) (MacDonald Field Notes, 1965, p.1; recorded by S.A.).



Melanson Dyke
W5 N10

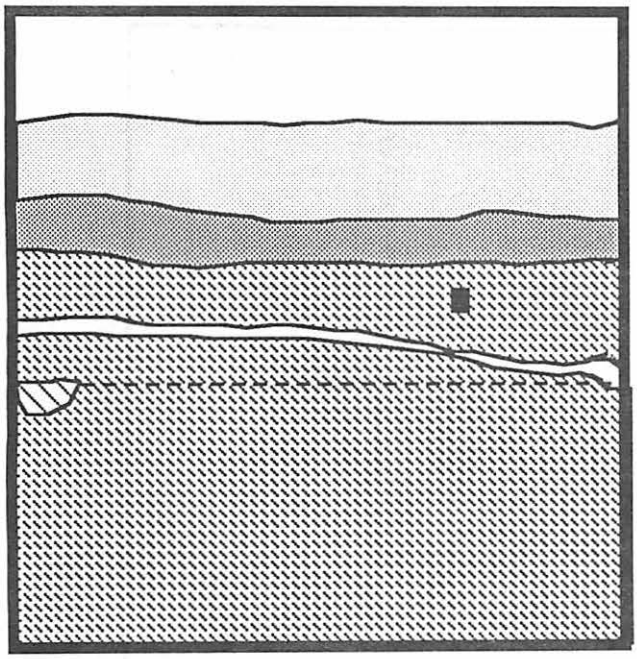
Date: 07/07/65

Legend

- Disturbed
- Grey Clay
- Mottled Brown
- Black
- Quartz Cobble / Chips
- Light Black
- Clay
- Gravel
- Sandy
- Brown Sandy
- Limit Of Excavation
- ---- Water Table

Note: Wall Drawn Is 7" From Stake.

FIGURE 16



SE SW

Melanson Site
Pit #17
South Wall

Date: 03 / 07 / 65
Sheet 6

Legend

- Plow Zone
- Clay
- Chip
- Dark Strata
- Sand
- Strata
- ---- Limit of Excavation

Note: The profile of the South Wall of Pit #17 is recorded on two profile sheets, i.e. 6 & 7

FIGURE 17

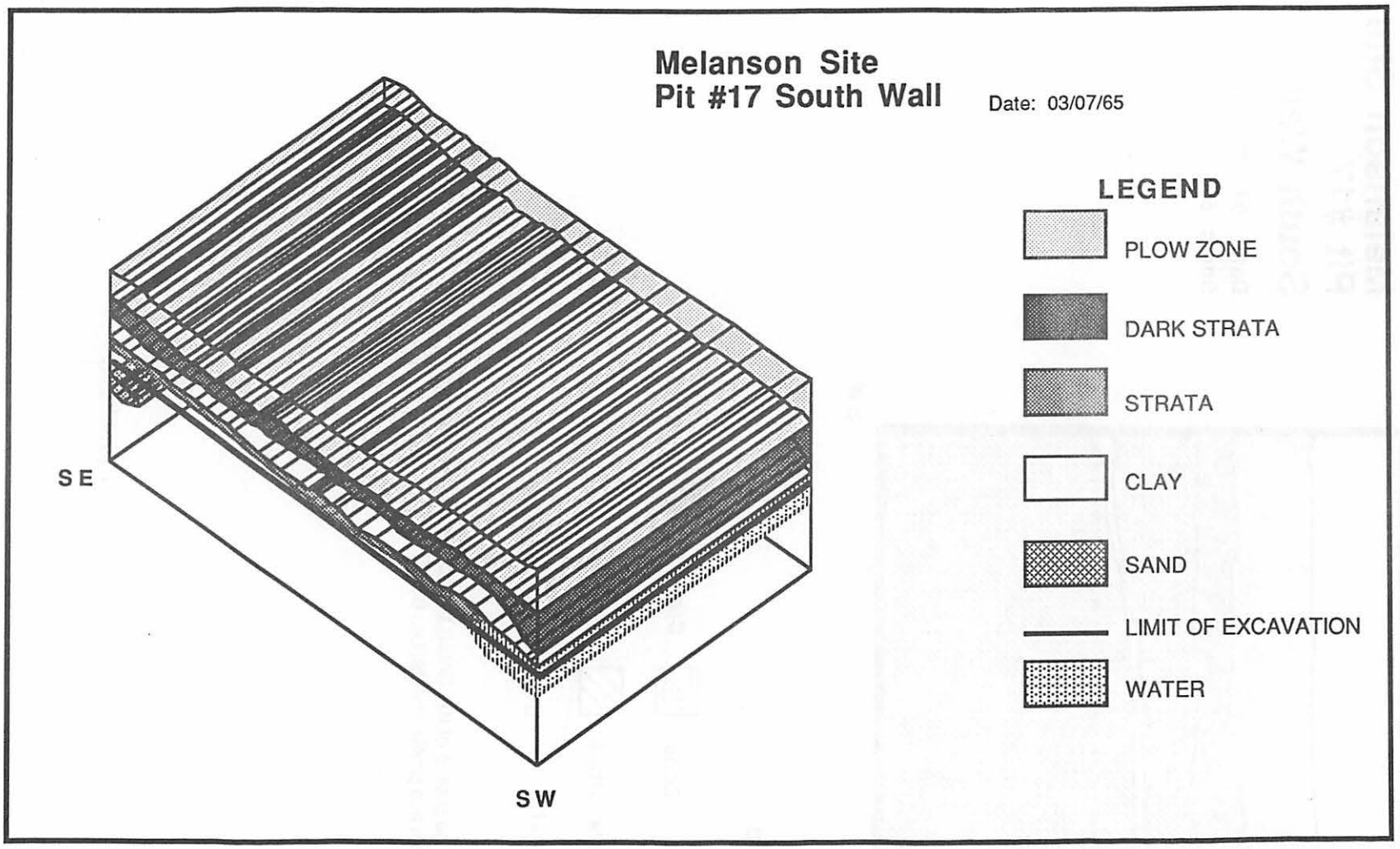

Melanson Site
Pit #17 South Wall
Date: 03/07/65
LEGEND
PLOW ZONE
DARK STRATA
STRATA
CLAY
SAND
LIMIT OF EXCAVATION
WATER
SE
SW

FIGURE 18

As above, the digging of pit 17 was accomplished by levels: plough zone, layer 1 and layer 2 which may or may not equate with the black strata.

Material Culture

The artifacts, points and pottery in particular, plus features, can profitably be examined for chronology in both horizontal and vertical dimensions. Are there three occupations as suggested by the stratigraphy? Are any of these occupations Archaic? Has the settlement shifted in position over time, in relation to the course of the river or the head of tide or grown in size?

In the summer of 1986, the pottery, points, scrapers, bifaces and celts were attribute coded on 80 column Fortran coding forms and the pottery and point data later computerized. The pottery is dealt with in the next section, the projectile points are treated here.

Projectile Points. The 47 points were coded in terms of their provenience data, the geometrical attributes of style, blade outline, stem outline, base outline and the metrical attributes of length, width and thickness. A selection of these points appear in the accompanying figure while the descriptive data are to be found in the appendices.

It can be noted, however, that the coding differs slightly from the attribute coding used at Delorey Island (Nash 1986). In the present report, notched points are consistently separated into side-notched and corner-notched styles, rather than treated as a single style having two different types of hafts. Stemmed points or corner-removed points have tangs and bases which are narrower than the shoulders of the blade.

Archaic Occupation. Is there an Archaic component as MacDonald suggested? Although the black strata below the plough zone are undisturbed, there is not an obvious Archaic component. The four levels in the field test (BgDb-2) all contain pottery as do the three levels in the squares and test pits north of the dyke (BgDb-4). Projectile points were not recovered from the lowest pottery levels, but were present in the upper levels, especially in the upper black strata (layer 1) of the squares near the dyke. These excavated samples can be considered Woodland Styles which do not predate 1760 $\pm$ 60 (Beta-17908) years ago, a date obtained from a charcoal sample submitted by Nash in 1986. This sample came from level 4 (1'6" - 1'11" below surface)

Projectile Points Central Area

Specimen No.	Borden No.
a (Archaic point)	BgDb-1-20
b	BgDb-4-18
c	BgDb-4-19
d	BgDb-4-21
e	BgDb-4-5
f	BgDb-2-19
g	BgDb-4-3
h	BgDb-1-8
i	BgDb-4-4
j	BgDb-1-18
k	BgDb-1-25
l	BgDb-4-44
m	BgDb-1-22
n (1986 collection)	BgDb-4
o (1986 collection)	BgDb-4
p (1986 collection)	BgDb-3

FIGURE 19

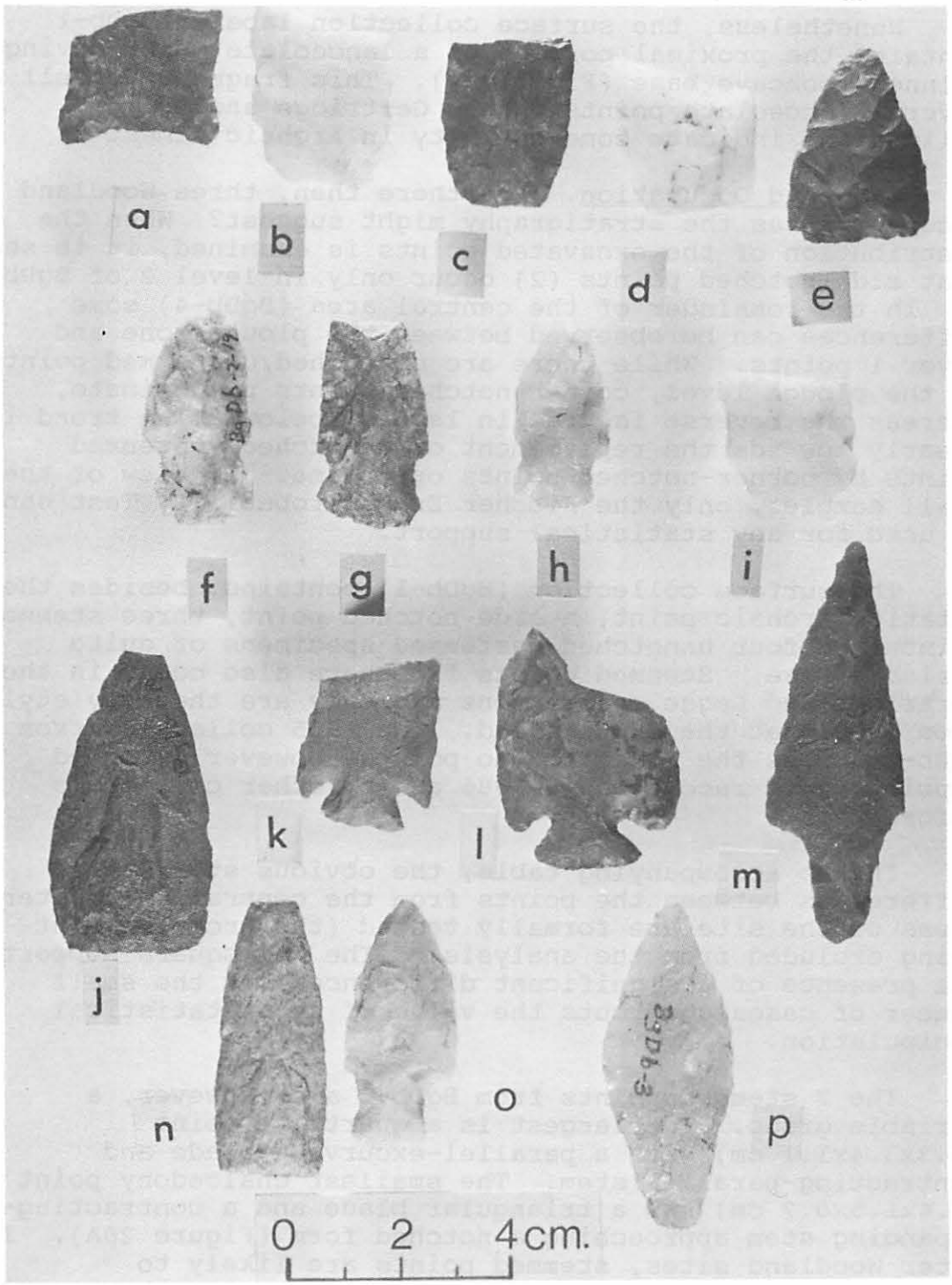


FIGURE 19

near the bottom of BgDb-2 and was associated with quartzite chips, ochre and pottery vessel number two.

Nonetheless, the surface collection labeled BgDb-1 contains the proximal portion of a lanceolate point having a thinned, concave base (Fig. 19a.). This fragment as well as several lanceolate points in the Gertridge and Legge collections indicate some activity in Archaic times.

Woodland Occupation. Are there then, three Woodland occupations as the stratigraphy might suggest? When the distribution of the excavated points is examined, it is seen that side-notched points (2) occur only in level 2 of BgDb-2. In the remainder of the central area (BgDb-4) some differences can be observed between the plough zone and layer 1 points. While there are unnotched/unstemmed points in the plough level, corner-notched points predominate, whereas the reverse is true in layer 1 below. The trend is clearly towards the replacement of unnotched/unstemmed points by corner-notched points over time. In view of the small samples, only the Fischer Exact Probability Test can be used for any statistical support.

The surface collection (BgDb-1) contains, besides the putative Archaic point, a side-notched point, three stemmed points and four unnotched/unstemmed specimens of quite variable size. Stemmed points from here also occur in the Gertridge and Legge collections and they are the only style from BgDb-5 at the eastern end. The 1965 collection from BgDb-3 across the river had no points, however, stemmed bipoints were recovered in 1986 and by other collectors before that.

In the accompanying table, the obvious stylistic differences between the points from the central and eastern areas of the site are formally tested (the Archaic point being excluded from the analysis). The chi-square supports the presence of a significant difference, but the small number of cases undercuts the value of such statistical manipulation.

The 7 stemmed points from BgDb-5 are, however, a variable group. The largest is a quartzite point (6.3x3.4x1.1 cm) with a parallel-excurvate blade and contracting-parallel stem. The smallest chalcedony point (3.4x1.5x0.7 cm) has a triangular blade and a contracting-expanding stem approaching a notched form (Figure 20A). In later Woodland sites, stemmed points are likely to constitute a minority style (Nash 1986:42), but they predominate in the Early Period of the Oxbow Site (Allen 1980:136). Accordingly, the interpretation favored here is

Projectile Points Eastern Area

Specimen	Borden No.
A	BgDb-5-4
B	BgDb-5-2
C	BgDb-5-5
D	BgDb-5-10
E	BgDb-5-23

FIGURE 20

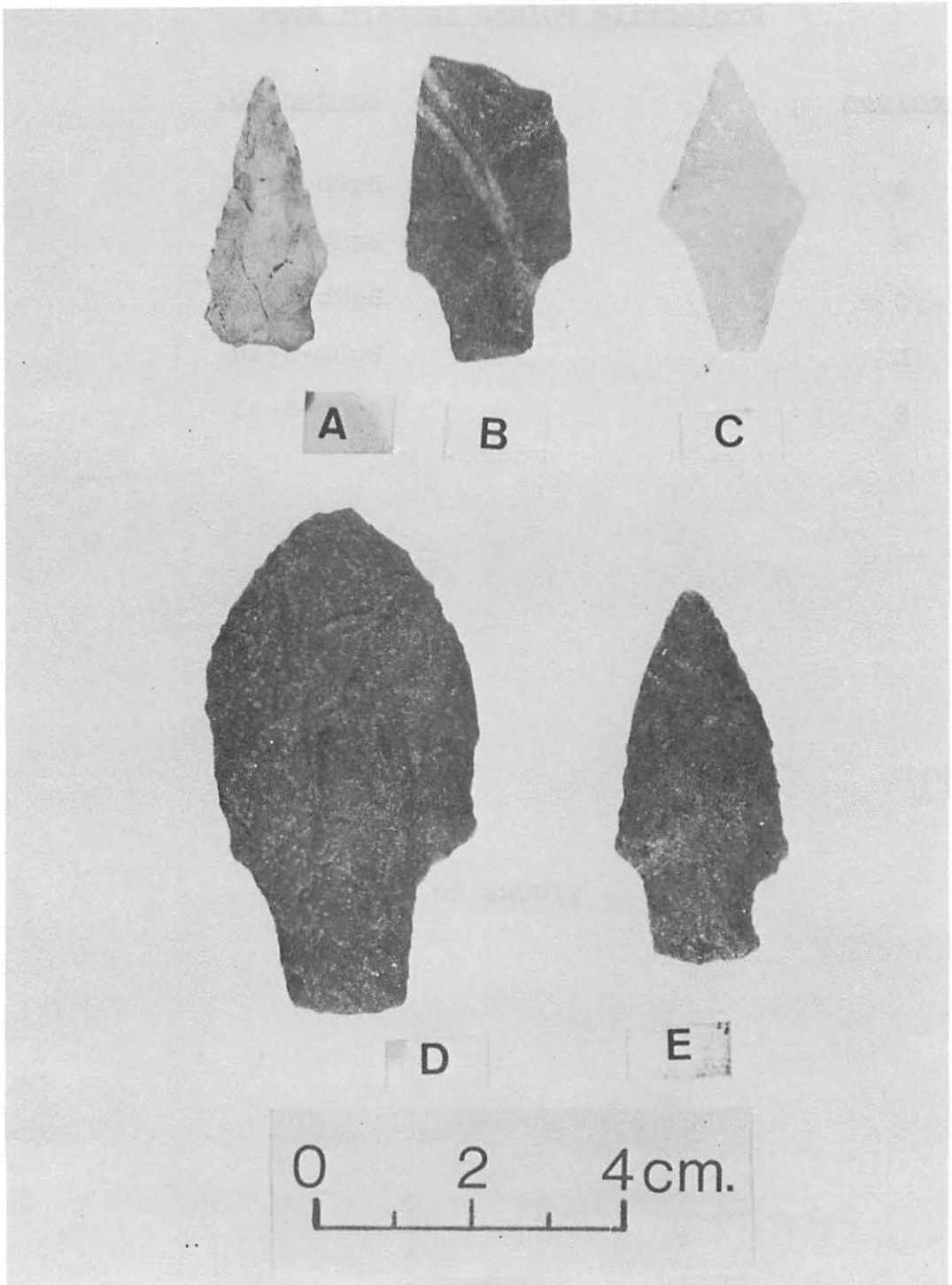


FIGURE 20

TABLE 3

CENTRAL AND EASTERN COMPARISON

Crosstabulation AREA BY STYLE — SITE DIVIDED INTO 2 AREAS: 14=1 to 4 PROJECTILE POINT STYLE

STYLE-> Count / Row Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
AREA						
BgDb05			7 87.5		1 12.5	8 17.4
BgDb14 BORDEN 01 to 04	3 7.9	4 10.5	3 7.9	10 26.3	18 47.4	38 82.6
Column Total	3 6.5	4 8.7	10 21.7	10 21.7	19 41.3	46 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.<5
24.78871	4	.0001	.522	7 of 10 (70.0%)

Number of Missing Observations = 0.

****

TABLE 4

MELANSON PROJECTILE POINTS, MACDONALD, 1965, AREA BgDb 1

Crosstabulation: LEVEL BY STYLE — LEVEL NUMBER PROJECTILE POINT STYLE

STYLE-> count / Row Pct	Side Notched 1	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
LEVEL					
0 SURFACE	1 6.3	3 18.8	4 25.0	8 50.0	16 100.0
Column Total	1 6.3	3 18.8	4 25.0	8 50.8	16 100.0

Number of Missing Observations = 0

TABLE 5

MELANSON PROJECTILE POINTS, MACDONALD, 1965, AREA BgDb 2

Crosstabulation: LEVEL By STYLE — LEVEL NUMBER PROJECTILE POINT STYLE

STYLE -> / LEVEL	Count / Row Pct	Side Notched 1	Indeterminate 5	Row Total
0 SURFACE	0		1 100.0	1 14.3
1	1		1 100.0	1 14.3
2	2	2 40.0	3 60.0	5 71.4
	Column Total	2 28.6	5 71.4	7 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.<5
1.12000	2	.5712	.286	6 of 6 (100.0%)

Number of Missing Observations = 0

****

TABLE 6

MELANSON PROJECTILE POINTS, MACDONALD, 1965, AREA BgDb 4

Crosstabulation: LEVEL By STYLE — LEVEL NUMBER PROJECTILE POINT STYLE

STYLE - > / LEVEL	Count / Row Pct	Corner Notched 2	Unnotched Unstemmed 4	Indeterminate 5	Row Total
0 SURFACE/ PLOUGH	0	3 42.9	1 14.3	3 42.9	7 43.8
1	1	1 11.1	6 66.7	2 22.2	9 56.3
	Column Total	4 25.0	7 43.8	5 31.3	16 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.<5
4.59320	2	.1006	1.750	6 of 6 (100.0%)

Number of Missing Observations = 0

TABLE 7

MELANSON PROJECTILE POINTS, MACDONALD, 1965, AREA BgDb 4

Crosstabulation: LEVEL By STYLE — LEVEL NUMBER PROJECTILE POINT STYLE

STYLE --> / LEVEL	Count / Col Pct	Corner Notched 2	Unnotched Unstemmed 4	Row Total
SURFACE	0	3 75.0	1 14.3	4 36.4
	1	1 25.0	6 85.7	7 63.6
	Column Total	4 36.4	7 63.6	11 100.0

STATISTIC	One Tail	Two Tail
Fisher's Exact Test	.08788	.08788

Number of Missing Observations = 0

****

TABLE 8

MELANSON PROJECTILE POINTS, MACDONALD, 1965, AREA BgDb 5

Crosstabulation: LEVEL By STYLE — LEVEL NUMBER PROJECTILE POINT STYLE

STYLE -> / LEVEL	Count / Row Pct	Corner Removed 3	Indeterminate 5	Row Total
SURFACE	0	7 87.5	1 12.5	8 100.0
	Column Total	7 87.5	1 12.5	8 100.0

Number of Missing Observations= 0

that the eastern and downriver area contains the oldest part of the Woodland occupation at Melanson. It must be admitted, however, that there is a thermoluminescent date (Alpha-3157) of 730 ± 20% years ago which contradicts this idea, a point pursued in subsequent chapters.

In summary, on the basis of the projectile points and/or stratigraphy;

1. There is no buried Archaic component, but there is some evidence of Archaic activity at Melanson.

2. There have been at least three Woodland occupations in the last 1760 years on the central part of the site.

3. The downriver (eastern) area of the site (BgDb-5) contains a distinctive point assemblage which could date early in the Woodland Period.

Site Function

Although one of the 1965 slides shows some shell in the lower levels of the central area, there was no preservation of bone and no faunal samples were collected. Thus, the 1965 collection remains most useful for studies of culture history and the areal extent of occupation. While knowledge of food resources is critical to reconstructing the activities at Melanson, the concluding chapter also attempts to analyze lithic manufacturing operations with respect to the Scots Bay chalcadony quarries. To this end, it is necessary to inventory the lithic debris collected in 1965.

The National Museum catalogues for the collections from the central part of Melanson (BgDb-1/4) list a further 50 cores, 103 core fragments and 6 preforms. Most are surface finds and use a wide definition of what a core is, including not just polyhedral cores, but "... bifacially retouched core-quartz, turtle back quartz core, exhausted core fragment-quartz ..." etc. (Keenlyside 1981 catalogue, Acc. No. 2294). A majority of identified cores, core fragments and preforms are quartz, presumably from nearby White Rock. Quartz, being closer than the Scots Bay cherts, was available in greater amounts rather than in thin beds or nodules as at Scots Bay. If quartz was not a preferred material, it may have been processed in less efficient fashion. Other technological by-products include a few blade-like flakes plus cortical flakes, bipolar flakes and a number of retouched flakes.

Chapter 6

The 1986 Excavations

The Coldwell Farm, BgDb-7

The excavations in 1986 were at the northwest corner of the Melanson Site on the lower terrace of the Coldwell farm, beside the Gaspereau River. This upriver end of the site had not been tested by earlier investigators and had only recently attracted the attention of collectors. Yet, the terrace was ploughed and examination by Nash and Stewart in 1985 revealed considerable lithic material over an area of about 200-250 m^2 at the west end of the terrace, plus a larger, secondary area with lesser occupational debris still on the lower terrace. In addition, a small lithic sample was collected from the front of the second, (10 m) terrace. Since the excavation portion of our field program was to be a field school, the Coldwell farm locality, designated as BgDb-7, offered admirable potential for instruction and for addressing some specific problems pertaining to the entire site.

It is informative to compare the stated objectives for the excavations, prior to fieldwork, with what was actually accomplished, to note the shifting mix of deductive and inductive thinking. A memo by Nash from February 1986 lists the following excavation objectives for the summer field school.

> Excavations in July and August 1986, in the field school context can involve:
>
> 1) a series of 2 x 2 m pits, 2 person/pit allocated with respect to the artifact clusters and distributed so as to:
>
> 1) maximize artifact recovery for the students;
> 2) test areas beyond the MacDonald zone;
> 3) provide some linear coverage rather than a block excavation.
>
> 2) pits placed where fish bone is most likely to be recovered (ethnographic models of processing) perhaps closer to the river where shell or water-logged deposits might assist preservation, or at the old channel. This is one way of testing Erskine's hypothesis on site function.

3) pits placed in areas of charcoal/organic concentration as per MacDonald to recover charcoal samples for dating and charred seeds for floral analysis.

4) pits placed where there is the greatest depth below the plough zone, as per MacDonald, in an effort to locate undisturbed deposits below the plough zone.

The intent is not to move a lot of dirt, but to instruct students in archaeological methods and attempt to recover the kind of ecofactual data not obtained by G. MacDonald in 1965.

Objective 1 was accomplished; the field school was a positive experience for all involved. With a little luck, objective 3 was accomplished, three of the pits containing hearth areas. In these and other pits, charred seeds were abundant enough to provide a good floral sample. However, the faunal samples recovered were very small, containing only one fish bone of consequence, thus effectively frustrating deductive efforts to test the site's function (objective 2). The attempt to locate deep, undisturbed deposits below the plough zone (objective 4) was partially successful, although there was no Archaic layer.

In general, as the field school continued with minimal ecofactual data (other than seeds) being recovered, but considerable artifactual data and adequate charcoal, inductive considerations of culture history took precedence. It was in this context of emerging field information together with the ongoing ceramic analysis in the laboratory that BgDb-7 came to be regarded as the latest part of Melanson and the general model of upriver expansion was developed.

Field Procedures. Twenty-two students, one field assistant, and one volunteer excavated 13, two by two metre pits on the artifact-rich field fronting the river (Figure 21). By laying out the pits in an alternating, checkerboard fashion parallel to the river (Figure 22), we obtained an east-west profile 22 metres long and a maximum north-south profile of 6 metres. From a benchmark of 8 metres above sea level at Melanson bridge, a baseline was run some 2 km west to the Coldwell farm and a datum point established just west of the excavation grid. This datum point was fixed at 4.5 m A.S.L. Excavations proceeded in standard fashion by means of trowels, transit readings, profile/floor drawings, photos, record forms etc., with the northwest corner as designate. The accompanying photo of field work in progress, shows some of these pits, a tripod screen and the

FIGURE 21: THE 1986 FIELD SCHOOL EXCAVATION, COLDWELL FARM

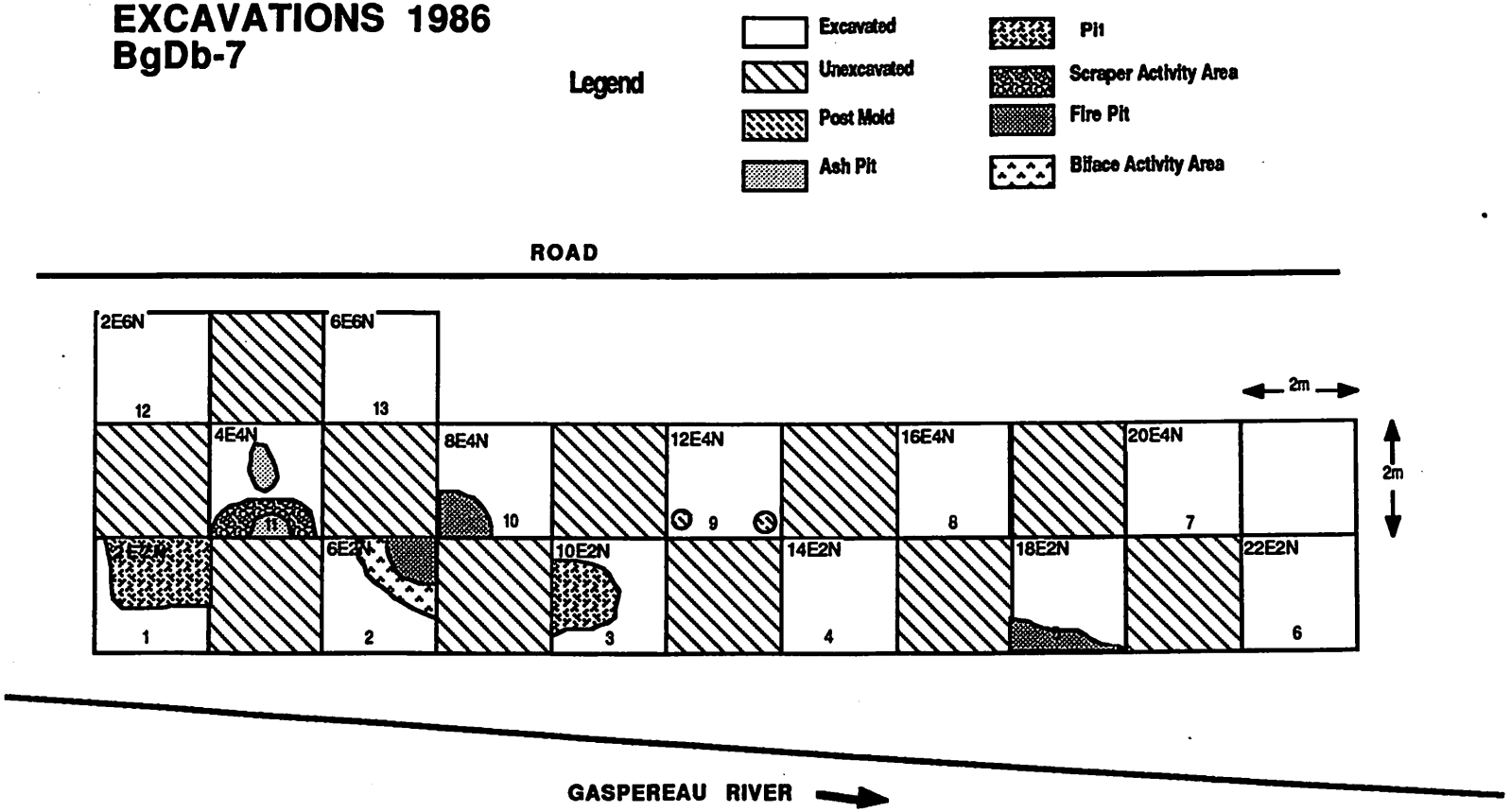


FIGURE 22: EXCAVATIONS 1986, BgDb-7, CHECKERBOARD GRID

van. A shed and dip net used during gaspereau season are in the background. A non-standard form of record keeping involved a videotape documentation of the work.

Selected samples of soil from pits or hearths were dry sieved with a 4 mm mesh, then a 1 mm mesh was used in conjunction with flotation procedures to recover a floral sample (Figure 23; see also Deal Chapter, this volume).

Stratigraphy

The stratigraphy has fewer layers than is the case in the central part of the site, but while BgDb-7 is less complex, it is not homogeneous. Field assessments by Vernon Rodd of the Kentville Research Station and George Stevens of Acadia University form the basis for the subsequent comments on these Acadian soils.

According to Rodd, the soil was a podzol with A, B and C horizons but the absence or thin layer of Ac in most of our squares indicated that it was a poorly developed podzol. Rodd attributed this primarily to ploughing which resulted in a greater Ap and a shallow Ac but he allowed that Indian disturbances in the A horizon could have been a factor as well.

The Coldwell field is covered with a fine, sandy-brown loam (Ap layer), colored 7.5YR3/2 in the Munsell Code and extending to a depth of about 20-25 cm or considerably deeper in the pit/hearth features. The loams in the 4 north line of pits have a higher silt content than those in the 2 north line of pits.

This zone has been ploughed and sometimes deepened by that ploughing, but the disturbance has been variable. This brown soil layer was typically excavated with an initial and arbitrary 10 cm level (L.1), followed by one or two more levels for which the top of the orange sand formed a natural boundary for the level. The occupation was coincident with this brown soil zone, extending on occasion into the top of the underlying orange sand. Ploughing has occasionally left furrow marks on the top of the orange zone and assisted the downward migration of historic goods even to the top of the orange zone. Generally, however, the historic English items are restricted to the upper two levels.

There has been less disturbance to the A horizon in pit 18E2N near one end of the excavations. Here, sandwiched between the brown loam (Ap) and the orange sand (B horizon)

is a grey/white band with considerable charcoal. This is an A_e layer indicative of a more developed, but still immature soil profile (Figure 25). Ploughing has evidently not destroyed and mixed this layer at this particular spot allowing us to have some confidence in the radiocarbon date from this layer (level 3).

The orange layer is essentially sterile; artifacts when they occur, tend to be near the brown-orange interface. The orange is a B horizon with considerable iron, and is color coded 7.5YR4/4 in the Munsell system. Deeper testing in 16E4N revealed a C horizon at 60 cm depth, still orange, but with some color difference. The material is heavily sand in content, but with enough clay to act as a binder. The rounded pebbles are indicative of water deposits as are the gravels at the bottom of this pit. Levels 3 and 4 in 16E4N were in the orange sands, and both levels were sterile as was level 5, taken to 85 cm depth.

Features

Post Molds. There was no obvious connection among the four possible molds of 12E4N, and only two seemed definitive. These two, adjacent to the pit's south wall, were encountered at a depth of 23 cm where they showed up as dark circles against the orange sand matrix. Both were profiled, the deeper one, extending to 44 cm depth, contained dark brown soil mixed with charcoal and a quartz flake. The post mold was circular, 7 cm in diameter, and had an irregular base. The other definite post mold was only 6 cm deep with a pointed end. Oblong in shape, and 5 x 4 cm thick.

A curvilinear area of grey ash at about the same depth was thought to be a tree root and merely drawn and sectioned. Similarly ambiguous post molds appeared during the 1965 excavations in the central part of the site. AT BgDb-7, however, it cannot be said that these molds indicate former wigwam poles, for the present owners once had a fish shed on this part of the field.

Small Pits. Pit 4E4N contained a somewhat oblong-shaped pit in level 3 at the bottom of the plough zone and extending into the orange B horizon. Measuring 1.4 x 0.32 x 0.38 m, it was filled with sandy white ash and contained a cluster of quartz chips and a point tip.

Figure 23:

FLOTATION FOR MICRO FLORA AND FAUNA

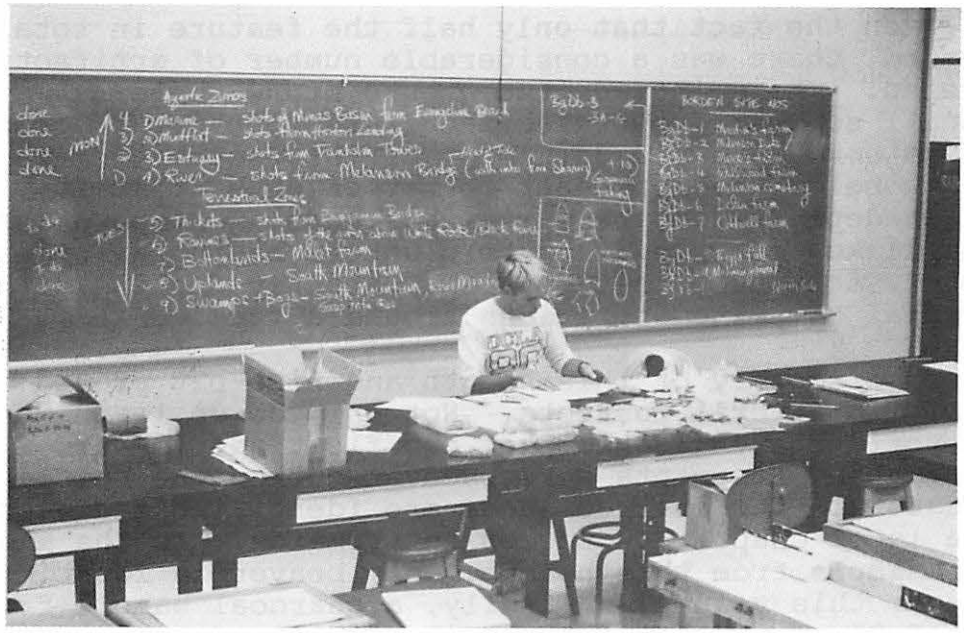


FIGURE 24: LABORATORY ANALYSIS, ACADIA UNIVERSITY, 1986

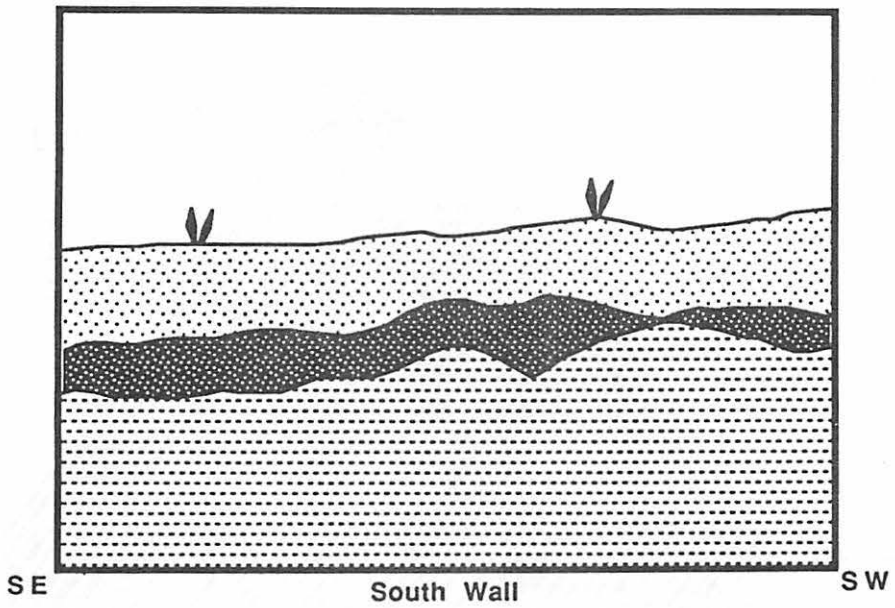
A second, smaller pit in 14E2N had the same stratigraphic context, but was a more regular feature. It was a circular, basin-shaped pit, about 60 cm in diameter and 18 cm deep. In this pit, which was below the plough zone, were 116 flakes, a flat cobble and some charcoal -- but it does not suggest a hearth.

Fire Pits, Hearths, Charcoal Lenses. Near the western end of the excavations, a large, oblong-shaped hearth and fire pit was recognizable at the bottom of level 2, some 20 cm below the surface. Portions of the feature were present in adjacent squares 6E2N and 8E4N (see grid plan Figure 22). The feature was pedastled and excavated in up to 5 levels with convenient profiles resulting in two directions. Numerous cobbles were also present, those in 8E4N at least forming a semi-circular boundary for the feature. There were additional stones in the feature together with considerable charcoal underlain by a more extensive layer of grey ash. It should be noted however, that not only had a fish shed once been at this end of the site, but that ploughing had reached below the top of this feature, scattering some of the stones and leaving identifiable furrows still at 20 cm depth.

The maximum dimensions at the top of the feature were 84 cm N-S, 132 cm E-W and with a maximum depth of 54 cm below surface near the center of the fire pit. Figure 26 is a 3-dimensional wire frame model of that part of the feature in 6E2N.

Given the fact that only half the feature in total was excavated, there was a considerable number of artifacts recovered. These include two ground stone tools, a thumbnail scraper, several bifaces, two pottery fragments, a core and some 1700 flakes. Most of this material came from 20-35 cm below the northeast corner of 6E2N, that is, in the pit area depicted in the wire-frame model. Moreover, most of the flakes were in discrete clusters having different types of stone such that we are apparently dealing with individual chipping operations around a fire.

The discovery of this hearth and fire-pit proved valuable in several respects. Not only do we learn what a prehistoric hearth looks like, but float samples and calcined bone fragments were recovered from the bottom of the feature. The charred seeds are identified and discussed in the later chapter on macroplant remains. In the small faunal sample from this hearth, only beaver is identifiable (Stewart, this volume). Finally, a charcoal sample from a depth of 25 cm in this feature (B - 17909) dated at 790 $\pm$ 60 years B.P. and offers an acceptable date for the feature and the occupation. A major question remaining is the



Wall Profile 18E 2N
BgDb-7

0 4 12 20 28 cm

Legend

- Brown Clay
- Charcoal / Ash
- Orange Clay

FIGURE 25

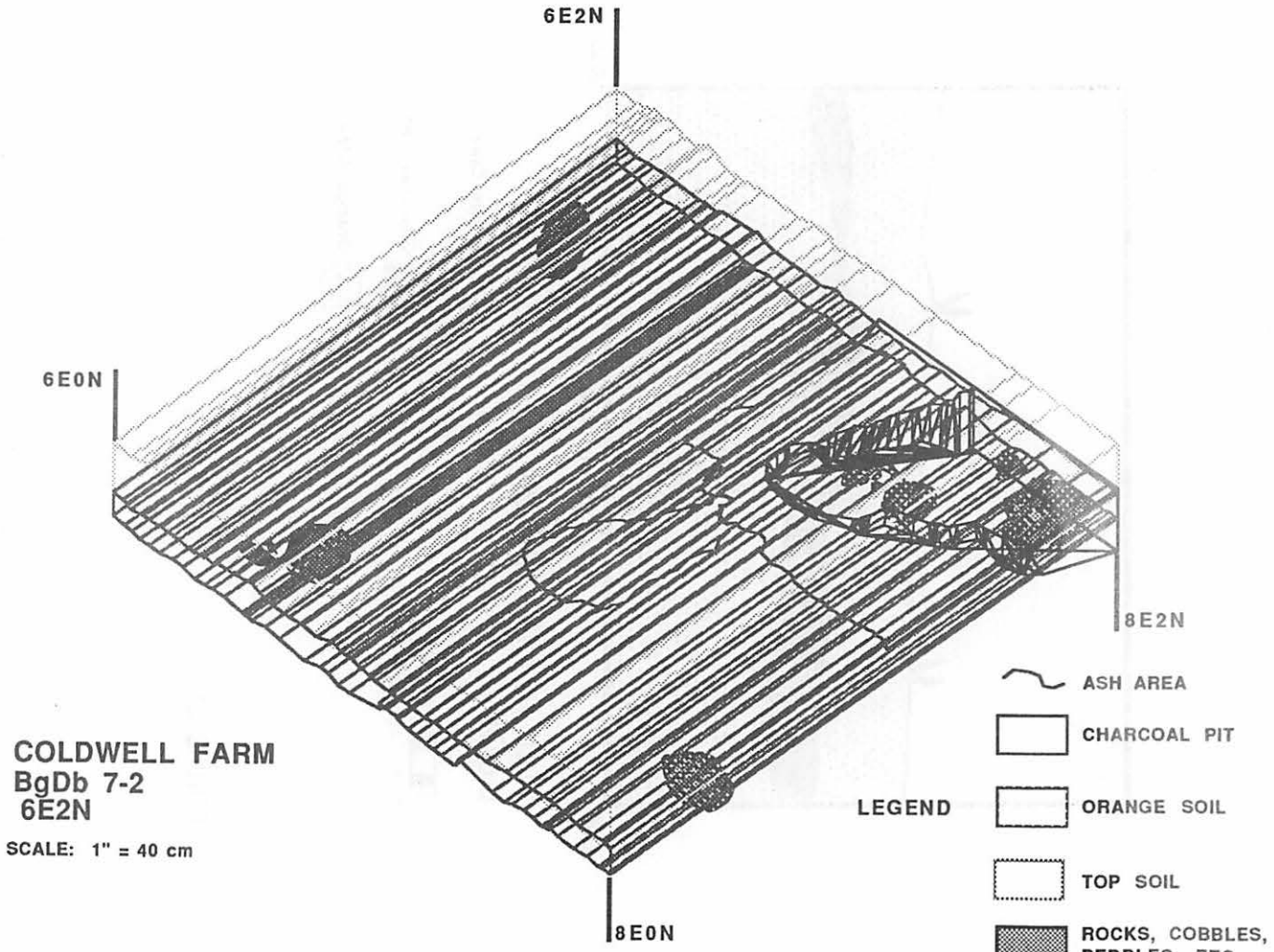

6E2N
6E0N
8E2N
8E0N
COLDWELL FARM
BgDb 7-2
6E2N
SCALE: 1" = 40 cm
LEGEND
ASH AREA
CHARCOAL PIT
ORANGE SOIL
TOP SOIL
ROCKS, COBBLES, PEBBLES, ETC.

FIGURE 26

relationship between the hearth and the two large pits on either side of it.

Digging near the eastern end of the excavations revealed a possible feature rich in charcoal, but of ambiguous origin and function. The southern half of pit 18E2N contained a layer of grey/white ash, fine charcoal and scattered stones, the stones occurring elsewhere in the square as well. Stratigraphically, this layer lies below the plough zone at a depth of 20-30 cm and has been identified as an A_e horizon in an immature soil profile (Figure 25). This layer, excavated as a natural level (3), also contained a fairly complete series of artifact types. While this has also been ploughed, this particular layer, close to the riverbank, may represent the most undisturbed portion of BgDb-7.

Since this layer is not obviously a hearth and certainly not a pit, could it represent the prehistoric occupation on the terrace? There were no historic artifacts in this layer, and the radiocarbon sample of charcoal returned a date of 560 $\pm$ 60 B.P (B-17910). Ploughing could have removed this layer elsewhere, mixing the prehistoric material into the brown loam of levels 1 and 2. Only the bottom levels of the pit features might have similarly escaped destruction.

Large Pits. The two large pits are a distinctive and specialized aspect of BgDb-7 and are not known from the central and eastern parts of Melanson.

At a depth of 20 cm (L2) in pit 2E2N, a large pit feature was apparent. This bathtub-shaped pit occupied most of the square, measuring 2 m x 1.24 m at the top and 1.54 x 0.87 m at the bottom with a maximum depth of 76 cm from the surface (Figure 27). In fact, however, the feature was somewhat larger, unexcavated portions remaining in squares to the north and east. Figure 28 is a 3-dimensional wire-frame model showing a cross-section of the pit sloping into the orange subsoil. The pit was filled with brown soil containing numerous artifacts as well as about a dozen basalt cobbles left in place in the eastern wall. Float samples from this feature (level 3) yielded charred seeds. There was no historic material from within the feature and no indication that this large pit is anything other than of prehistoric, aboriginal construction.

A similar pit was encountered in 10E2N; in this case, the square contained the eastern part, the other half (?) remaining in the adjacent unexcavated square. The wire frame model (Figure 29), done from profile drawings, depicts a large, deep pit extending from 15 to 80 cm below the

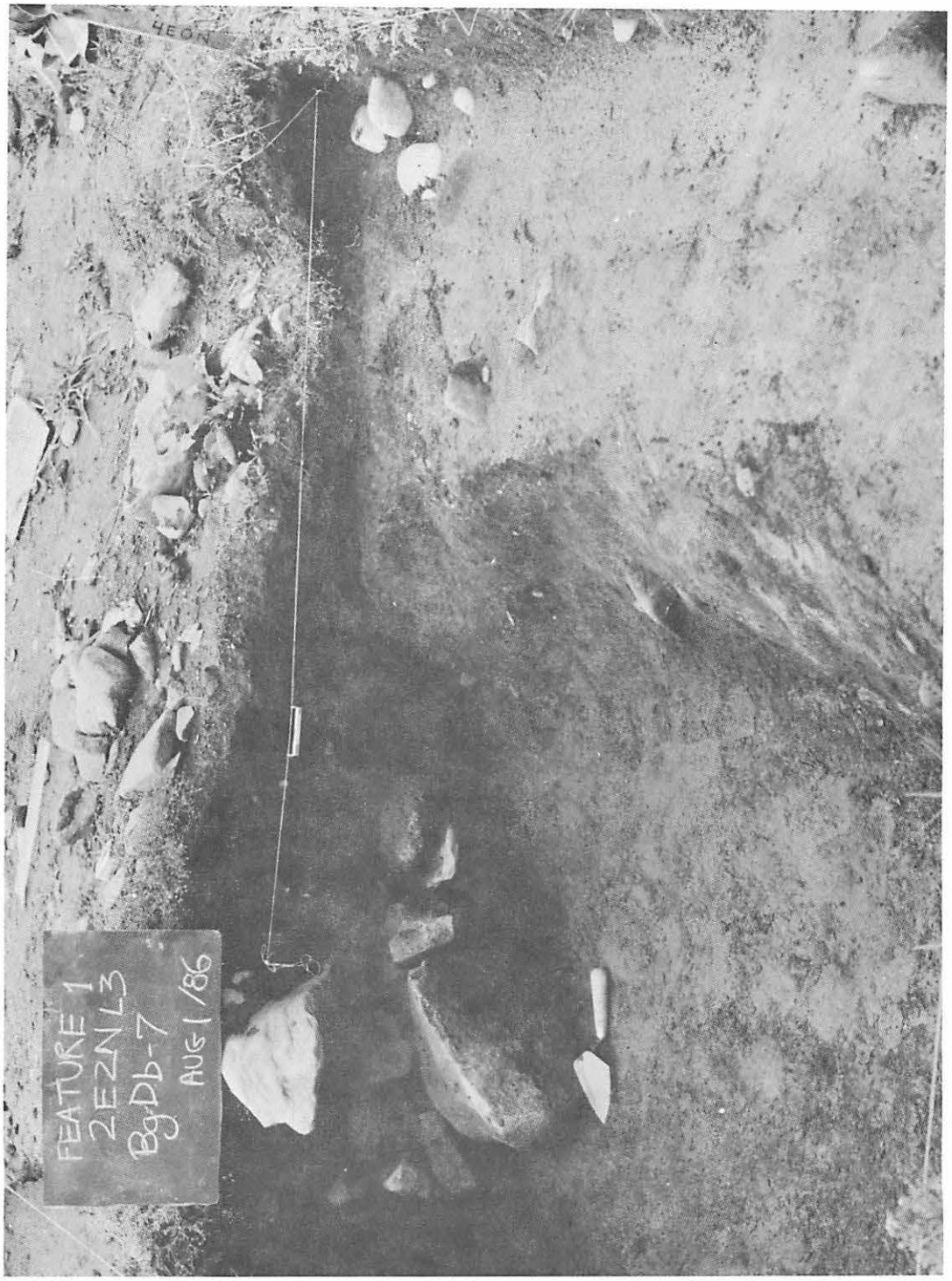


FIGURE 27

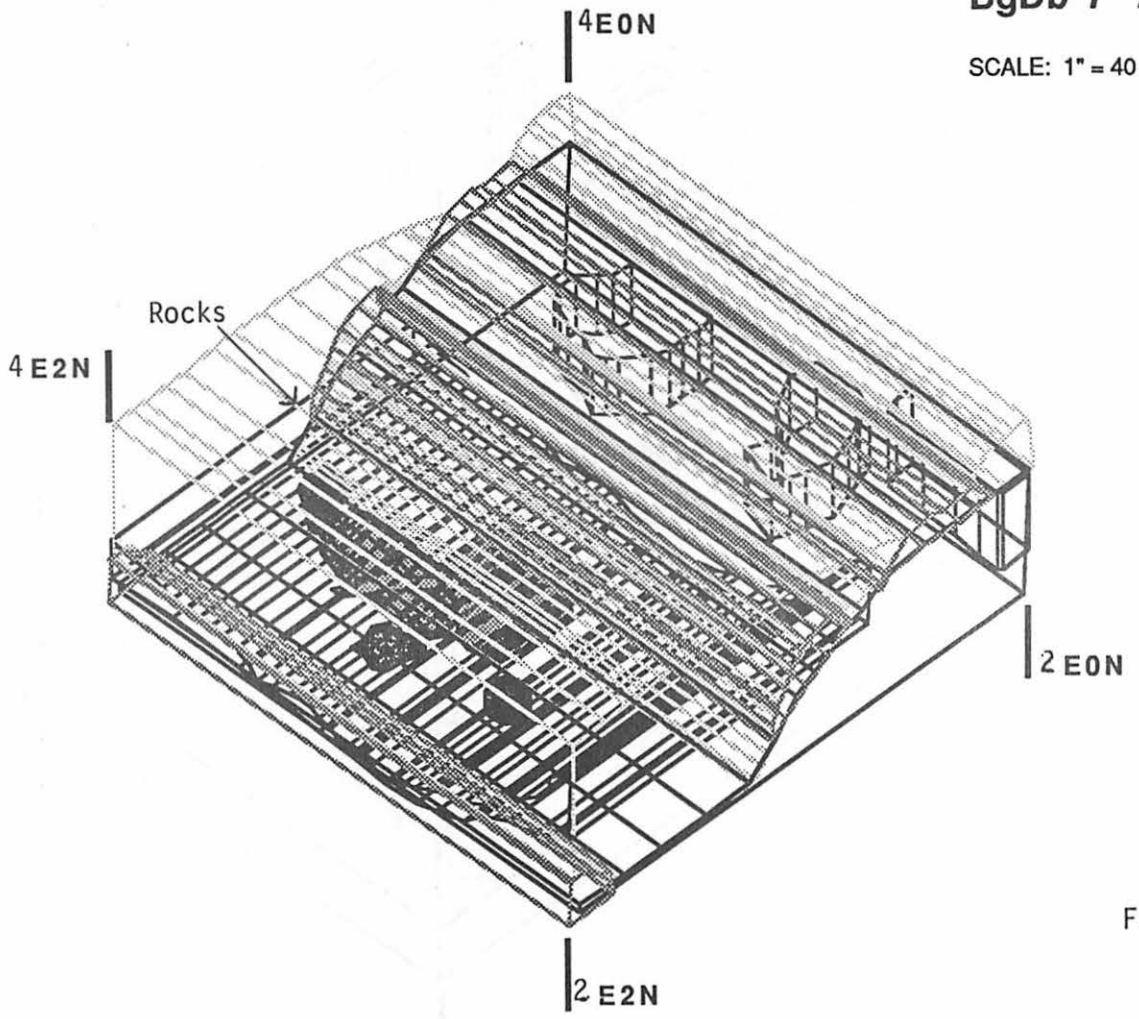
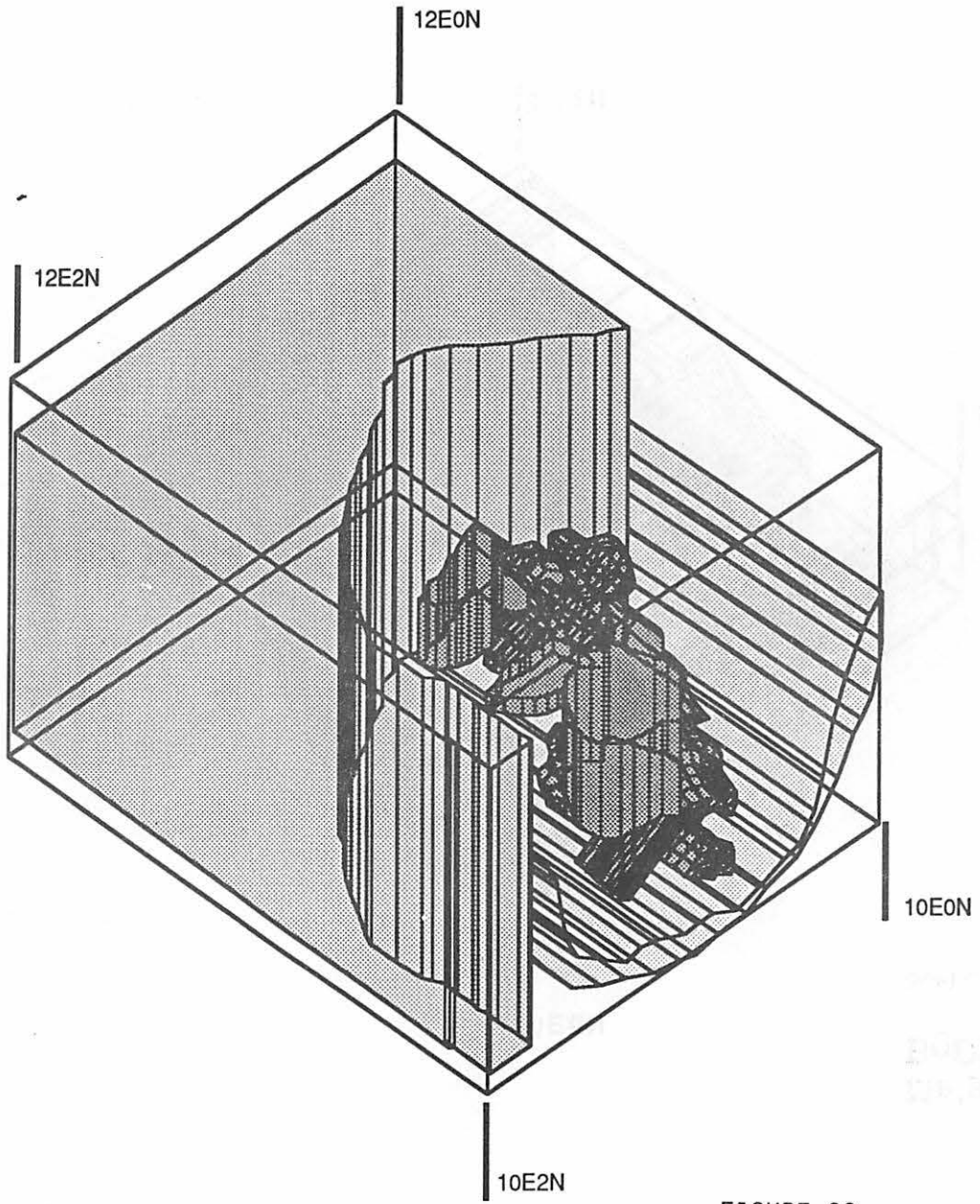


FIGURE 28

FIGURE 28



MELANSON SITE
BgDb-7 10E2N

SCALE: 1" = 40 cm

LEGEND

BROWN

ROCK

ORANGE

FIGURE 29

surface and into the orange subsoil. This pit was filled with brown soil and a pile of stones, some of boulder size. There were no historic objects below 20 cm, while the pit proper yielded a small faunal sample and a variety of artifacts including a fragmentary grooved maul on top of one of the larger boulders.

Both pits appear to be of late prehistoric age. They are of comparable shape and size, rich in artifacts and contain stone clusters. They do not seem to have functioned as burial or refuse pits; the suggested interpretations to date include animistic ritual, sweat baths, and cooking pits.

Chapter 7

MATERIAL CULTURE: MELANSON

Artifacts

The analysis in this section is not exhaustive, but rather, directed towards the project's objective of defining intra-site variability. There are eight principal collections from Melanson--those made by G. MacDonald, D. Keenlyside and G. Hall (Canadian Museum of Civilization), the Dennis and J. Erskine collections (Nova Scotia Museum), the E. Gertridge and J. Legge collections (Wolfville) and the 1986 sample obtained by R. Nash and F. Stewart. A rough inventory of the artifacts in these collections, both excavated and surface finds, totals about 3250 specimens, other than waste flakes. There are some historic and modern items in this total, but most are lithics and ceramics in about a 3:1 ratio. The intention here is not to describe everything in these collections, but to concentrate on the BgDb-7 sample and its relationships with the samples collected in 1965 from the BgDb-1/5 sections downriver. Most of the 1965 MacDonald collection has already been discussed, the projectile points in the chapter dealing with the 1965 excavations and the ceramics in the previous chapter together with some conclusions about spatial and temporal variability. The appendices contain some general descriptive data and photos of the two Wolfville collections while this chapter refers only to particular specimens pertinent to the variability question. Also to be found in the appendices are the descriptive tables concerned with the geometrical and metrical attributes of the BgDb-7 specimens.

LITHICS: BgDb-7

The northwestern sub-area of Melanson (BgDb-7) was excavated in the course of the 1986 summer field school. Thirteen pits were excavated in up to five levels each pit and its contents becoming the focus of a student site report. At the same time, the principal artifact types--projectile points, end scrapers, marginal retouch tools and bifaces from the two Wolfville collections and the MacDonald collection were described in the laboratory using Fortran coding forms and selected attributes (Figure 24). Subsequent to the 1986 field season, further descriptive recording of the 1965 Macdonald projectile points and the four types of lithics from BgDb-7 were done by Nash. In the summer of 1987, all of the Melanson ceramics were described

Table 9

DISTRIBUTION OF EXCAVATED ARTIFACTS BY PIT, BgDb7, 1986

Crosstabulation: PIT By ARTIFACT
PIT NUMBER TYPE OF ARTIFACT

ARTIFACT / PIT	Count / Row Pct	PROJECTILE POINT 1	END SCRAPER 2	MARGINAL RETOUCH 3	BIFACE 4	Row Total
1		8 29.6	8 29.6	5 18.5	6 22.2	27 16.6
2		2 16.7	4 33.3	3 25.0	3 25.0	12 7.4
3		8 33.3	5 20.8	4 16.7	7 29.2	24 14.7
4		3 17.6	5 29.4	4 23.5	5 29.4	17 10.4
5		3 42.9	1 14.3	1 14.3	2 28.6	7 4.3
6		5 41.7	3 25.0	2 16.7	2 16.7	12 7.4
7		2 25.0	2 25.0	3 37.5	1 12.5	8 4.9
8		1 16.7	2 33.3	1 16.7	2 33.3	6 3.7
Column Total		47 28.8	51 31.3	27 16.6	38 23.3	163 00.0

Table 9 (continued)

DISTRIBUTION OF EXCAVATED ARTIFACTS BY PIT, BgDb7, 1986

Crosstabulation: PIT By ARTIFACT PIT NUMBER TYPE OF ARTIFACT

PIT	Count / Row Pct	PROJECTILE POINT 1	END SCRAPER 2	MARGINAL RETOUCH 3	BIFACE ... 4	Row Total
9		3 33.3	3 33.3	1 11.1	2 22.2	9 5.5
10		2 11.8	8 47.1	2 11.8	5 29.4	17 10.4
11		5 45.5	5 45.5		1 9.1	11 6.7
12		2 28.6	4 57.1		1 14.3	7 4.3
13		3 50.0	1 16.7	1 16.7	1 16.7	6 3.7
Column Total		47 28.8	51 31.3	27 16.6	38 23.3	163 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.<5
22.39177	36	.9629	.994	44 of 52 (84.6%)

Number of Missing Observations = 0

Table 10

DISTRIBUTION OF EXCAVATED ARTIFACTS BY LEVEL, BgDb7, 1986

Crosstabulation: LEVEL By ARTIFACT
LEVEL NUMBER TYPE OF ARTIFACT

ARTIFACT / LEVEL	Count / Row Pct	PROJECTILE POINT 1	END SCRAPER 2	MARGINAL RETOUCH 3	BIFACE 4	Row Total
1		10 17.2	23 39.7	13 22.4	12 20.7	58 35.6
2		17 32.1	15 28.3	9 17.0	12 22.6	53 32.5
3		19 39.6	13 27.1	5 10.4	11 22.9	48 29.4
4		1 100.0				1 .6
5					3 100.0	3 1.8
Column Total		47 28.8	51 31.3	27 16.6	38 23.3	163 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F. <5
21.35987	12	.0454	.166	8 of 20 (40.0%)

Number of Missing Observations= 0.

and analyzed by Kristmanson using a revised ceramic attribute list and the vessel as a unit of analysis. Following the entry of the attribute coding into the computer, W. Jackson performed the cross-tabulations presented below, using the SPSSPC+ statistical package.

Artifact Distribution

Tables 9 and 10 present the distribution of the excavated artifacts by pit and level. There is nothing significant in the horizontal distribution, all four artifact types being represented in most pits, with pits 1 and 3 containing the most material owing to the presence of their basin-shaped pit features with greater depth. Cross-tabulation of the four types by level reveals some tendency towards increasing frequency from bottom to top in the 5 levels, except for projectile points which were likely selectively removed from the plough zone by collectors. There is some significance in the Chi-square test arising from the presence of three quartz bifaces in level 5, these bifaces being associated with a hearth of some depth.

Projectile Points. This sample of 47 projectile points excavated from the 13 pits can also be cross-tabulated by style. When the points of indeterminate style are removed, the remaining 26 points are distributed in the upper three levels as shown in the accompanying table below. One half of this sample of 26 are illustrated in the accompanying figure together with their Borden, pit and level designations respectively. The most frequent type is corner-removed/stemmed (b, c, d, e, h, i, j, l, m), followed by side-notched (f, k), unnotched/unstemmed (a, g) and corner-notched styles. The final chapter contains some comments on the raw material, while the tables in the appendices provide a further breakdown of style by blade, stem and base together with some basic metric descriptions again, by style. Specimen k, a side-notched point measuring 5.5 x 2.1 x 0.7 cm, is of particular interest. Found in level 3 at the eastern end of BgDb-7, it was directly associated with a hearth which yielded one of the two radiocarbon dates 560 ± 60 (B-17910)

Four other points were collected from the surface of the lower terrace near the excavations and two more from the higher second terrace. These latter specimens were surface finds, one being an unnotched/unstemmed point of quartzite (n), the other a side-notched point of red jasper (o). Because no ceramics were found, this occupation on the 10 metre terrace has been treated as a separate occupation, although the points are clearly Woodland period styles.

Table 11

Crosstabulation: Level by Style BgDb7/Terrace 1

STYLE LEVEL	SIDE NOTCHED	CORNER NOTCHED	CORNER REMOVED STEMMED	UNNOTCHED UNSTEMMED	ROW TOTAL
1		1	4	1	6
2	4		4	1	9
3	2	1	7	1	11
COLUMN TOTAL	6	2	15	3	26

TABLE 12

PROJECTILE POINTS: STYLE BY AREA

Crosstabulation: BORDEN By STYLE — BORDEN NUMBER PROJECTILE POINT STYLE

BORDEN	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Row Total
BgDb01 MARTIN'S FARM		1		3	3	7
BgDb02 MELANSON DYKE;		2				2
BgDb03 MERCK'S FARM				2	1	3
BgDb04 WELLWOOD FARM			4	1	9	14
BgDb05 MELANSON CEMETAR				7		7
BgDb07 COLDWELL FARM		7	2	17	5	31
Column Total		10	6	30	18	64

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.<5
43.15385	15	.0001	.188	21 of 24 (87.5%)

Number of MIssing Observations = 0

Projectile Point BgDb7

Specimen	Borden No
a	BgDb-7-2-1
b	BgDb-7-1-1
c	BgDb-7-7-1
d	BgDb-7-5-1
e	BgDb-7-9-1
f	BgDb-7-12-2
g	BgDb-7-2-2
h	BgDb-7-7-2
i	BgDb-7-3-2
j	BgDb-7-1-3
k	BgDb-7-5-3
l	BgDb-7-1-3
m	BgDb-7-1-3
n	BgDb-7B (terrace 2)
o	BgDb-7B (terrace 2)

Figure 30

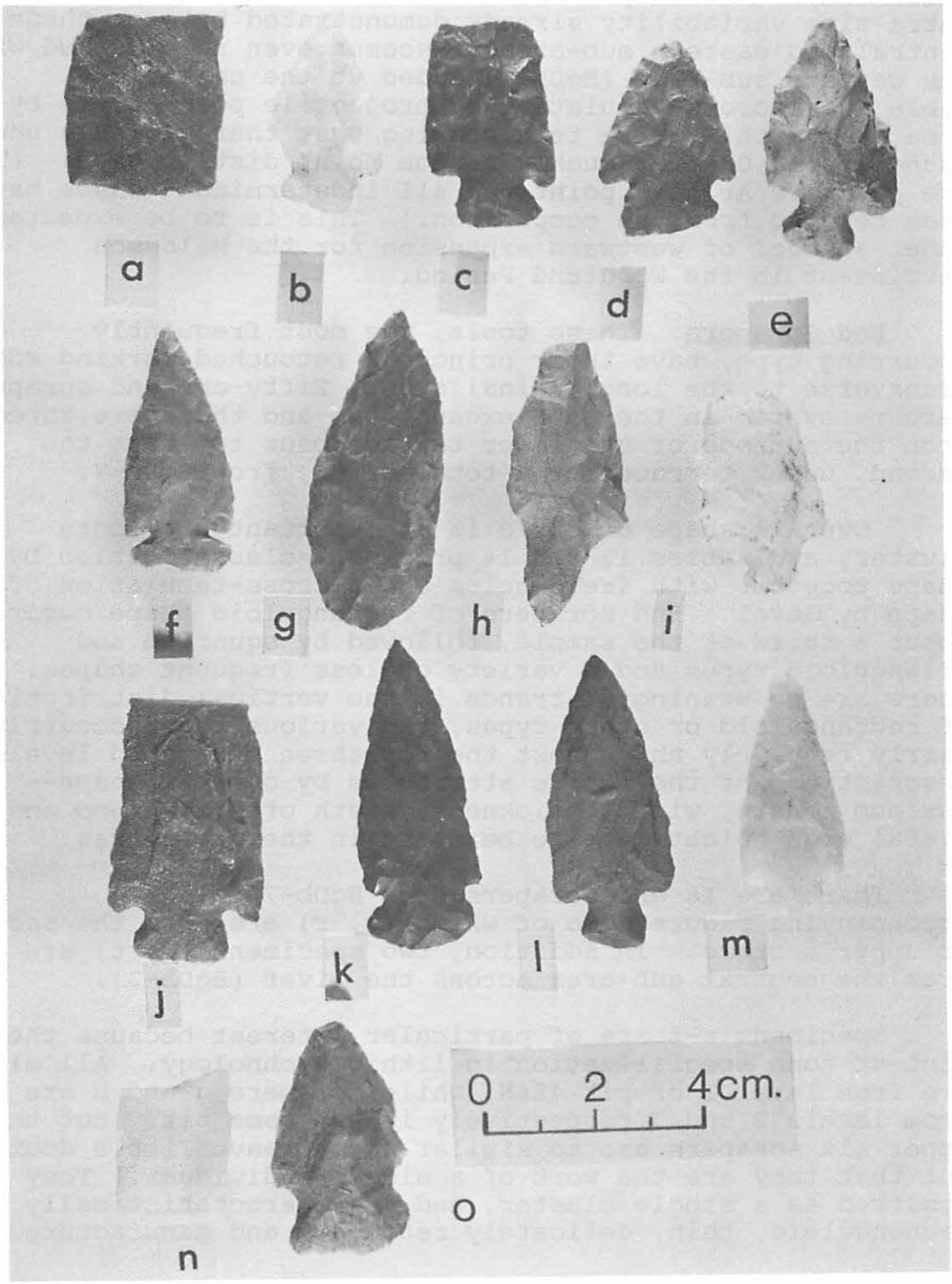


FIGURE 30

Adding together all points of determinate style from Coldwell farm, both terraces, we have a sample of 31 points which can now be compared to the samples from BgDb-1/5. The intra-site variability already demonstrated between these central and eastern sub-areas, becomes even more marked with the western sub-area (BgDb-7) added to the comparison. Table 12, a cross-tabulation of projectile point style by area, has a Chi-Square test showing that there is only one chance in 10,000 for such a random point distribution. (The one putative Archaic point and all indeterminant cases have been removed from the comparison.) This is to be expected under a model of westward expansion for the Melanson settlement in the Woodland Period.

End Scrapers. These tools, the most frequently occurring type, have their principal retouched working edge transverse to the longitudinal axis. Fifty-one end scrapers were recovered in the 1986 excavations and there are three from the surface of the lower terrace plus two from the second, upper terrace for a total of 56, from BgDb-7.

Overall shape or style is an important attribute cluster, and tables 13 and 14 provide a classification by shape together with frequencies and a cross-tabulation of shape by level. End scrapers of rectanguloid shape comprise about a third of the sample, followed by squarish and trianguloid types and a variety of less frequent shapes. There are no meaningful trends in the vertical distributions of rectanguloid or other types, the various types occurring fairly regularly throughout the top three excavated levels. Descriptions of the metric attributes by overall shape--maximum length, width, thickness, width of distal end and distal edge height--are to be found in the appendices.

There are 18 end scrapers from BgDb-7 in the accompanying figure, two of which (q, r) are from the second or upper terrace. In addition, two specimens (s, t) are from the central sub-area across the river (BgDb-3).

Specimens a-f are of particular interest because they hint at some specialization in lithic technology. All six are from level 1 of pit 4E4N, while scrapers g and h are from levels 2 and 3 respectively in the same pit. But the upper six scrapers are so similar as to leave little doubt but that they are the work of a single individual. They occurred as a single cluster, and are characteristically rectanguloid, thin, delicately retouched and manufactured

End Scrapers BgDb7

Speciman	Borden No.
a	BgDb-7-10-1
b	BgDb-7-10-1
c	BgDb-7-10-1
d	BgDb-7-10-1
e	BgDb-7-10-1
f	BgDb-7-10-1
g	BgDb-7-10-2
h	BgDb-7-10-3
i	BgDb-7-1-1
j	BgDb-7-1-3
k	BgDb-7-1-3
l	BgDb-7-1-3
m	BgDb-7-1-3
n	BgDb-7-1-3
o	BgDb-7-1-3
p	BgDb-7-1-3
q	BgDb-7B (terrace 2)
r	BgDb-7B (terrace 2)
s	BgDb-3
t	BgDb-3

Figure 31

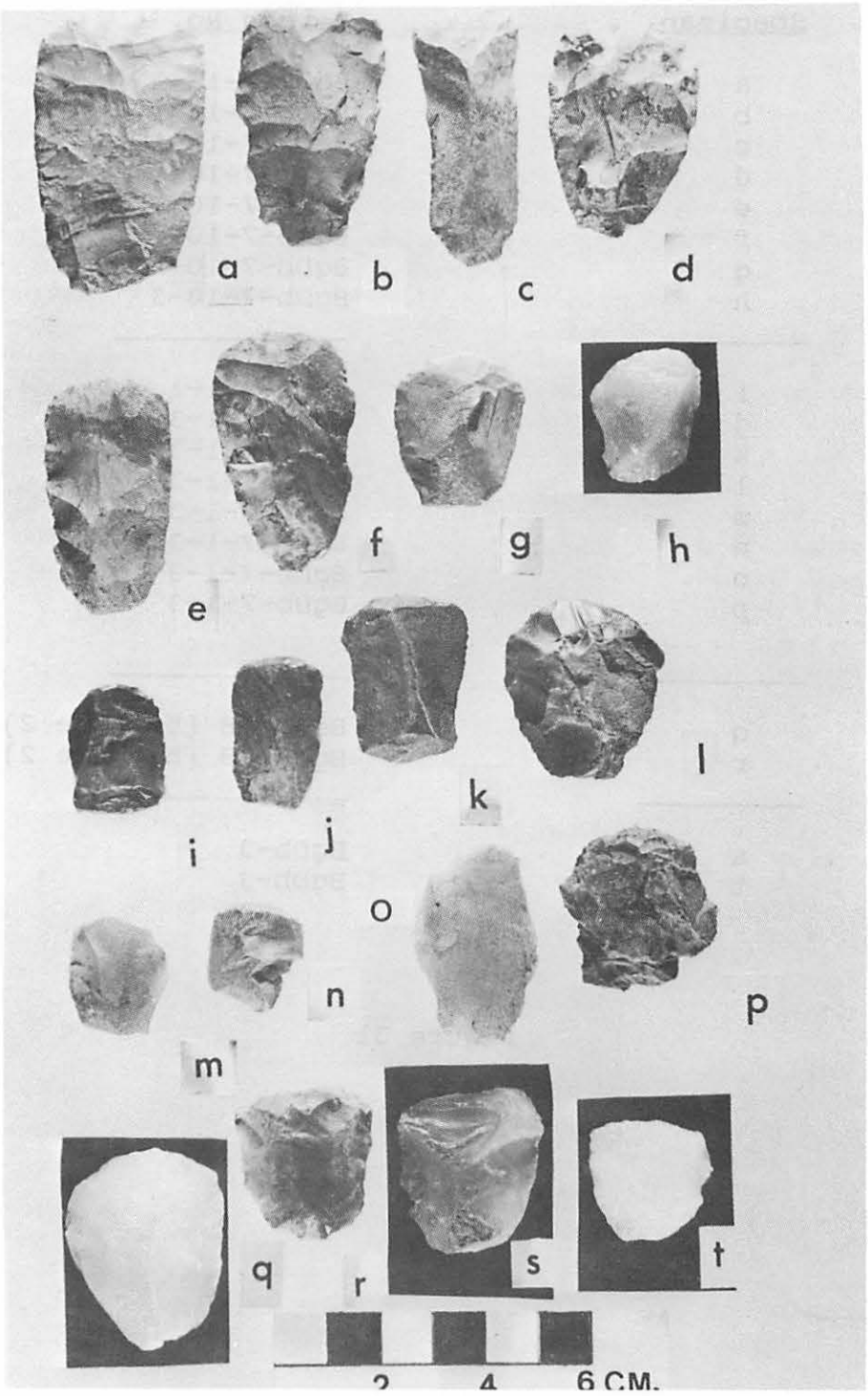


FIGURE 31

Table 13

END SCRAPER ANALYSIS BgDb7

SHAPE OVERALL SHAPE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
TRIANGULAR	1	4	7.1	7.1	7.1
TRIANGULOID	2	7	12.5	12.5	19.6
RECTANGULOID	3	18	32.1	32.1	51.8
SQUARISH	4	10	17.9	17.9	69.6
OVATE	5	4	7.1	7.1	76.8
POLYGONAL	6	5	8.9	8.9	85.7
IRREGULAR	7	6	10.7	10.7	96.4
INDETERMINATE	8	2	3.6	3.6	100.0
TOTAL		56	100.0	100.0	

Valid Cases 56 Missing Cases 0

Table 14

END SCRAPER ANALYSIS BgDb7

Crosstabulation: SHAPE By LEVEL — OVERALL SHAPE LEVEL NUMBER

Count / Col Pct — SURFACE

LEVEL-> SHAPE	0	1	2	3	Row Total
1 TRIANGULAR		2 8.7	2 13.3		4 7.1
2 TRIANGULOID		3 13.0	3 20.0	1 7.7	7 12.5
3 RECTANGULOID	2 40.0	8 34.8	3 20.0	5 38.5	18 32.1
4 SQUARISH	2 40.0	3 13.0	3 20.0	2 15.4	10 17.9
5 OVATE	1 20.0	2 8.7	1 6.7		4 7.1
6 POLYGONAL		3 13.0	1 6.7	1 7.7	5 8.9
7 IRREGULAR		2 8.7	1 6.7	3 23.1	6 10.7
8 INDETERMINATE			1 6.7	1 7.7	2 3.6
Column Total	5 8.9	23 41.1	15 26.8	13 23.2	56 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.<5
14.35017	21	.8541	.179	31 of 32 (96.9%)

Number of Missing Observations = 0.

from the same red/brown or tan coloured chert, presumably brought from Scots Bay. Quartz and quartzite flakes outnumber chert, jasper and chalcedony flakes in level 1 of this pit by a ratio of 1.7/1. Nonetheless, there are some 223 flakes in the latter category and color-matched flakes can be found in this sample for at least five of the six scrapers. The occurrence together of both scrapers and a few waste flakes of the same variety of stone point towards local on-site manufacture rather than the import of finished tools.

Of the 56 scrapers from BgDb-7, there are 19 of quartz or quartzite, 36 of chert and one that might be Ramah chert. The cherts have not been petrologically examined, but all are probably from Scots Bay. With 64.3% of these specimens made from this chert, clearly it was the material of choice for end scrapers, even more so than for projectile points.

Marginal Retouch Tools. There are 29 of these tools having their principal working edge parallel to the long axis of the flake. Two are surface finds, 27 were excavated. They were recovered from most of the pits, and there is a tendency towards increasing production through time, their frequency peaking in level 1 of the plough zone. Like the end scrapers, these tools are predominantly cherts, and presumably had scraping and cutting functions.

The tables below indicate that, in terms of overall shape, the modal type is polygonal, most often with a single working edge. In some cases, the polygonal geometry simply reflects an unshaped flake with some edge retouch. Accordingly, the length and height of the principal working edge are the only metric attributes to be examined. Six of these marginal retouch tools together with their provenience numbers are illustrated in Figure 32 (a-f). All were excavated from BgDb-7.

Bifaces. These tools, numbering 38 from excavations and four from the surface of the two terraces, are medium to large size cutting tools exclusive of projectile points. Their size and mean thickness (1.2 cm) are more appropriate for treating large animals rather than the small gaspereaux. D. M. Gurfinkel's blood residue analysis from various bifaces and scrapers were negative, i.e., no blood was present at levels above stated sensitivity of tests (pers. comm., Feb. 4/88) and the exact function of these bifaces remains unknown.

Given their larger size, it is not surprising that most of these tools (30/42) and all of the larger ones are made from white quartz or quartzite. In Figure 32, two of the smaller specimens are illustrated (i, j) together with two

TABLE 15

MARGINAL RETOUCH TOOLS ANALYSIS BgDb7

SHAPE OVERALL SHAPE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
TRIANGULAR	1	3	10.3	10.3	10.3
TRIANGULOID	2	4	13.8	13.8	24.1
SQUARISH	3	3	10.3	10.3	34.5
RECTANGULOID	4	5	17.2	17.2	51.7
OVATE	5	1	3.4	3.4	55.2
POLYGONAL	6	9	31.0	31.0	86.2
IRREGULAR	7	2	6.9	6.9	93.1
OTHER	9	2	6.9	6.9	100.0
	TOTAL	29	100.0	100.0	

Valid Cases 29 Missing Cases 0

TABLE 16

MARGINAL RETOUCH TOOLS ANALYSIS BgDb7

NRE RETOUCHED EDGES

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
ONE	1	14	48.3	48.3	48.3
TWO	2	9	31.0	31.0	79.3
MORE THAN TWO	3	6	20.7	20.7	100.0
TOTAL		29	100.0	100.0	

Valid Cases 29 Missing Cases 0

****

TABLE 17

MARGINAL RETOUCH TOOLS ANALYSIS BgDb7

Number of Valid Observations (Listwise) = 28.00

Variable	Mean	Std Dev	Minimum	Maximum	N	Label
HEDGE	.46	.14	0	1	29	HEIGHT PRINCIPAL EDG
LEDGE	2.09	.41	1	3	28	LENGTH PRINCIPAL EDG

Marginal Retouch and Other Tools

Figure	Borden No.
a	BgDb-7-1-3
b	BgDb-7-3-1
c	BgDb-7-5-1
d	BgDb-7-6-3
e	BgDb-7-7-1
f	BgDb-7-10-1

Bifaces

j	BgDb-7-6-3
i	BgDb-7-9-4
g	BgDb-3
h	BgDb-3

Other Tools

1.	bone bead	m	BgDb-7-3-3
2.	incomplete point	k	BgDb-7-1-3
3.	tear-drop biface	l	BgDb-7-11-2
4.	strike-a-lite	n	BgDb-7-3-1
5.	worked piece	o	BgDb-7-8-2

Figure 32

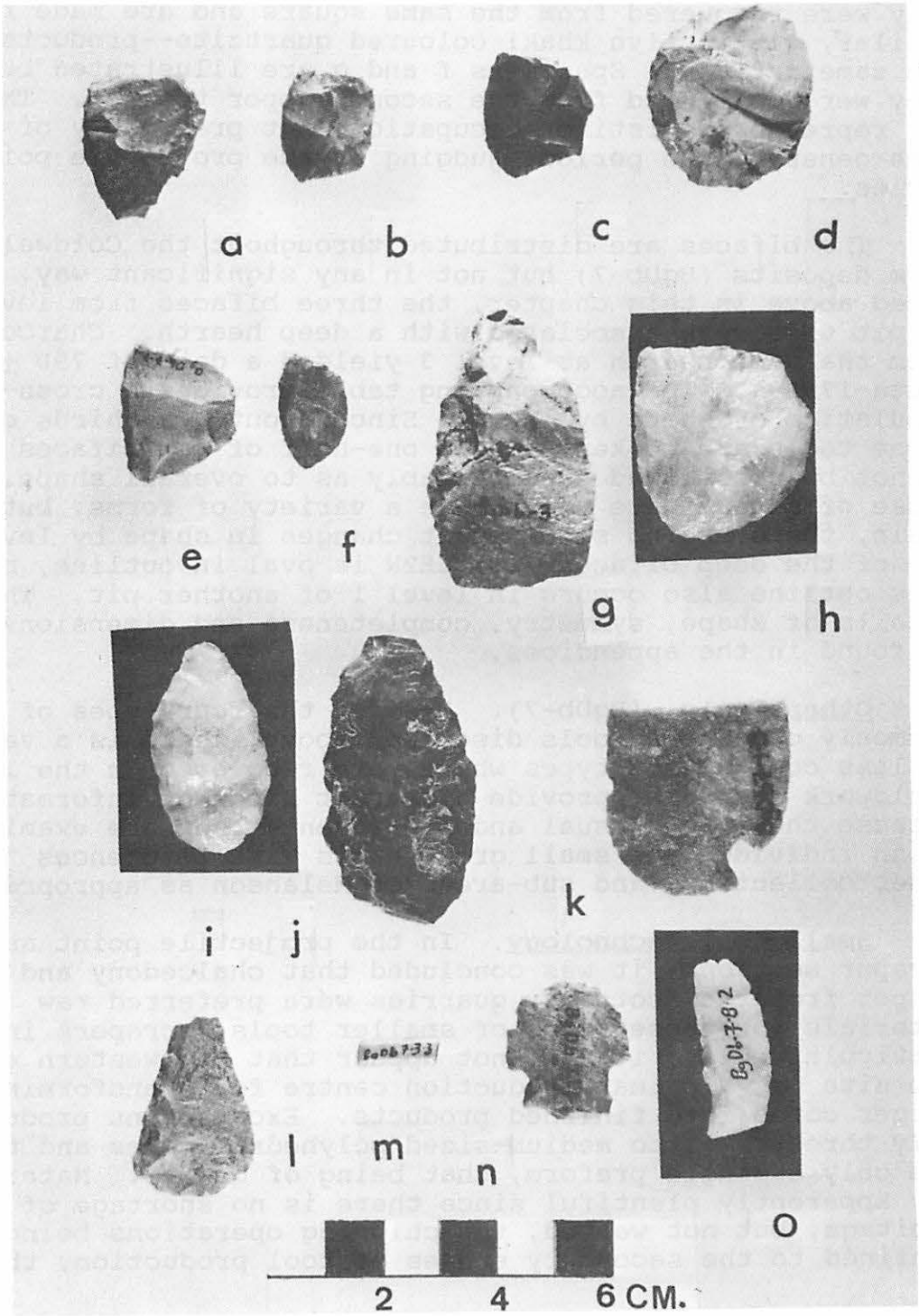


FIGURE 32

small bifaces from a different sub-area (BgDb3; g, h). Seven of the larger specimens of various shapes are shown in Figure 33, numbers d and e being of some interest because they were recovered from the same square and are made from similar, distinctive khaki coloured quartzite--products from the same artisan. Specimens f and g are illustrated because they were collected from the second, upper terrace. They may represent a distinct occupation, but presumably of the same general time period, judging by the projectile point styles.

The bifaces are distributed throughout the Coldwell farm deposits (BgDb-7) but not in any significant way. As noted above in this chapter, the three bifaces from level 5 of pit 6E2N were associated with a deep hearth. Charcoal from the same hearth at level 3 yielded a date of 790 ± 60 (Beta-17909). The accompanying table provides a cross-tabulation of shape by level. Since about two-thirds of these tools are broken, almost one-half of the bifaces cannot be classified unequivocably as to overall shape. Those of determinate shape have a variety of forms, but again, there are no significant changes in shape by level. One of the deep bifaces from 6E2N is oval in outline, but this outline also occurs in level 1 of another pit. The details of shape, symmetry, completeness and dimensions can be found in the appendices.

Other Tools (BgDb-7). Besides the four types of commonly occurring tools discussed above, there is a variety of less common tool types which were recovered in the 1986 fieldwork and which provide different kinds of information. Because they are unusual and infrequent, they are examined on an individual or small group basis with references to other collections and sub-areas of Melanson as appropriate.

Small Tool Technology. In the projectile point and end scraper sections, it was concluded that chalcedony and jasper from the Scots Bay quarries were preferred raw materials for these types of smaller tools, scrapers in particular. Yet, it does not appear that the western end of the site was a primary reduction centre for transforming larger cores into finished products. Excavations produced only three small to medium-sized polyhedral cores and there was only a single preform, that being of quartz. Material was apparently plentiful since there is no shortage of debitage, but not wasted, the chipping operations being confined to the secondary stages of tool production, the

TABLE 18

BIFACE ANALYSIS BgDb7

Crosstabulation: SHAPE By LEVEL — OVERALL SHAPE LEVEL NUMBER

LEVEL--> / SHAPE	Count / Col Pct	SURFACE 0	1	2	3	5	Row Total
TRIANGULOID	1			1 8.3			1 2.4
POLYGONAL	2	1 25.0	3 25.0				4 9.5
ELLIPTICAL	3	1 25.0		2 16.7	2 18.2		5 11.9
OVAL	4		1 8.3			1 33.3	2 4.8
OVATE	5		1 8.3		1 9.1		2 4.8
LENTICULAR	6	1 25.0		1 8.3	2 18.2		4 9.5
OTHER	7		1 8.3	2 16.7		1 33.3	4 9.5
INDETERMINATE	8	1 25.0	6 50.0	6 50.0	6 54.5	1 33.3	20 47.6
Column Total		4 9.5	12 28.6	12 28.6	11 26.2	3 7.1	42 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.<5
28.25455	28	.4510	.071	37 of 40 (92.5%)

Biface

Figure	Borden No
a	BgDb-7-1-1
b	BgDb-7-1-2
c	BgDb-7-2-5
d	BgDb-7-5-2
e	BgDb-7-5-3
f	BgDb-7B
g	BgDb-7B

Figure 33

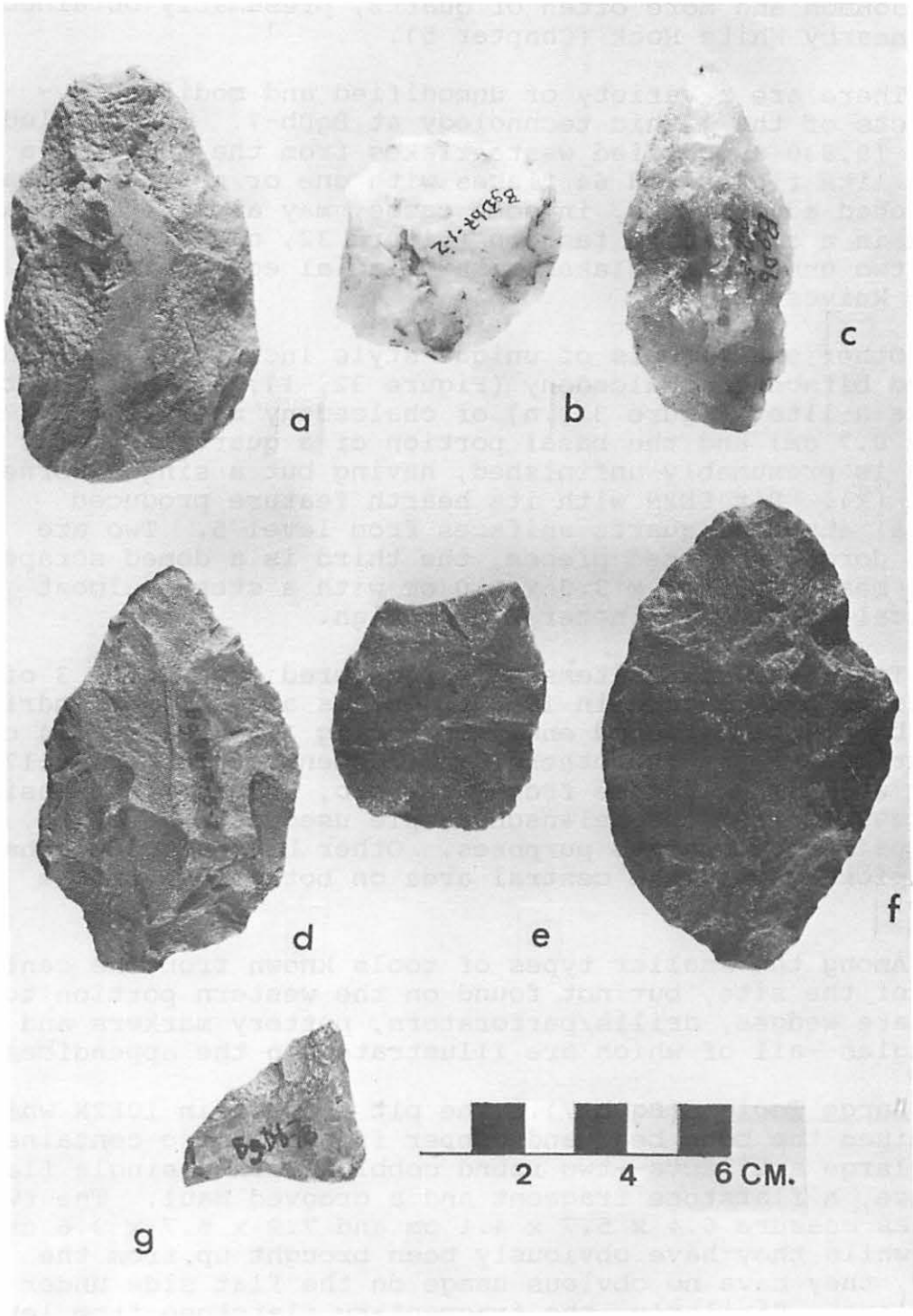


FIGURE 33

cores used to the point of exhaustion. The situation in the western sub-area differs somewhat from that of the central area (BgDb-1/4) where cores, core fragments and preforms are more common and more often of quartz, presumably obtained from nearby White Rock (Chapter 5).

There are a variety of unmodified and modified by-products of the lithic technology at BgDb-7. They include about 18,830 unmodified waste flakes from the 13 pits, a few blade-like flakes and 64 flakes with one or more unifacially retouched edges which, in some cases, may also reflect hard usage in a consistent fashion (Figure 32, o). There are only two unmodified flakes with bifacial edge retouch--i.e., flake knives.

Other small tools of unique style include: a tear-drop shaped biface of chalcedony (Figure 32, l); a blunt point or strike-a-lite (Figure 32, n) of chalcedony measuring 2.4 x 2.1 x 0.7 cm; and the basal portion of a quartzite point which is presumably unfinished, having but a single corner-notch (k). Pit 6E2N with its hearth feature produced several atypical quartz unifaces from level 5. Two are small dorsally worked pieces, the third is a domed scraper plane measuring 4.3 x 3.3 x 2.0 cm with a steep, almost vertical working perimeter 2.0 cm high.

Two interesting items were recovered from level 3 of the large pit feature in 10E2N. One is a small, cylindrical bone bead with polished ends, measuring 1.4 x 0.5 x 0.4 cm (Figure 32, m). The other is a fragment of copper, 0.17 cm thick which likely came from Parrsboro, across Minas Basin and reveals that the Melanson people used native copper, perhaps for decorative purposes. Other bits of copper have been picked up in the central area on both sides of the river.

Among the smaller types of tools known from the central part of the site, but not found on the western portion to date are wedges, drills/perforators, pottery markers and triangles--all of which are illustrated in the appendices.

Large Tools (BgDb-7). The pit feature in 10E2N which contained the bone bead and copper fragment also contained some large artifacts--two round cobbles with a single flat surface, a flatstone fragment and a grooved maul. The two cobbles measure 6.4 x 5.7 x 4.1 cm and 7.2 x 5.7 x 3.6 cm and, while they have obviously been brought up from the river, they have no obvious usage on the flat side under a hand lens. Similarly, the fragmentary flatstone from level 3 shows no usage. However, there are four other excavated flatstones, three of which have been faceted.

A hard, flat rectanguloid stone (9.1 x 4.5 x 2.0 cm) from 18E2N (L3) has two worn, flat facets on the long edges. There are two flatstones from 6E2N (L4). A broken specimen (7.3 cm long and 1.7 cm thick) has two faceted edges. The other, broken specimen has been worked and shaped to a faceted end and side with linear scratches and a thin, shallow groove encircling what remains of the artifact. A finely laminated, pale green mudstone.

The grooved maul was uncovered in the upper part of the large pit feature at a depth of 40 cm (Figure 34, a). The maul is split lengthwise and the proximal end is gone. What remains is 14.1 cm long and 6.5 cm wide with a rough, unground groove approximately 3.0 cm wide. The material is sandstone and it has a flat, slightly pocked distal end. This is the only grooved maul from all of Melanson.

Two puzzling objects were found in the vicinity of the 1986 excavations--a "spatula" looking type of implement found in the Gaspereau river and a possible celt fragment in the potato field at the eastern end of our excavations. The first of these (Figure 34, b), is 16.6 x 11.3 x 1.9 cm. Some chipping on the distal end and a large, shallow notch on one side suggest that it is a tool. Made of dark mudstone, its scratches on one side are probably glacial straie. There is no polish or wear, and its function remains unknown. The other artifact (c), is broken at one end and uniformly flat in cross-section and thickness, the other end has been beveled from both sides and exhibits some wear. It is a black shale, 3.6 cm wide and 1.0 cm thick.

Large tools not recovered from the western sub-area, but known from the central area include celts, chisels, small grooved axes, netsinkers (?), adzes, hammerstones, gorgets and whetstones.

Finally, in the Nova Scotia Museum, as part of the Dennis collection, is a specimen identified as a celt fragment (Acc. No. 73.180.407a). The material is slate, the measurements are given as 10.5 x 5.9 x 1.7 cm. The specimen (Figure 35), is said to come from Melanson, Kings County and to have incised on it a "caribou petroglyph", though the animal could equally well be a deer. Curator Ruth Whitehead comments that "All the marks on this piece **EXCEPT** the actual body of the animal could be accidental. The body, however, has strokes at angles not seen on the rest, and they are deeper" (Correspondence, October 8, 1987).

Other Tools

		Figure	
1.	Grooved Maul	a	BgDb-7-3-3
2.	Hoe-like implement	b	BgDb-7F
3.	Celt	c	BgDb-7E
4.	Core	d	BgDb-3
5.	Broken Gorget	e	BgDb-5-9

Figure 34

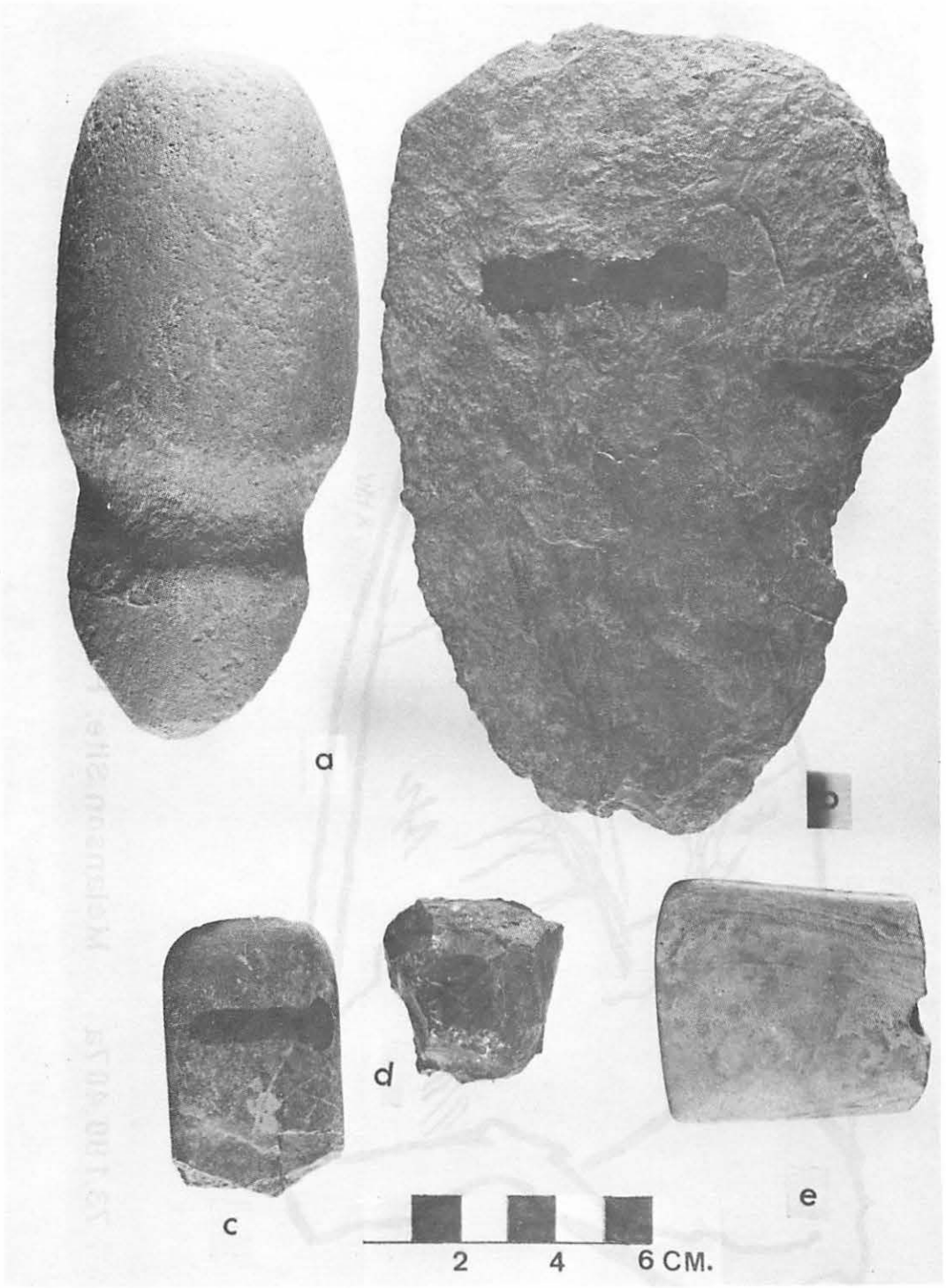
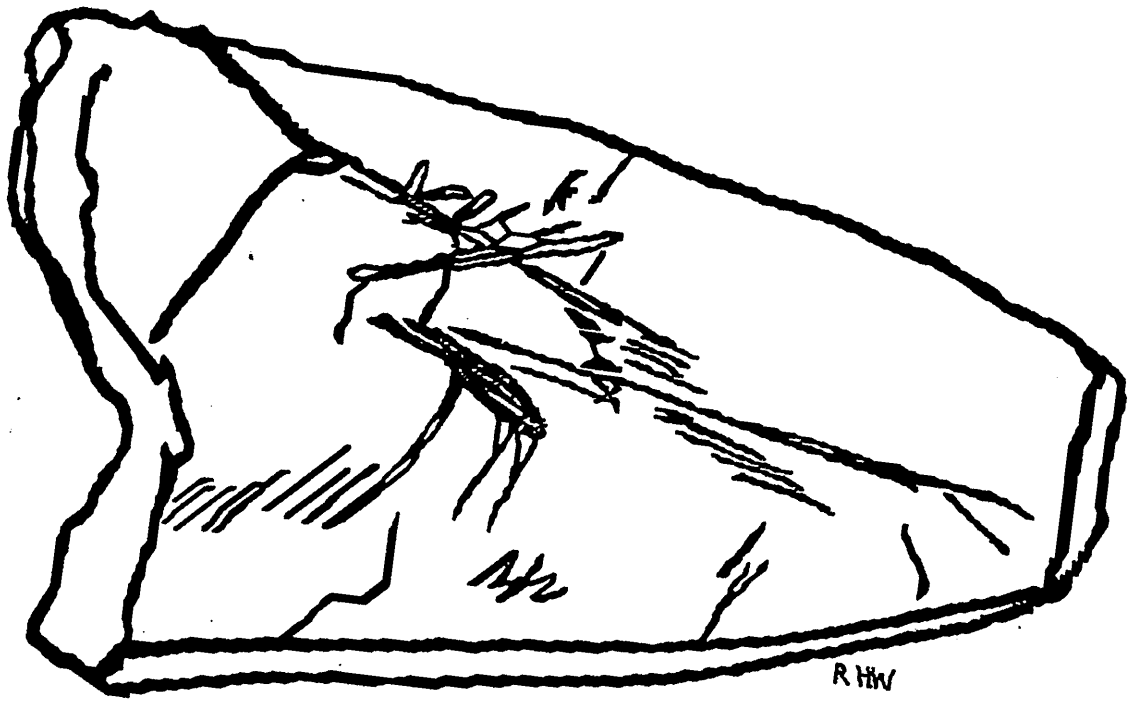


FIGURE 34



73.180.407a Melanson Site: Petroglyph

FIGURE 35

HISTORIC MATERIAL

As mentioned in the introductory chapter, there is essentially nothing published concerning the early Acadian-Micmac interaction in the Minas region. Yet, in protohistoric times, the Coldwell farm (BgDb-7) and parts of the central area of Melanson were places where composite bands aggregated at least seasonally. By the late 17th century Grand Pré was a significant Acadian settlement with some of its population soon spreading to the lower Gaspereau. Could Melanson have already been abandoned owing to disease, displacement or a shift in subsistence-settlement pattern?

Preston (1971), Erskine (1975), and Deal (1988) provide some inventory and survey of the various cellars and other buildings, artifacts, roads and dykes which comprise the pre-1755 Acadian remains in the region. None of these features are located on the Melanson site itself, although local tradition places several cellars behind BgDb-3 on South Mountain. There is a historical gap at Melanson between the Micmac and British occupations.

The historic artifacts collected in 1986 from Melanson and other sites further downriver are listed and identified in the appendices. "There is nothing in it that definitely points to Acadian occupation. Some of the British ceramics could have been used by the Acadians but could also have been used by later Planters and Loyalists" (R. Ferguson, letter of June 10, 1988).

British material, some of an early date (18th century), was collected in the central part of Melanson, but the samples are small. There are no historic items in the National Museum collections from BgDb-1/4, and the two private Wolfville collections contain only a metal fish spear (see appendices) and a small number of crockery and pipe fragments.

Intensive collecting at BgDb-6 on the second terrace yielded a small lithic sample of unknown affiliation plus a historic component spanning the late 18th, 19th and 20th centuries. The earliest items here are: 1 white salt-glazed stoneware, press-moulded ca. 1740-1780; 1 straight-stemmed English lead glass drinking glass, 18th century; 1 copper alloy button and 1 blue-green glass bead the latter identified as a 19th century wound bead (K. Karklins, 10 June, 1988).

In the course of spot collecting on the ploughed fields of BgDb-3 across the river, various historic items were gathered, the earliest of which is a piece of slip-dipped white salt-glazed stoneware, ca. 1710-1776.

In the western sub-area, a purely historic component, containing 18th-19th century glass, crockery and pipestems, was recorded on the third terrace back from the river (BgDb-7c). However, the largest sample of historic goods comes from the 1986 excavations on the first (lowest) terrace above the river, and are largely restricted to the upper two levels. Here, in the latest part of the site where we would expect to pick up Acadian-Micmac interaction, only English material is encountered leaving a historical blank for the previous 150+ years. The earliest materials here come from 20E2N and are listed in the appendices as: 1 tin-glazed earthenware (glaze missing); probably pre-dates 1780, common in early-to-mid 18th C.; and 1 red coarse earthenware; may be 18th C. Anglo-American, but could be 19th C. A single, white, cylindrical glass bead (now lost) from level 3 of 14E2N, measured 1.0 x 0.3 cm and resembles the single prehistoric bone bead. According to Karklins, ". . . Ia5 - this variety is quite long-lived and not particularly helpful for dating purposes. In New England, they are found on sites dating as early as 1575" (pers. correspondence 10 June 1988).

Chapter 8

CERAMICS FROM THE MELANSON SITE

Helen Kristmanson

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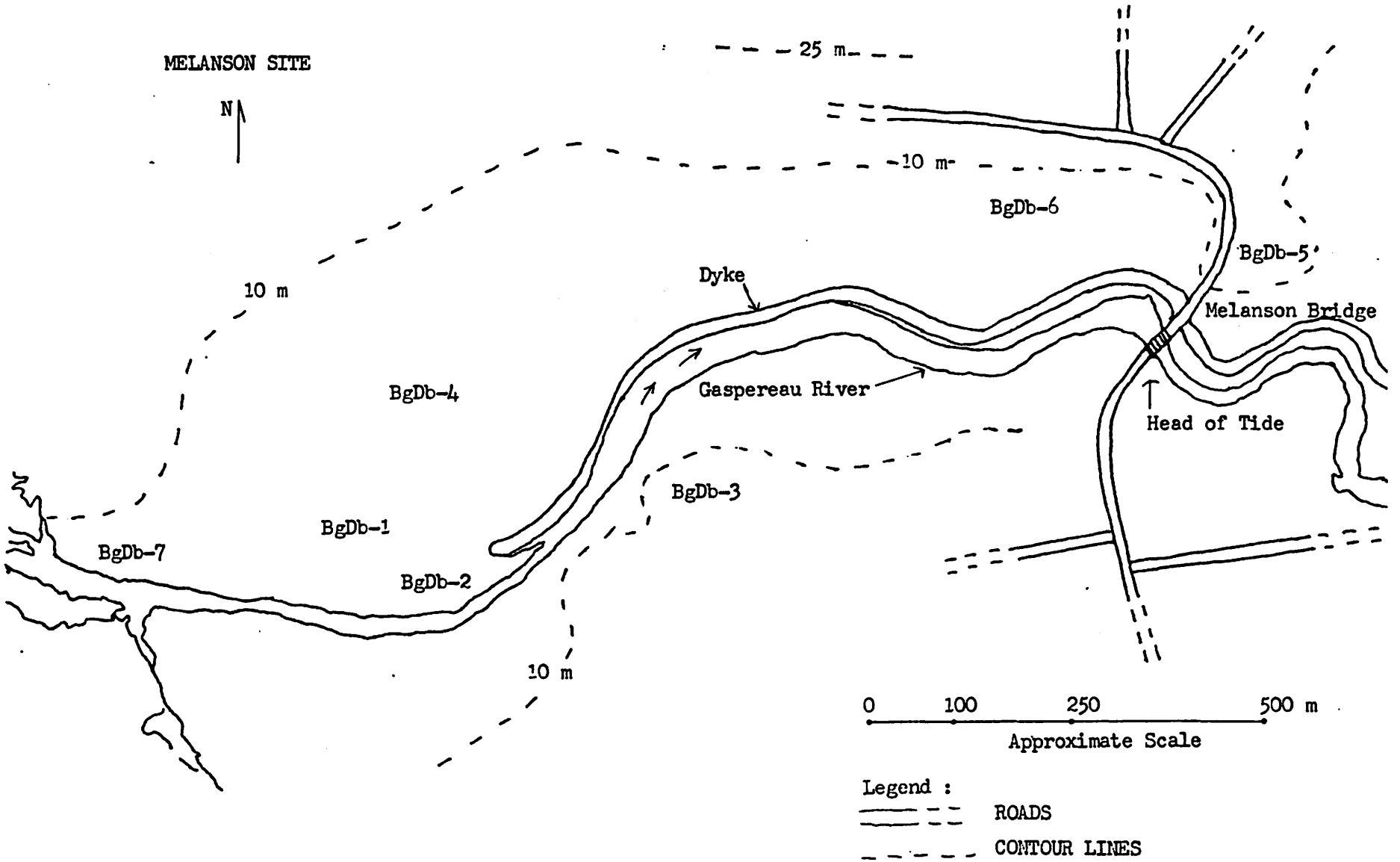
INTRODUCTION

This paper is a study which involved the examination of individual potsherds for specific diagnostic attributes. The sherds were subsequently organized into vessels where possible, and trends through space and time were noted. Comments made on possible occupation shifts at the Melanson Site were based on the intra-site comparison of the ceramics and lithics. Additionally, the ceramics from the Melanson Site have been compared to one site in Nova Scotia and one from New Brunswick.

The bulk of the ceramic material from the Melanson Site was recovered by George MacDonald during his 1965 excavations. The provenience of the sherds in this sample is understood only generally. While unit summaries and wall profiles were available for study of the vertical relationships, the horizontal relationships were less clear, a problem already discussed in the general summary of the 1965 work. If the distribution of pits within a sub-area of the site is not always known, the ceramics are, however, distinguished by sub-area -- e.g., BgDb-2, BgDb-3, BgDb-4, and BgDb-5. The smaller ceramic sample recovered in 1986 by Nash and Stewart from the western end of the site is thoroughly documented.

MacDonald's 1965 work was on the north central part of the Melanson Site and involved trenches and test pits on the first terrace. A few pits were placed on the second, 10 metre, terrace. A large ceramic sample was obtained from a road cut where the 10 metre terrace juts out to meet the river at the eastern end of the site. The 1986 excavations were on the first terrace at the western end. Thirteen pits were excavated in 4 levels, all containing small quantities of pottery.

The initial "field test" in the spring of 1965 was a cut near the river and designated BgDb-2. The cut was done in four levels to a depth of 1'11", ceramics being recovered from all levels. Subsequent excavations that same summer were done in approximately the same place, the area now designated as Melanson Dyke, BgDb-4 [the proximity of these two Borden numbers is indicated by piecing together a single rim from the two areas]. The 8 squares identified as BgDb-4 contained ceramics from the plough zone to "layer 2". Further back on the first terrace were a series of test pits 1-36 and A-E taken down to the water table. Stratification was apparent with occupation occurring in about half of these test pits further back from the river. Some of these pits are on the contour map (see 1965 excavations).


MELANSON SITE
N
25 m
10 m
10 m
10 m
BgDb-6
BgDb-5
Dyke
Melanson Bridge
Gaspereau River
Head of Tide
BgDb-4
BgDb-3
BgDb-1
BgDb-7
BgDb-2
0
100
250
500 m
Approximate Scale
Legend :
ROADS
CONTOUR LINES

In the easternmost part of the site BgDb-5 is known as the Cemetery Site due to its position at a contemporary and historic graveyard. Controlled excavations were not conducted here, but by digging into the road bank a collection was made. Owing to the method of excavation, BgDb-5 potsherds are without vertical provenience.

The sum totals of the ceramic material arrived at in this analysis do not precisely match those of MacDonald's catalogue. This is due to post-excavation breakage and the successful reconstruction of numerous vessel portions. The quantities listed in Table 1, represent the figures used in analysis and include the small sample recovered from the Coldwell farm (BgDb-7) in 1986.

METHODOLOGY

The sherds in this sample were individually examined and subsequently incorporated into vessel units for analysis. The criteria determining single vessels included context, decoration, texture, and temper. Attempts were consistently made to fit sherds together. The majority of fits occurred with sherds from the same square and level, but there were exceptions. A match was made between sherds from Test Pit 17, Layer 2 and Melanson Dyke, Layer 2. Another inter-site match was made with sherds from Layers 2 of BgDb-2 and BgDb-4. Soil disturbance at BgDb-4 may have occurred during the construction of the dyke and as a result of ploughing. This disturbance may have extended through to Layer 2, but undisturbed features there indicate otherwise. An example of a vessel found in a disturbed environment is Vessel 8 in Test Pit 21 which included sherds from both the plough zone and Layer 1. The blend of sherds might have been due to the fact that Test Pit 21 was dug with a back-hoe potentially confusing the provenience. Natural soil disturbance was also a possible factor in mixed provenience at the Melanson Site. At Test Pit 17, for instance:

> at approximately 1.6′ three post molds appeared (see floor plan above) A and B were only 0.4′ deep but C extended to 3.4′. At 1.7′ and for several inches deeper there appeared long gray stains, perhaps root molds; one was very straight and 2.5′ long. There was a concentration of pottery around a cluster of broken stone (appeared not to be fire-cracked).
>
> Test Pit 17 field notes, page 1. Recorded by S. A., July 1965.

The pottery concentration associated with the stone might refer to what is now called Vessel 5. The root and post molds are a possible explanation for dual level sherds comprising Vessel 2 of Test Pit 17. The horizontal association of sherds within Borden areas was possible in virtually every layer represented in the sample.

With the vessel as the minimal unit of analysis, the importance of the quantity of the sherds was reduced in light of other relevant criteria. "This analytical procedure helps to reduce distortion of data due to vessels being represented by unequal numbers of sherds" (Sheldon 1987). The sherds from BgDb-7 were lightly washed after excavation, those from MacDonald's collection may not have been washed as some sherds still exhibit a substantial amount of carbon residue.[1] Prior to examination the sherds were arranged on marked table tops according to the square location and relative provenience. Rims, bases and body sherds were used in the analysis. Decoration was looked for on each sherd with the aid of putty to create a mirror image impression and a magnifying hand lens. Temper was broadly identified, but with the help of thin sections made from selected sherds, the temper of some vessels was more closely defined. The description of texture was based on Hurley and Wagner's work (1972:11) using their 'crumbly', 'compact', 'porous' and 'laminated' categories only.

Generally, the procedure undertaken to organize the ceramics from the Melanson Site into vessels involved splitting and lumping specific attributes. "The attribute may be a physical or chemical property of an object -- weight, shape, chemical composition, and so on, or it may be a position in space or time" (Spaulding 1960:61). BgDb-5 was unique as the vessels from this area were primarily based on the assessment of rim sherds. This procedure was necessary due to the weathered condition of the body sherds which obscured decorative impressions. Unclassifiable sherds such as those in poor condition and others with indistinct decoration were categorized under 'miscellaneous'. Attributes rather than types were used as the basis for classification; the possibility that the attributes might cluster to form types was subsequently considered in the analysis.

Having organized the ceramics into contextual categories, the sherds were further arranged by vessel portion (Figure 1). Rim sherds of various sizes were identified by the presence of a lip, and/or a portion of the rim. Base sherds were recognizable due to their distinct 'nipple' (Allen 1981:68) and 'conical' (Foulkes 1981:169) shapes. Body sherds included those which were evidently

located between the rim and the base when the vessel was complete. Rim and base sherds were particularly valuable to vessel reconstruction. Of the 53 vessels, 13 included exclusively body sherds, 12 included both body and rim sherds, 2 had body and base sherds, and 26 were based on rim sherds. None of the vessels included sherds from all three portions.

ATTRIBUTES

Ceramic decoration is a significant attribute; the following descriptions and Figures 2-6 encompass the range of decoration on the Melanson Site ceramics. A brief explanation of the methods of application will serve to simplify the description. The decoration applications have been listed as rocked, simple stamped and 'messy' (Allen pers. comm. 1987). A rocker stamp entailed placing the tool on the vessel, lifting all but the tool end off and replacing the tool adjacent to the first impression. The orientation of the apex of a rocked stamp indicates whether it is a Z or S pattern, this could be detected on various sherds. The simple stamp was achieved by applying the tool uniformly on to the vessel and directly lifting the entire tool off in one motion. A messy application occurred exclusively with the cord wrapped stick design, and may be described as an application portraying no motif. The haphazard arrangement of each impression made by the individual wraps might reflect the condition of the tool, the experience of the potter, or the degree of interest in preparing ceramic vessels. Various decorations and applications were combined on a single vessel (Table 3).

The location and motif of the rim decoration was recorded where possible. Although usually decorated, body sherds are without orientation and thus virtually useless in assessing the direction of design elements. The possible motifs were horizontal, vertical, oblique and the combinations thereof. Motif was determined according to the direction of the decoration with respect to the rim. A cord wrapped stick impression was left on a vessel surface either by simply stamping the clay with the self-described tool, or by moving in a rocking motion to create Z, S or V motifs (Figure 2).

Another technique using the cord wrapped stick is the linear corded impression, independent of, or inside a trail. (Trails, as described further on, are shallow linear impressions in the clay.) A linear corded impression is interpreted here as a cord wrapped stick imprint where the composite impressions occur extremely close together in parallel arrangement. The desired effect was presumably a

straight line which could only be achieved by the repeated simple stamping of the tool. Where a linear corded impression occurred inside a trail, the trail was clearly drawn first, perhaps with the end of the tool, and the cord wrapped stick was then impressed directly within the bounds of the trail (Figure 3).

The pseudo scallop shell stamp, though slightly varied between vessels, basically generated the image of an undulating line. There appears to have been at least two methods of creating the pseudo scallop shell impression. One employed a tool designed to simply manufacture a wavy line. This tool produced an effect of a linear series of semi-circles joined proximally by an unbroken line. Pseudo scallop shell impressions were both simple stamped and rocked onto the vessels. The bordered stamp was exclusively a rocked stamp (Figure 4).

The dentate stamp was recognized as a series of rectangular or squarish impressions either closely or widely spaced. In some instances a stamp is described as being 'all over'; this refers to the repeated application of the tool in all directions in order to maximize the extent of the decorative cover. The two forms of application, simple and rocker stamped, were both exercised with the dentate tool (Figure 5).

Punctates were made on the lip, rim and body of a vessel. These depressions were roughly circular. A variety of tools could have been used to create punctates. The end of a stick or perhaps a small bone would have sufficed.

Trails, made on the vessel exterior and interior, were made by using a blunt tool to draw a relatively shallow linear depression on the vessel surface. Striations left by the tool were normally detectable and an overflow of clay was occasionally visible on the banks of the trail. Trails were individually generated and frequently cross hatched, overlapping in opposing directions (Figure 6). One vessel exhibited a perforation, a hole drilled through the wall from exterior to interior as the interior scar evidences (Allen pers. comm. 1987). It is not clear whether the perforation was decorative or functional.

Notches describe the decoration found on the lip and lip edge of a vessel. Usually the tool edge or end was applied to the lip to create circular or vaguely linear impressions at regular intervals. Some notches were made with a dentate or pseudo scallop shell stamp as the impressions were clearly visible in the notches. Occasionally the notches were made by extending the application of a stamp over the lip region, in one

continuous motion. Incisions were made with a sharp tool to obtain a deeper, narrower line than a trail; possibly shells or quills were used. The edges of an incised line were clean, defined and more v-shaped in cross section. "Incising is often, although not necessarily, done on dry clay" (Hammon 1984:42). The nature of the incisions made on the Melanson ceramics is indicative of lines drawn in wet clay.

Vessels interiors were commonly finished with a combination of procedures. The surface of some interiors had evidently been smoothed by the potters' hands. The visible striations on a wiped interior indicated the use of a hand held fabric used to finish the interior walls. Combing the interior produced an array of parallel lines presumably made with a specially designed tool, or a handful of carefully placed implements (Allen pers. comm. 1987). The lines comprising the combed impression were normally closely spaced and often cross hatched.

Ascertaining the temper of a sherd was among the preliminary tasks undertaken in the sorting process since temper was of crucial importance to vessel designation. Three basic temper types were recognized: organic, grit, and shell. Organic tempering was identified by the presence of organic material in the sherd, or by the cavities left by the since decayed matter. Shell tempering was recognizable by its color, hardness and capacity to burn. The majority of shell temper, however, was identifiable only by the flat-bottomed shallow pits that remained (Allen pers. comm. 1987). Occasionally the shell temper was accompanied by organic material; in recording such cases the shell took precedence.

The terms 'fine', 'medium' and 'coarse' were assigned to define the grade of the grit tempering. The size of the non-grit temper was not recorded as a distinct attribute. Combinations of the grades were applied in order to encompass the size range of grit particles in one sherd or vessel. This procedure was found to be necessary as a multitude of sherds exhibited a conglomerate of grades (Table 2). Ascertaining the temper of a sherd was one of the preliminary tasks in sorting the ceramics, as temper was crucial to vessel designation.

The texture of the pottery was described as crumbly, compact, porous or laminated (adopted from: Hurley & Wagner 1972:11). 'Crumbly' refers to a distinctly friable sherd due to the loose arrangement of grains. A 'compact' texture was comprised of tightly consolidated grains that broke cleanly and was smooth in appearance. A 'porous' texture exhibited numerous hollow cavities due to the nature of the

clay. 'Laminated' referred to a texture that appeared to be sheeted or layered and broke into 'steps'. Coil breaks were visible on a number of vessels and recorded simply as 'present'. Coil breaks are distinctly smooth and shaped to accept another coil. Only obvious cases were recorded, these were noticed on 14 vessels. The presence of carbon residue was noted when a reasonable amount was extractable for analysis.

A considerable number of rim portion attributes were recorded. Lip thickness was measured in millimeters using calipers placed along either side of the lip edge in the region of maximum width. Rim thickness was taken one centimetre below the lip edge, however, some sherds were broken and could only supply a lip measurement (cf., Allen 1981:66). The maximum thickness of each body sherd was measured and the average wall thickness was recorded. Lip form was an attribute of two variations: a flat lip appeared to have been shaved off, and a rounded lip was either smoothed into curved edges or physically rolled to the exterior. Rim shape described the thickness of the vessel from rim to lip. A parallel rim was equally as thick at the lip as it was one centimetre below the lip. A contracting rim decreased in thickness from rim to lip. The rim profile described the angle of the rim with relation to the remaining portion of the vessel. 'Vertical' was assigned to a rim that extended cylindrically from the vessel. Outsloping rims flared away from the body, while insloping rims curved to the interior.

The mouth diameter of a vessel was determined one of two ways, providing a substantial rim sherd was available. The first method was to place the sherd on one of a series of concentric circles and determine the closest fit. The second was accomplished by first tracing the arc of the rim, bisecting it with a compass to ascertain the centre of the circle, and finally the radius was measured and doubled to give the diameter. These measurements were recorded in centimeters. The methods were equally effective and gave nearly identical results.

The use of attributes in the ceramic analysis permitted the examination of the smallest characteristics before attempting to incorporate them into types.

DESCRIPTION

Table 3 provides the description information for each vessel, together with a key for the attribute code. As Table 1 indicates, there are some 1018 potsherds which have been split and then lumped into a minimum of 53 vessels.

Some of these vessels, or at least their rims, are illustrated in Figures 9-30. The drawings, by Megan Burley, reveal the range of decoration, rim shapes and rim profiles and are dealt with on an individual basis below and comments are also noted for particular, unique vessels.

ASSOCIATIONS

The sherds at BgDb-5 were not excavated with precision and therefore features were neither discovered nor recorded. The central area of the site, BgDb-2 and BgDb-4, was excavated with better control and the following features, artifacts and intrusions were recorded. Vessel 1 at BgDb-2 was found in association with a hearth feature, while Vessel 2 from the same unit turned up with charcoal and red ochre fragments. In Test Pit 17, Vessels 2 and 5 were accompanied by fire cracked rocks. Vessels 6 and 7 of this pit were located in close proximity with post molds and lithic flakes in addition to fire cracked stone. Vessel 8 from Test Pit 21 was found around a rock cluster. At BgDb-4, the Melanson Dyke, Vessel 9 was accompanied by lithic flakes. Vessels 8, 11 and 12 were discovered with charcoal fragments and lithic flakes, while Vessel 4 sherds were amidst fire cracked rocks and lithic flakes. Vessel 6 from the Melanson Dyke was discovered in association with a hearth feature with both lithic flakes and charcoal fragments. A number of the sherds constituting Vessels 1, 3 and 4 at BgDb-7 were recovered from a pit feature located in Square 1, 2E 2N.

TEMPER

At BgDb-5 the temper was exclusively organic and grit. At BgDb-2 and BgDb-4, the central region, the most common temper was organic and grit with organic temper as the next favorite. All four temper types, however, were represented. BgDb-7 vessels were frequently tempered with organic material, but grit and shell were also used. None of the vessels from BgDb-7 had organic and grit tempering (Table 9).

The temper of Vessel 6 from the Melanson Dyke, BgDb-4, was distinct. Generally, the prevalent grit temper at the Melanson Site was a mixture of mica and/or quartz grains. Five sherds from the Melanson sample were transformed into thin sections for the purpose of temper analysis. The following observations were made with the assistance of Dr. Randall Cormier. Vessel 6, BgDb-4, was tempered with organic matter and an amorphous material of either black and white or cream coloring. This material occurred in thin layers on the sherd surface and was unfortunately removed

during the manufacture of the slides. The sherd from BgDb-5 illustrated that a multitude of mineral grains combined to form the sandy grit tempering. The angular nature of the coarse grains indicated deliberate crushing of the sand. The minerals included quartz, biotite mica and very large grains of orthoclase and plagioclase feldspar. Prominent dark streaks on the slide emphasized the voids left by the since decayed organic matter. Vessel 2 at BgDb-2 was of the same temper, only the grains were coarser, while the grit temper of Vessel 4 of Test Pit 17, BgDb-4 included the identical minerals, but was finer. The sherd submitted from BgDb-7 had shell (calcium carbonate) tempering. The minute quartz grains visible in the clay matrix through a microscope did not contribute to the temper.

DECORATION

The application of decoration at BgDb-5 included both rocked and simple stamped with combinations of the two. The most frequently employed application in the central area was the simple stamp. At BgDb-7, the vessels were also most commonly simple stamped. The location of decoration on rim sherds was recorded when possible. The majority of the vessels at BgDb-5 were decorated on the lip and rim while a small percentage were decorated only on the lip or rim. BgDb-2 and BgDb-4 vessels were decorated on the lip and rim, although some had rim decoration only. One vessel at BgDb-7 had lip and rim decoration (Table 10).

One body sherd at the Cemetery Site, BgDb-5, was decorated with a dentate stamp that had been impressed into the clay and swerved off in one direction (Figure 7). This sherd provides an example of the decorative variation that might be expected to occur on a vessel. Vessel 5 from BgDb-5 (Figure 30a) was represented by a unique rim sherd. The vessel was decorated with rocked dentate stamp, punctates, trails and notches, however, these were restricted to one specific section of the vessel. This discontinuity in design was found exclusively with this rim sherd and its occurrence must be left open to speculation. Two vessels at BgDb-5 had castellated rims; the first, Vessel 1, had a pointed castellation on the rim, while Vessel 4 had a less angled or 'rolling' (Allen pers. comm 1987) castellation.

Vessel 4 in Layer 1 at the Melanson Dyke, BgDb-4 and Vessel 5 in Level 3 at BgDb-7 both appeared to have had a red pigment applied to the vessel surface. The colored material exists as a powdery substance in the crevices of some sherds in addition to the basic stain. Fragments of red ochre were recovered in Layer 1 at Melanson Dyke by

MacDonald's excavators, and may provide the explanation for the pigmented vessel.

LIP AND RIM ATTRIBUTES

Most of the vessels at BgDb-5 had rounded lips, a number had flat lips and one was pointed. In the central area, the lips were more flat than rounded, and at BgDb-7, flat and rounded lips were found in equal amounts (Table 11). The most common rim shape at BgDb-5 was contracting with a small number of parallel rims. At the central area of the site, parallel and contracting rims occurred in equal proportions. At BgDb-7, the only rim shape observed was of the expanding variety (Table 12). Rim profiles were mainly outsloping at BgDb-5 with smaller amounts of insloping and vertical rims. At BgDb-2 and BgDb-4 the rim profiles were outsloping and vertical. The rim profiles of the vessels at BgDb-7 were indeterminable (Table 13).

ANALYSIS

Table 4 outlines the cross-tabulation of vessels and levels at BgDb-2, BgDb-4, and BgDb-7 (there were no levels excavated at BgDb-5 or BgDb-3). The evidence from these tables suggests that there was a decrease in the use of ceramics over time, but never a total abandonment, a pattern which could be a reflection of the sample sizes. Due to the apparently consistent use of ceramics from the bottom through to the top layers of the site, however, it may be stated that the entire occupation was within the Woodland Ceramic Period.

DECORATION

Tables 5-7 list the decorative styles by level at BgDb-2, BgDb-4 and BgDb-7. The small sample at BgDb-2 shows that the pseudo scallop shell decoration occurred at a deeper level than did the cord wrapped stick. At BgDb-4 the most common decoration in the earliest level was the pseudo scallop shell design. Cord wrapped stick vessels were present in the lowest layer, but did not increase in abundance until a later time. Table 6 shows that dentate stamp was present in the earliest layers and then disappeared altogether. At BgDb-7 the information is less straightforward as the vessel decorated with pseudo scallop shell design was without square provenience. The information does imply that ceramics were not in abundance at the western end, and that the favored decoration was cord wrapped stick.

The relationship between the tables is indicative of a horizontal relationship between the divisions of the Melanson Site. The ceramic frequencies from east to west, or from BgDb-5 to BgDb-4 to BgDb-7, indicate that there was a decrease in ceramics at the Melanson Site as one moves west. Since the use of ceramics possibly waned in the Late Woodland Period (Tuck 1984:79) this pattern seems feasible. Additionally, it has been proposed above that the occupants of the Melanson Site were gradually expanding upriver. The decoration patterns are also compatible with this idea; vertically it has been shown that pseudo scallop shell and dentate stamp occurred in earlier layers, while cord wrapped stick decorations predominated in the later layers. Horizontally the pattern is similar: at BgDb-5, the ceramic decoration is almost exclusively pseudo scallop shell and dentate stamp. Further west, at BgDb-4, there is a combination of pseudo scallop shell, dentate stamp, and cord wrapped stick decorations. Perhaps the occupation located in the central area of the site was during a transitional period for ceramic decoration. The transition proposed here was one from pseudo scallop shell and dentate stamp to the cord wrapped stick design. Tables 5-7 indicate that pseudo scallop shell decoration at BgDb-4 was still popular in Layer 2, but there was a sharp increase in cord wrapped stick decorations soon after. In summary, the tables outlining the relationships of decoration by level support the idea that the occupation at the Melanson Site shifted in a westerly direction through time, and lends credibility to the supposition that pseudo scallop shell and dentate stamp decorations preceded the cord wrapped stick design (Figure 8). Finally it is possible that the central region of the Melanson Site was where the transition between the decorations took place.

THICKNESS AND TEXTURE

The mean measurements of the rim and wall thicknesses were taken from BgDb-4, BgDb-5 and BgDb-7. Although BgDb-5 had no specific provenience, a mean was derived from the entire sample. Generally, both rim and wall thicknesses increased vertically (stratigraphically) and horizontally from BgDb-5 to BgDb-4. At BgDb-7 however, a scan of the vertical pattern reveals that an increase in thickness was followed by a decrease. Perhaps this change can be attributed to a declining interest in ceramics, however the sample is small and of limited use. With relation to thickness, the entire site cross-tabulation of rim and wall thicknesses by decoration shows that cord wrapped stick and dentate decoration are associated with the thickest vessels, while the pseudo scallop shell decoration was found on the thinnest vessels. These generalizations were based on the

decorations listed with the highest number of cases to increase validity.

Observing all cases used in the entire site comparison of mean wall thickness by texture indicated that the thinner vessels with compact textures occurred earlier than the thicker, crumbly textured vessels.

The potential clustering of attributes has been briefly introduced. It is evident that the attributes of decoration, thickness and texture combine to form chronologically significant historical types. The types, from earliest to most recent, are as follows:

Type 1: thin walled vessels of compact texture and pseudo scallop shell decoration.

Type 2: thick walled vessels of crumbly texture and dentate stamp decoration.

Type 3: thick walled vessels of crumbly or other texture with cord wrapped stick decoration.

Five samples were submitted for radiocarbon and thermoluminescent analysis. Three of these were organic remains, one from BgDb-2, Layer 4, and two from BgDb-7, Level 3. The ceramic samples were taken from BgDb-7, Level 1 and BgDb-5. The results of the analyses are listed in Table 8. The information is compatible with the chronology established through the vessel analysis, with the exception of the thermoluminescent date on the sample from BgDb-5. Due to the strength of the pattern formed by the ceramics and the sizeable error margin for thermoluminescent dates, the ceramic analysis remains unchanged. The first occupation appears to have been located in the easternmost part of the Melanson Site at least as early as 1760 $\pm$ 60 B.P. since Level 4 at BgDb-2 in the central region dates this far back.

CONCLUSIONS

The 53 vessels from the Melanson Site exhibit a chronological pattern of style change and occupation movement. An east to west occupation shift has been established on the basis of a reliable ceramic sample with apparent stylistic trends and valid provenience. The radiocarbon and thermoluminescent dates served to complement the model that was derived from the ceramic analysis -- with the exception of the late thermoluminescent date from BgDb-5. The easternmost region of the Melanson Site was settled during the Woodland Period prior to 1760 $\pm$ 60 B.P. At this

time, the ceramics were both thin walled vessels of compact texture and pseudo scallop decoration and thick walled vessels of crumbly texture and dentate stamp decoration. Although sub-area BgDb-5 has no definite context, it is proposed that the dentate stamped vessels were used during and after the use of pseudo scallop shell decorated vessels. This is based on the chronology of styles known from the stratified areas of the site. The shift towards the central region of the Melanson Site took place prior to 1760 ± 60 B.P. This is understood as that date comes from the lowest level at BgDb-2. At the time of this movement, the pseudo scallop shell decoration was still occurring on thin walled vessels of compact texture, and the dentate stamp decoration was seen on thick walled vessels with crumbly texture. As well as expansion upriver, the central area was growing in size generally and is the largest part of the Melanson Site, extending well back from the river. Prior to the next westward movement, a decline in the Type 2 vessel took place, perhaps an entire abandonment of the style. The central and westernmost regions of the site were the last to be represented by the ceramic samples. BgDb-2 and BgDb-4 had substantial percentages of all three types with a high frequency of Type 3. This evidences the longest occupation with transitional stages in the ceramic types. BgDb-7 represents the final period of occupation with cord wrapped stick decorated vessels comprising the bulk of the material. The earliest reliable date for this western region of the site is 790 ± 60 B.P. from Level 3. The other radiocarbon date of 560 ± 60 years B.P. and a thermoluminescent date of 500 years ± 20% indicate continued occupation here until historic times. Figure 8 depicts the ceramic shift with respect to area.

COMPARATIVE OBSERVATIONS

The ceramic assemblage from the Melanson Site generally depicted three stages in ceramic style, which included one transitional period. The ceramics from the Delorey Island Site (Nash and Stewart 1986) and the Oxbow Site (Allen 1981, 1987) were reviewed to examine attributes and trends through space and are reviewed with respect to the Melanson Site. Their chronological alignments are given in Table 14.

DELOREY ISLAND

The Delorey Island Site is located in Nova Scotia northeast of the Melanson Site in Antigonish County. At Delorey Island there was no indication of a pre-ceramic occupation, which is logical in light of the young age, 1595 ± 80 B.P., returned from a bottom level charcoal sample. It is of interest that "5/6 of the Area 1 pits with 3 levels,

show a marked decrease in sherds from bottom to top" (Nash 1986:93). This trend might have occurred at the Melanson Site. The four principal groups of ceramic decoration listed in the Delorey Island report were, "in order of frequency, 1) Cord Wrapped Stick (19 vessels estimated), 2) Incised (6 vessels), 3) Cord Wrapped Stick-Punctate (3 vessels), and 4) Curvilinear Punctate (2 vessels)" (Nash 1986:99). The limited range of decoration among the Delorey Island ceramics is indicative of a Late Woodland Period occupation. As with the Melanson Site, the continued use of ceramics throughout all excavated levels suggests a duration through to proto-historic years. The presence of only one dentate stamped vessel, and one possible plain vessel against a potential 19 vessels of cord wrapped stick decoration is reminiscent of the decoration frequencies of the later occupation at the Melanson Site. This information reconfirms the proposed preference for the cord wrapped stick design during the Late Woodland Period in Nova Scotia. The one TL date from Delorey Island (A-554) was taken from a cord wrapped stick sherd and dated very late--460 B.P. (± 20%).

The earliest date returned for the Delorey Island Site is 1595 ± 80 B.P. (I-11, 619). Although the central Melanson Site had an early occupation date of 1760 ± 60 B.P., the ceramics at the easternmost division indicated an earlier settlement. Unfortunately, a date for the initial occupation at the Melanson Site is unavailable. It may be stated, however, that the Delorey Island Site was a Late Woodland occupation, while the Melanson Site was settled at least as early as the Middle Woodland Period. A brief discussion of comparable attributes of the ceramics from the two sites will exemplify the fact that the Delorey Island ceramics reflect the trends discovered entering the late occupation Melanson Site ceramics.

The entire Delorey Island ceramic sample included thick walled vessels with either shell or grit temper. They had vertical rim profiles and had cord wrapped stick decoration with punctates. Decoration was applied with a simple stamp. The vessels at Delorey Island were additionally of incised decoration or undecorated. All of the vessels from the Delorey Island assemblage had decoration at the lip and rim. These vessels are similar to those from the late occupation at the Melanson Site. As with the Delorey Island ceramics, the Melanson vessels were thick walled. The tempering, however, included shell, organic, grit and 'organic and grit'. The Melanson vessels were also decorated with cord wrapped stick, pseudo scallop shell, dentate stamp and punctates, with the simple stamp as the major form of application.

Aside from minor variations in temper, decoration and rim shape, the ceramics from these two sites appear to bear strong resemblances. The chronological types established for the Melanson Site might apply to the Delorey Island assemblage and sites elsewhere in Nova Scotia.

OXBOW

The Oxbow Site is located in the Miramichi River district of Northeastern New Brunswick. Excavations were conducted there under the direction of Pat Allen first in 1978-1979, and then again in 1984. The Early Ceramic Period at the Oxbow dates to 2700-2500 B.P. (Allen 1987. pers. comm). While Melanson's earliest occupation is undated, it is likely that settlement took place before 1760 ± 60 B.P., but probably not much before. The first vessels at Oxbow were thin walled and with grit temper. They mainly had flat lips, with some rounded. Vessels were decorated with simple stamped and rocker pseudo scallop shell, dentate stamps, and some dragged stamps. Trails, punctates and the occasional castellation were also found on Oxbow vessels. The rim profiles at the early Oxbow site were outsloping and insloping, with the lip interior, exterior and edge decorated on some vessels.

The Middle Ceramic Period at the Oxbow Site dates to 2200-1600 B.P. which overlaps with the early Melanson occupation. The vessels at the Oxbow were thin walled, while early Melanson vessels included both thin and thick walled varieties. Ceramic decoration at Oxbow included simple stamped and rocker pseudo scallop shell, and dentate stamps, with the dragged stamp still in use. Trails punctates and drawing were popular on middle period Oxbow vessels, while castellations were occasional. Early Melanson vessels were also decorated with simple stamped and rocked pseudo scallop shell and dentate stamps, with some vessels incised, notched, punctated or undecorated. Melanson vessels also had trails, punctates and the occasional castellation. The Oxbow vessels had flat and some rounded lips, while the Melanson vessels had more rounded lips than flat. The rim profiles at Oxbow were outsloping and vertical; at the Melanson Site there were outsloping with some insloping and vertical. The Oxbow vessels had interior lip and interior upper rim decoration, as well as exterior lip edge and surface decoration, as well as exterior lip edge and surface decoration. Some Melanson vessels had lip interior, exterior and edge decoration.

The differences in vessel style and manufacture between the Middle Ceramic Period at the Oxbow Site and the early Melanson occupation remain outweighed by the similarities.

Variation in form and decoration are minimal and expected among spatially and temporally separated occupations.

The Late Ceramic Period at the Oxbow Site has a radiocarbon date of 1675 ± 50 B.P. and a thermoluminescent date of 1080 ± 90 B.P. This is comparable to the Melanson Site middle occupation which falls approximately into the time frame of 1760 ± 60 B.P. -- >790 ± 60 B.P. The vessels from Oxbow were thin walled; those from the Melanson Site were thin and thick walled. Organic tempering was used in the Oxbow ceramics, while the Melanson vessel tempering included mostly 'organic and grit', with some shell, grit, and organic tempered vessels. Oxbow vessels were decorated with cord wrapped stick designs, with or without punctates, with some undecorated vessels. Melanson vessels were decorated with pseudo scallop shell and dentate stamp, both simple stamped and rocked, and a linear corded decoration was also used. The cord wrapped stick design was on the increase at this time at the Melanson Site. Some Melanson vessels also had trails and punctates.

About half of the vessels at the Oxbow Site had decorated lips and combed interiors, the Melanson vessels had no interior decoration, but the exterior lip edges and surfaces were decorated. The lip forms of the vessels at the Oxbow Site were rounded, while those at Melanson were mainly flat with some rounded.

The Melanson Site late occupation began before 790 ± 60 B.P., as this date comes from the third of four levels at the westernmost, or most recent, of the Melanson occupations. The vessels were fairly thick walled with various tempers including organic, shell and grit. The decoration was predominantly cord wrapped stick. One vessel had cord wrapped stick with punctates and linear cording, while another simply had cord wrapped stick and punctates. The small size of the sherds from this occupation rendered the examination of interior and lip decoration impossible. The lip forms, however, were flat and rounded.

It can be stated for both sites that the upper levels of the site confirmed the use of the cord wrapped stick as a late period indicator (Allen 1987. pers. comm.). The differences between the Late Ceramic Period at the Oxbow Site and the middle Melanson Site occupation indicate a temporal gap, but the chronological trends are similar with reference to ceramics. This is clearly indicated by the merging of trends over space and throughout the Woodland Period.

It has become clear that despite a possible 400 year separation between Nova Scotia and New Brunswick ceramic

trends, the related attributes overwhelm the differences. Additionally, the Delorey Island Site confirms the Late Woodland Period use of cord wrapped stick decoration within Nova Scotia. At this point, it appears as though regional variations between chronological ceramic types is minimal.

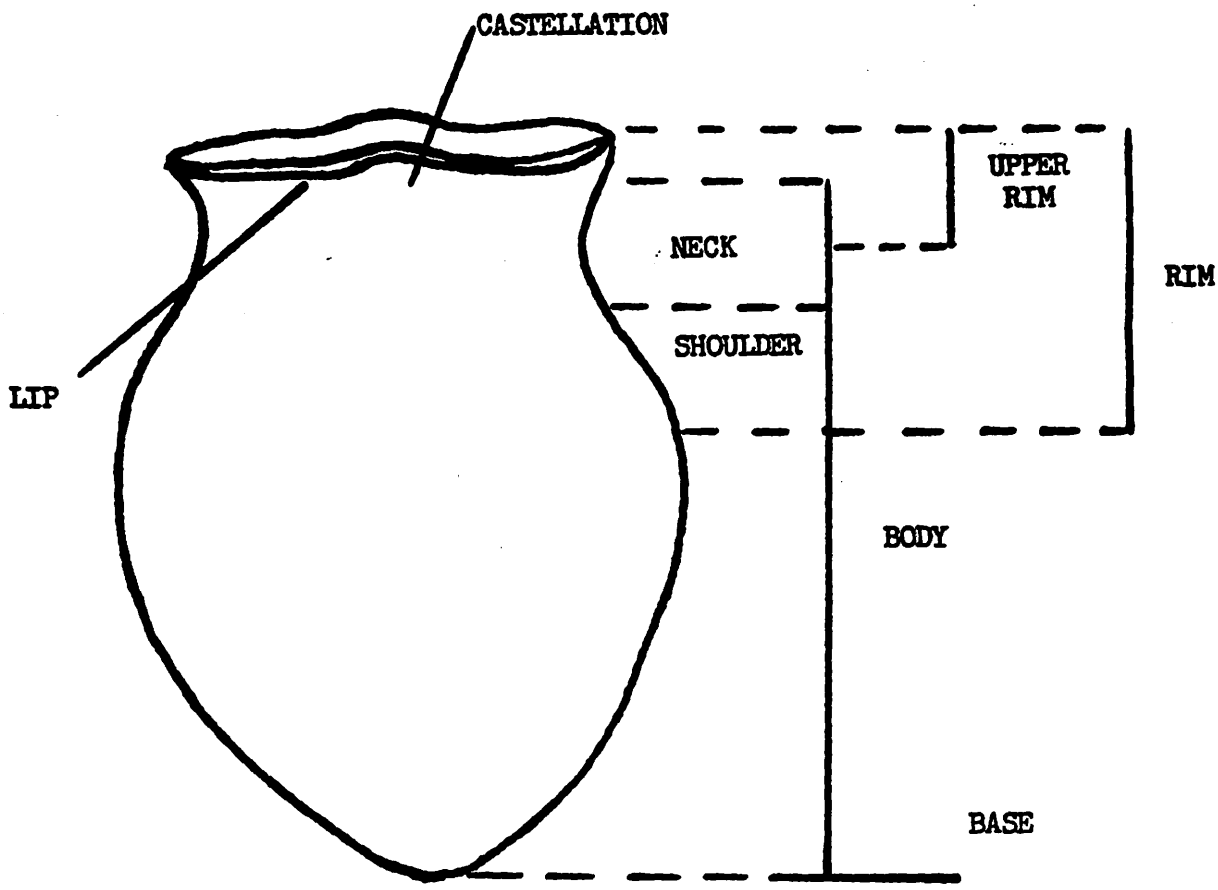
Editorial Notes (R. J. Nash)

1. Deborah Gurfinkle of the University of Toronto, examined the carbonized interiors of a number of sherds. Organic constituents were isolated, but could not be unambiguously identified (letter to R. Nash, February 4/88).

2. James Peterson has identified two interior corded rims of Early Woodland, Vinnette I type, collected by J. Erskine. It is uncertain whether these sherds come from Bear River or the Gaspereau River area and it is also uncertain whether the MacDonald collection contained another such sherd.

Figure 1.

VESSEL FORM TERMINOLOGY.



(Adapted from Allen 1981:289)

Figure 2.

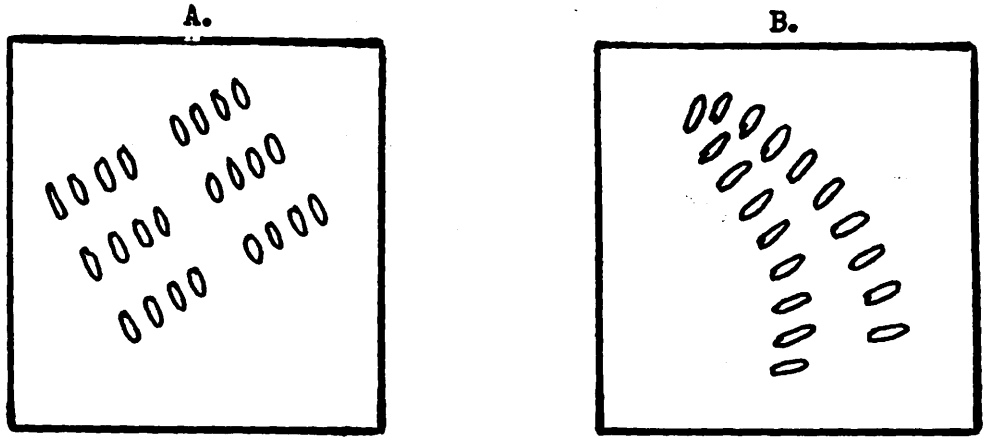


Figure 3.

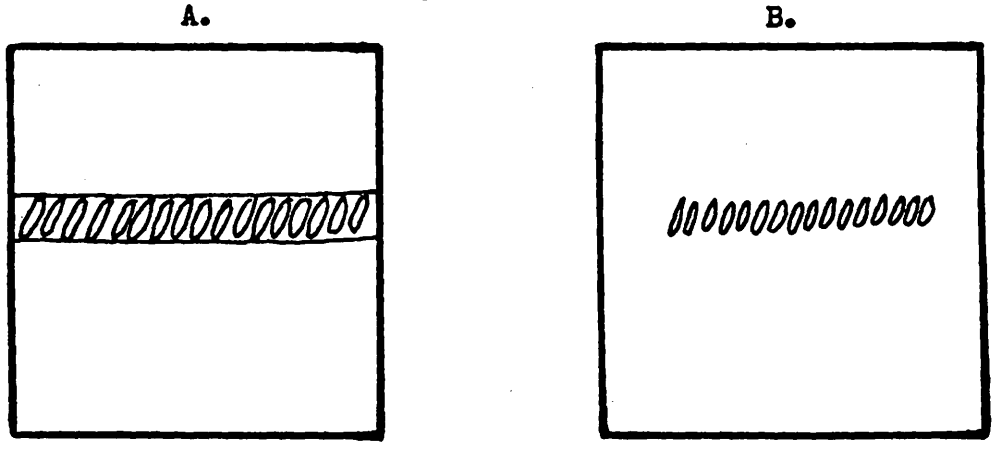


Figure 2.

Cord wrapped stick decoration :

A. simple stamp.

B. rocked.

Figure 3.

Linear corded impressions :

A. linear cord in a trail.

B. linear corded impression.

Figure 4.

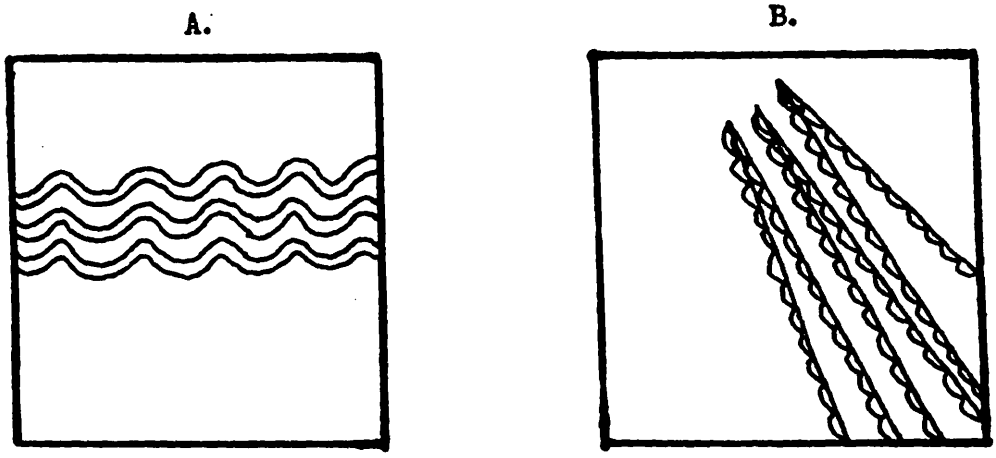


Figure 5.

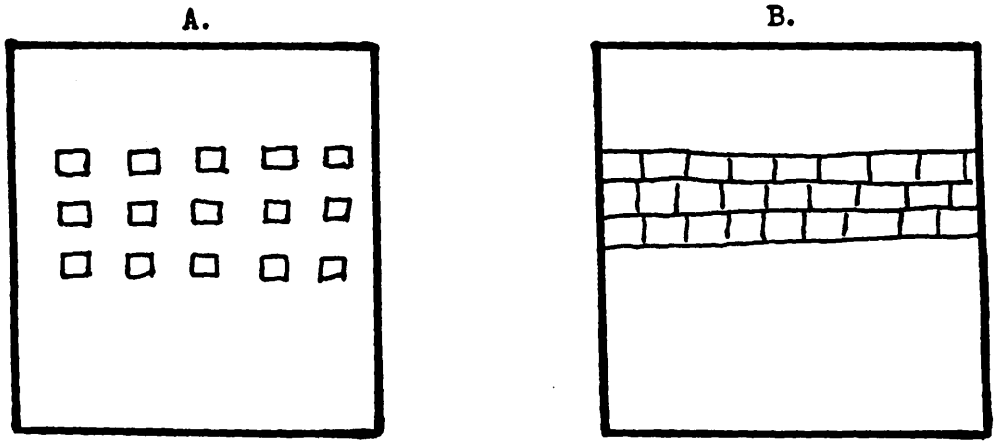


Figure 4.
Pseudo scallop shell decoration:
A. undulating line simple stamped.
B. rocked bordered stamp.

Figure 5.
Dentate stamp decoration:
A. widely spaced simple stamp.
B. closely spaced simple stamp.

Figure 6.

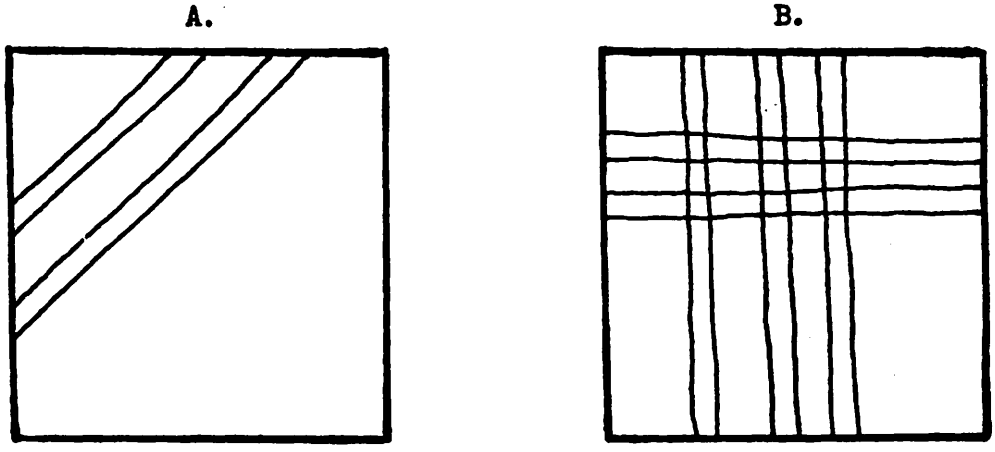


Figure 7.

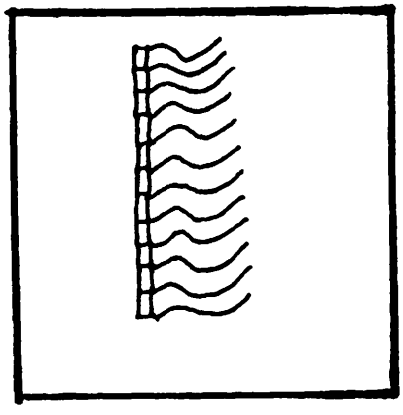
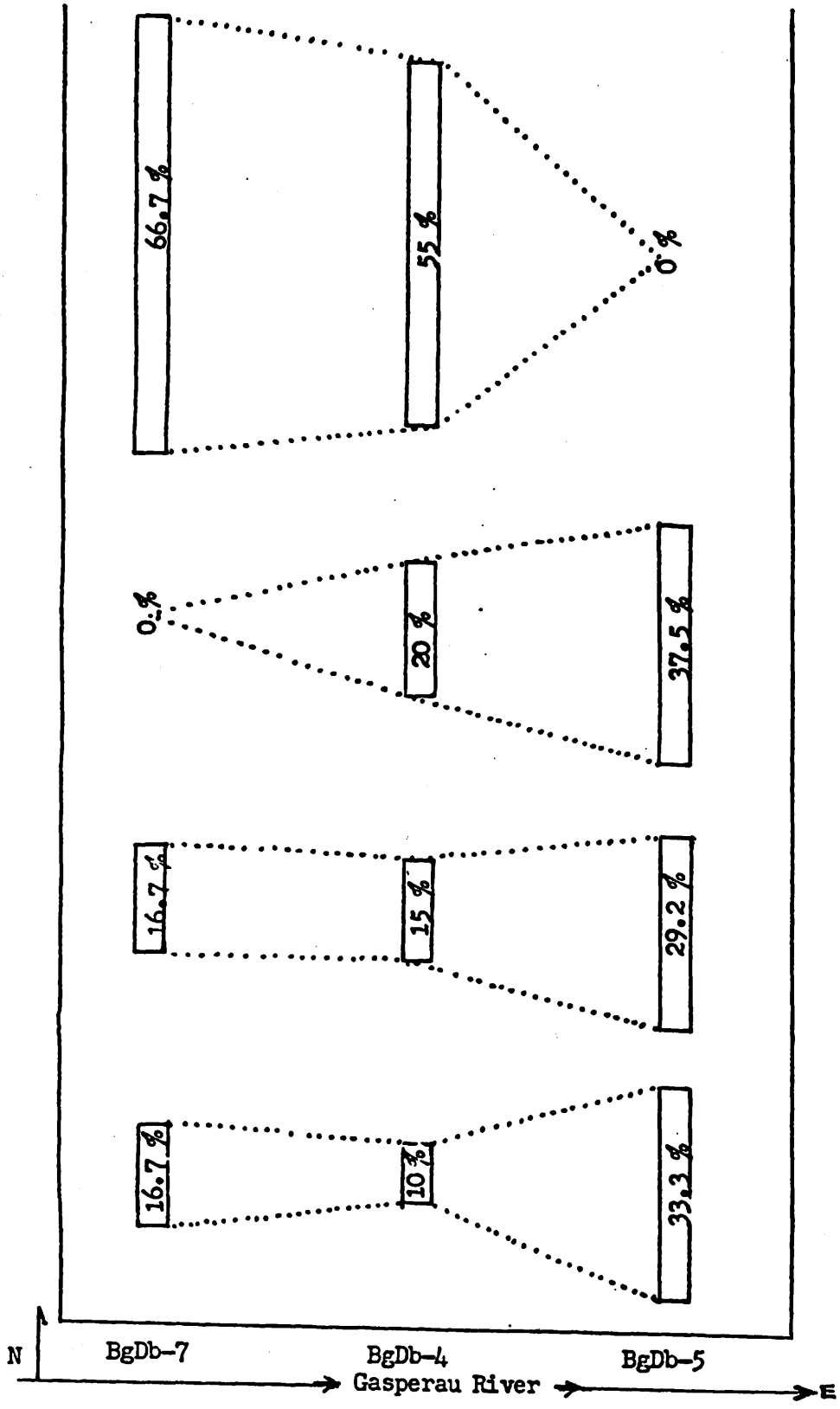


Figure 6.
Trails :
A. singular.
B. cross hatched.

Figure 7.
Dentate stamp swerved in one direction.

Figure 8.

Frequency of Decorated Vessels by Area.



Figures 9-28 ILLUSTRATIONS AND DESCRIPTIONS

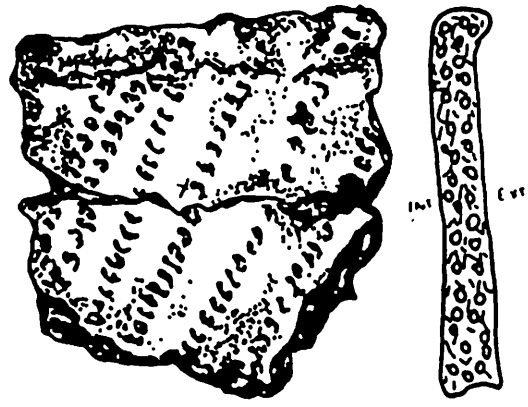
The following descriptions were made with the assistance of Pat Allen, and the illustrations were done by Megan Burley. The sherds were submitted to Allen and Burley prior to the analysis. The identifying numbers are mostly National Museum catalogue numbers.

BgDb-2:(2). Vessel 2. (Figure 9).
Body sherd. Exterior decoration is pseudo scallop shell rocked in all directions using a thick tool. Interior was smoothed. Temper is organic and grit.

BgDb-2:(6). Vessel 6. (Figure 10).
Rim sherd. Exterior decorated with simple stamped cord wrapped stick to the oblique right. Interior was smoothed and wiped. Lip was rolled to the exterior and then flattened. Notches were made with a plain tool to the oblique right. Rim shape is parallel with an outsloping profile. Temper is organic and grit.

Figure 9.

Figure 10.



BgDb-4:(84-85-89-90-94). Vessel 3, Test Pit 17. (Figure 11). Rim sherd. Exterior decorated with simple stamped pseudo scallop shell and small punctates in a chevron design. Interior was smoothed. Perforation drilled from exterior to interior after the vessel was fired. Lip is flat and smooth with shallow punctates on exterior lip edge. Rim shape is parallel with a vertical profile. Temper is fine to medium grit.

BgDb-4:(84-86-94). Vessel 4, Test Pit 17. (Figure 12). Rim Sherd. Exterior decoration is simple stamped pseudo scallop shell. Interior was smoothed and wiped. Lip is rounded and notched on exterior edge. Rim shape is contracting with an outsloping profile. Temper is organic and fine to coarse grit.

Figure 11.

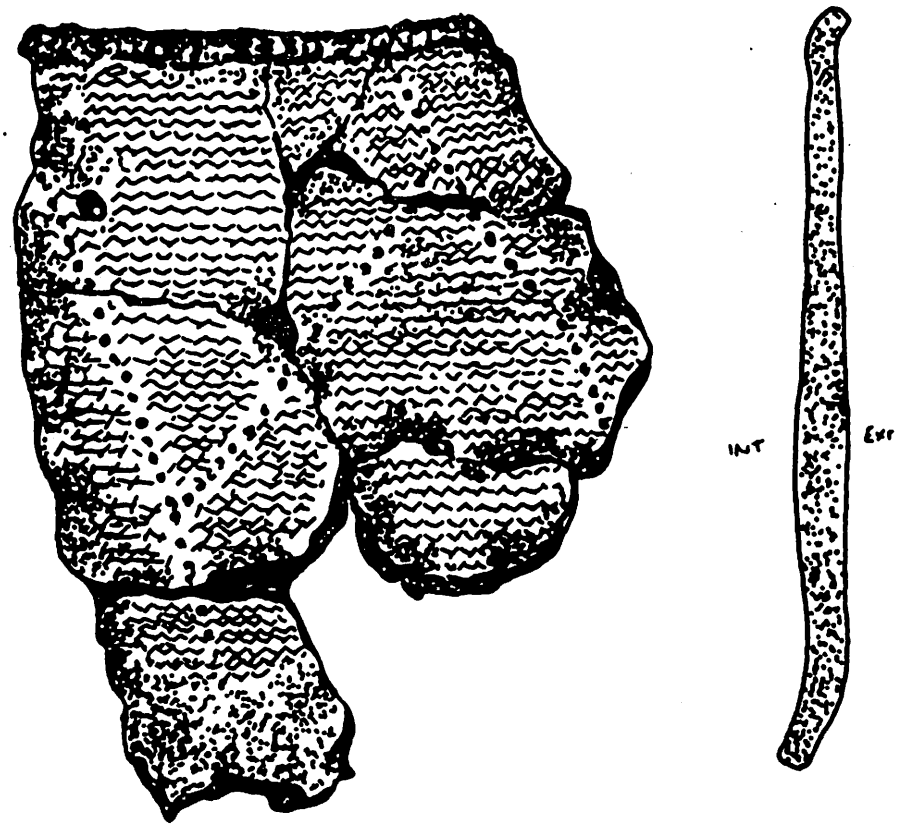
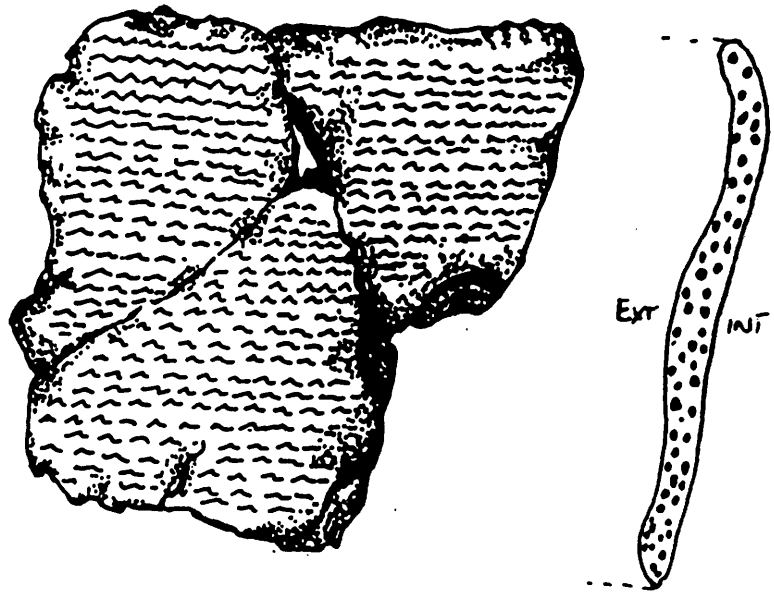


Figure 12.



BgDb-4:(83)A. Vessel 5, Test Pit 17. (Figure 13). Body sherd. Exterior decorated with trails and rocked cord wrapped stick impressions. Interior was smoothed, wiped and has cross hatched combing. Temper is shell.

BgDb-4:(83)B. Vessel 5, Test Pit 17. (Figure 14). Body sherd. Exterior decoration is linear cord in a trail, with punctates and rocked cord wrapped stick. Interior was smoothed, wiped and combed. Temper is shell.

BgDb-4:(143). Vessel 3, Melanson Dyke. (Figure 15). Rim sherd. Exterior body decorated with simple dentate stamp. Rim has pseudo scallop shell stamped to the oblique right. Interior was smoothed and wiped. Lip is rounded and notched. Rim is contracting with an outsloping profile. Temper is organic and medium grit temper.

Figure 13.

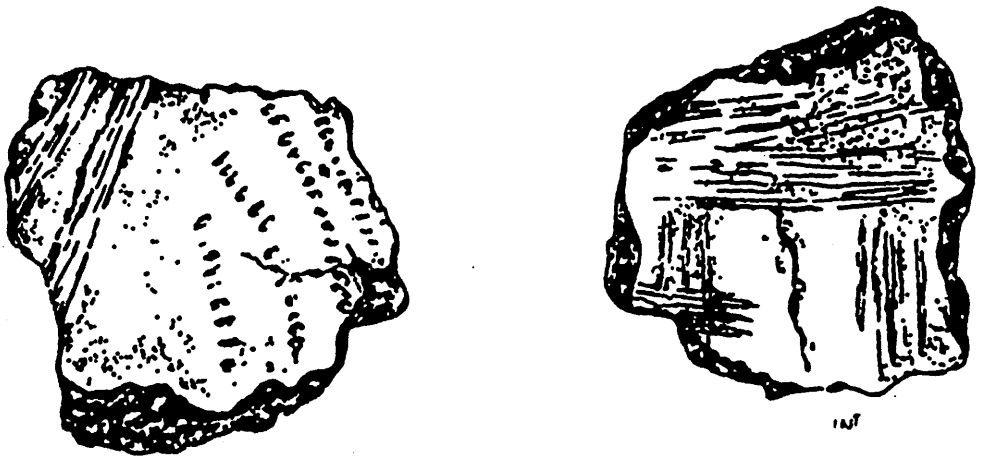


Figure 14.

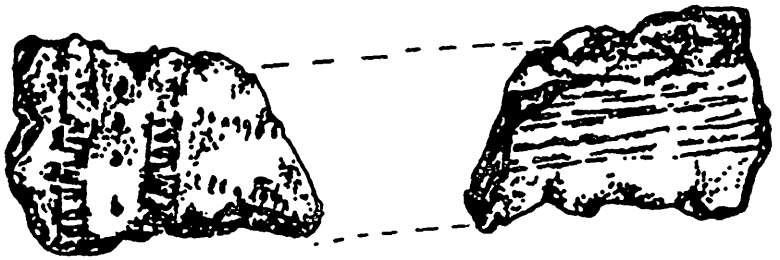
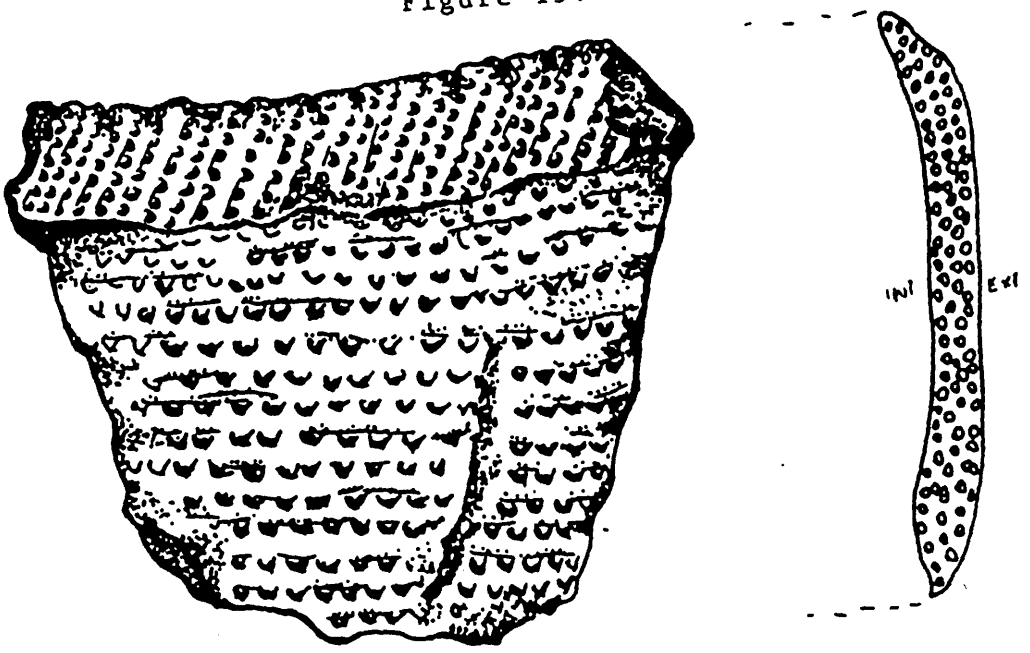


Figure 15.

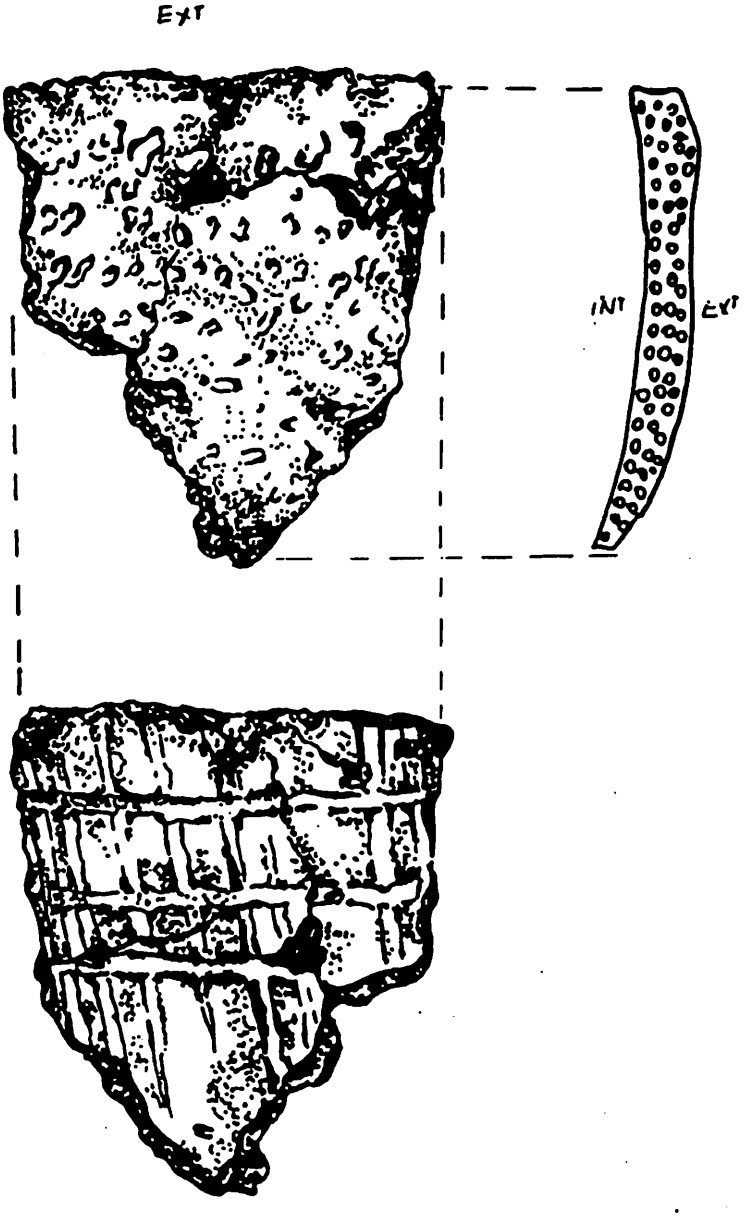


BgDb-4:(101). Vessel 9, Melanson Dyke. (Figure 16). Rim sherd. Exterior decorated with simple stamped cord wrapped stick and two rows of punctates. Interior was smoothed and wiped. Lip is rounded and undecorated, rim shape is contracting. Rim profile is outsloping. Temper is organic and medium grit.

BgDb-4(123). Vessel 12, Melanson Dyke. (Figure 17). Body sherd. Exterior has messy application of cord wrapped stick. Interior was smoothed, wiped and trailed. Temper is shell.

Figure 16.

Figure 17.



BgDb-5:(43)A. Vessel 2, Cemetery Site. (Figure 18). Rim sherd. Exterior is decorated with simple dentate stamp with three rows of punctates. Punctates were made after the stamp was applied as the underlying decoration is detectable. Interior was smoothed, wiped and decorated at the rim with a rocked dentate stamp. Rim shape is contracting and the profile is outsloping. Temper is organic and medium to coarse grit.

BgDb-5:(43)B. Vessel 3, Cemetery Site. (Figure 19). Rim sherd. The exterior is undecorated; the interior was smoothed and wiped. The lip surface was deeply cut in V-shaped notches, but prior to this the lip edge was pointed. Temper is organic and fine grit.

BgDb-5(43):C. Vessel 4, Cemetery Site. (Figure 20). Rim sherd. Exterior is decorated with rocked dentate stamp and two rows of punctates. The interior was smoothed and wiped with a rocked dentate stamp at the rim. The lip is rounded and has a rolling castellation with dentate notches simple stamped contracting with an outsloping profile. The temper is organic and medium to coarse grit.

Figure 18.

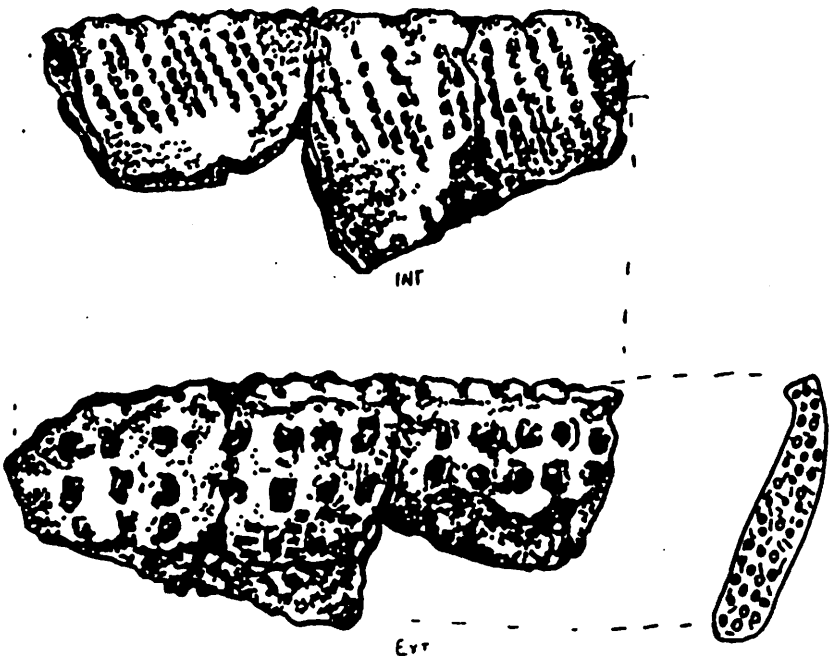


Figure 19.

Figure 20.

BgDb-5:(43)D. Vessel 5, Cemetery Site. (Figure 21). Rim sherd. Exterior decoration is a dentate stamp rocked to the oblique left, with four discontinuous rows of punctates. There are paired trails to the oblique right on the neck. The lip is rounded and notched part way around. The interior was smoothed and wiped. The rim shape is parallel and the profile is outsloping. The temper is organic and fine grit.

BgDb-5:(43)E. Vessel 6, Cemetery Site. (Figure 22). Rim sherd. Exterior is decorated with a simple dentate stamp. Interior was smoothed and wiped. Lip is rounded with notched edge. Rim shape is contracting with an outsloping profile. The temper is organic and fine grit.

Figure 21.

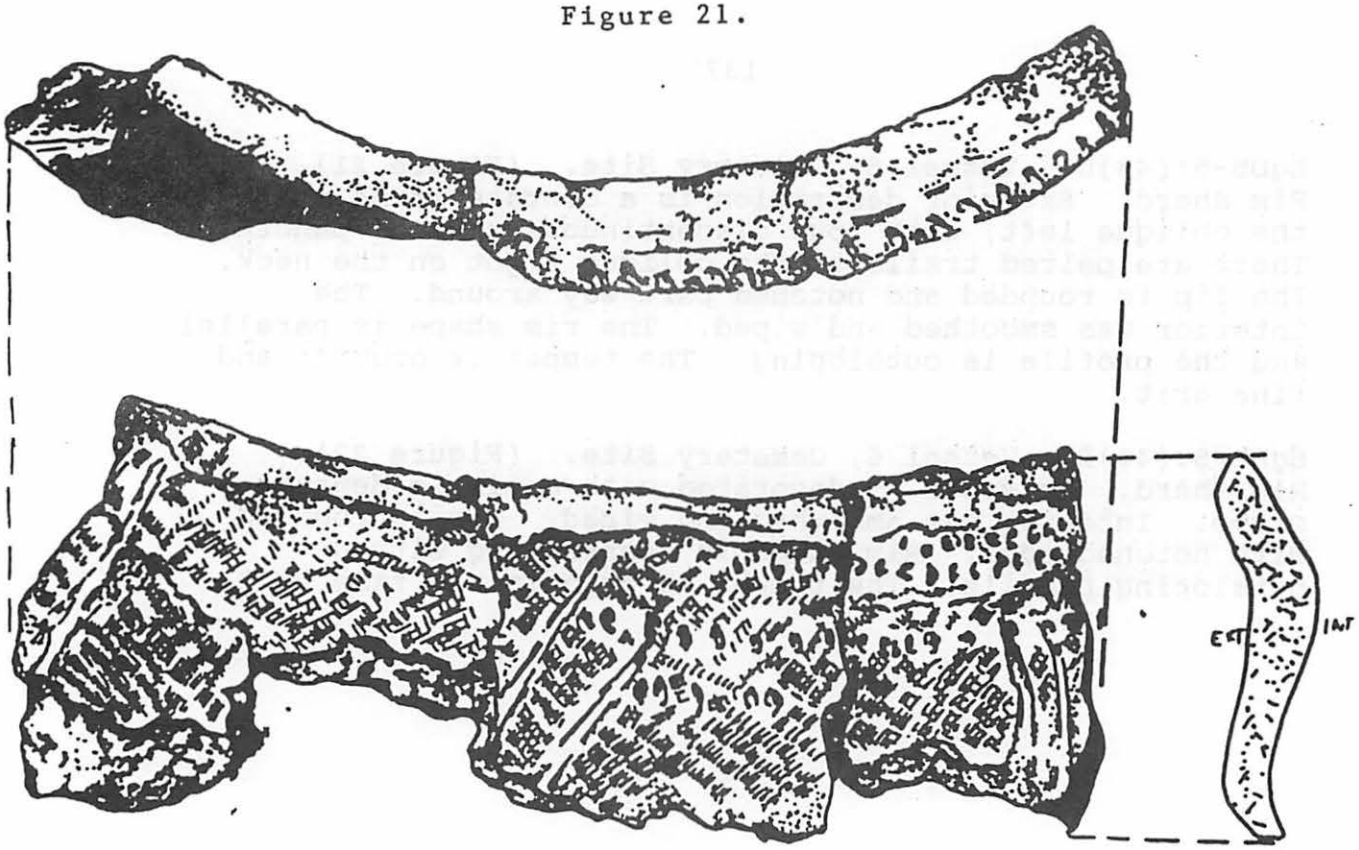


Figure 22.

BgDb-5:(43)F. Vessel 7, Cemetery Site. (Figure 23). Rim sherd. Exterior is decorated with a pseudo scallop shell rocked obliquely creating a chevron pattern. Interior was smoothed and wiped. Lip is round and rim is defined by the application of a tool edge. The rim shape is contracting and the profile is outsloping. Temper is organic and fine grit.

BgDb-5:(43)G. Vessel 21, Cemetery Site. (Figure 24). Rim sherd. Exterior is decorated with cross hatched incisions one centimetre below the lip. The vessel surface was smoothed and wiped on both sides. The lip is rounded and undecorated. The rim shape is parallel and the profile insloping. The temper is organic and fine grit.

BgDb-5:(43)H. Miscellaneous, Cemetery Site. (Figure 25). Body sherd. Exterior is decorated with a rocked dentate stamp. Interior was smoothed and wiped. Temper is organic and medium to coarse grit.

Figure 23.

Figure 24.

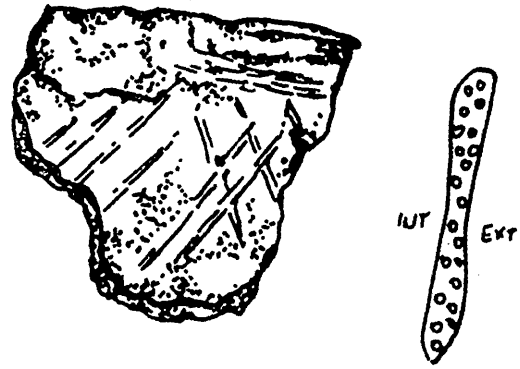
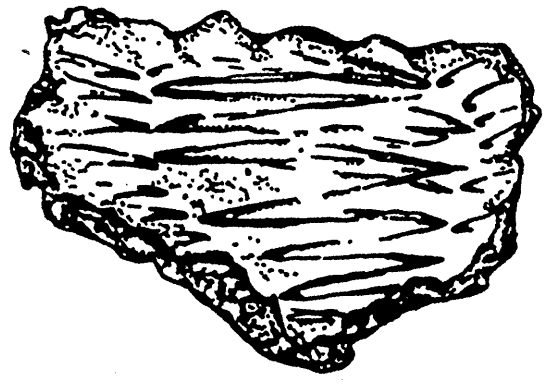


Figure 25.



BgDb-5:(43)I. Miscellaneous, Cemetery Site. (Figure 26). Body sherd. Exterior decoration is rocked pseudo scallop shell stamp. Interior is smoothed. Temper is medium grit.

BgDb-7:5A. Vessel 2, Coldwell Farm. (Figure 27). Body sherd. Exterior decorated with simple stamped cord wrapped stick. Interior was smoothed and wiped. Temper is shell and organic.

BgDb-7:5B. Vessel 4, Coldwell Farm. (Figure 28). Body sherd. Exterior is decorated with a rocked pseudo scallop shell stamp. Interior was smoothed. Temper is coarse grit.

Figure 26.

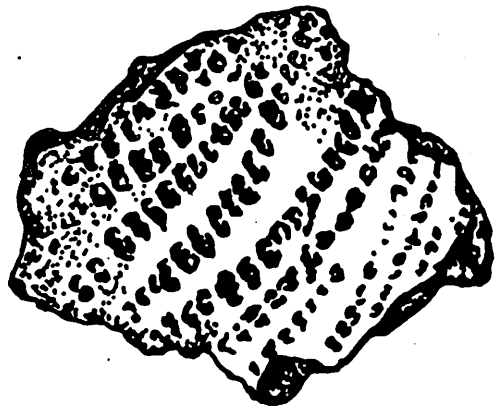


Figure 27.

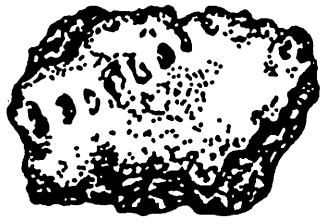


Figure 28.

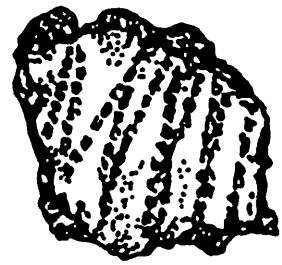


Figure 29

a. Rim sherd with cord wrapped stick impressions simple stamped to the oblique right. BgDb-4, Vessel 6.

b. Body sherd with pseudo scallop shell design all over. BgDb-2, Vessel 2.

c. Conical base from Vessel 5 of Test Pit 17, BgDb-4.

d. Nipple base from Vessel 2 of Test Pit 17, BgDb-4.

e. Body sherd with cord wrapped stick impressions simple stamped. BgDb-7, Vessel 2.

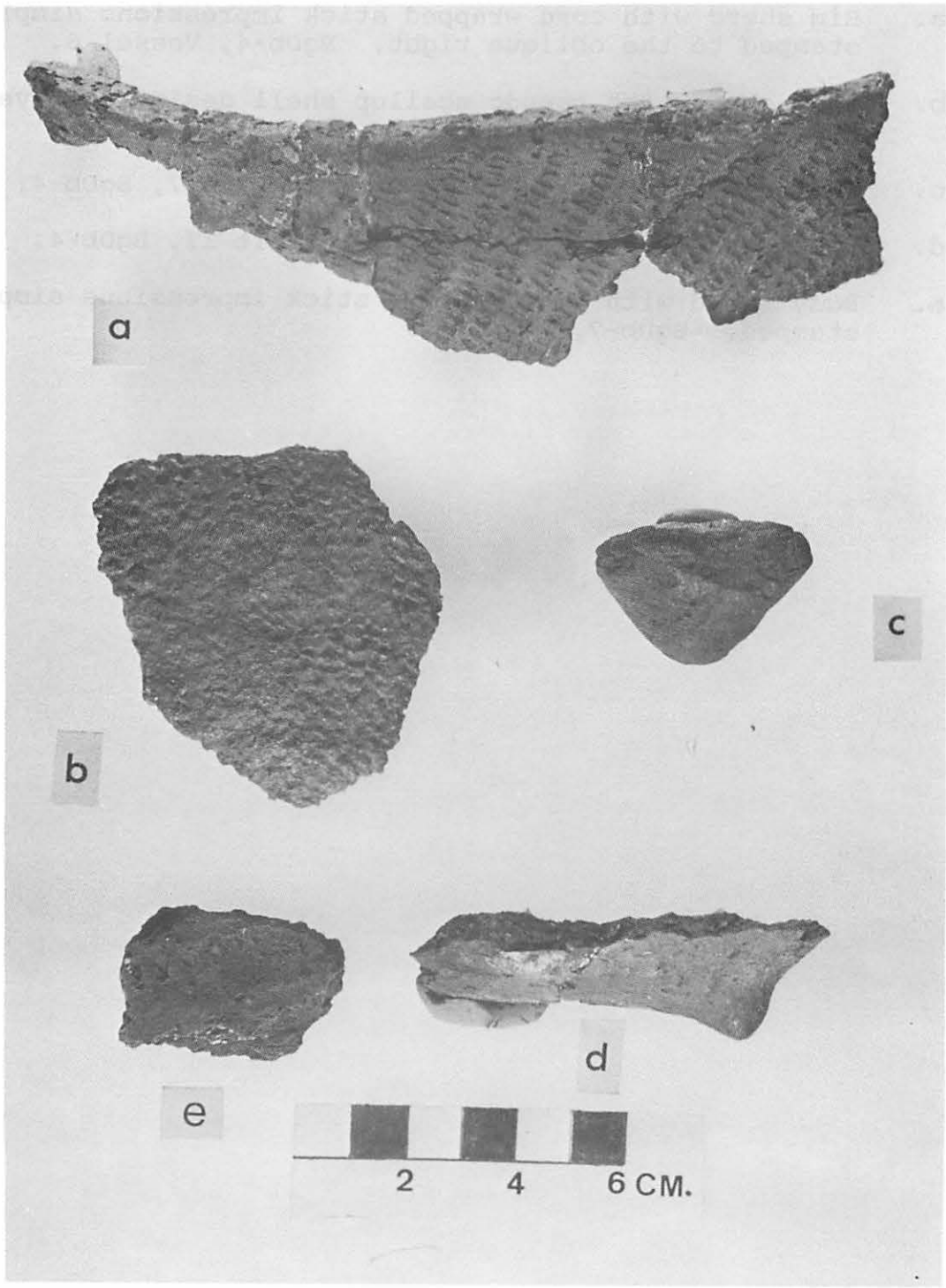


FIGURE 29

Figure 30

a. Rim sherd with dentate stamp rocked to the oblique left. Trails were made in pairs on the neck to the oblique right, and there are four rows of discontinuous punctates. BgDb-5, Vessel 5.

b. Rim sherd with rocked pseudo scallop shell and punctates. Rim is castellated. BgDb-5, Vessel 7.

c. Rim sherd with pseudo scallop shell rocked into chevrons. BgDb-5, Vessel 7.

d. Rim sherd with pseudo scallop shell simple stamped in horizontal rows. BgDb-5, Vessel 10.

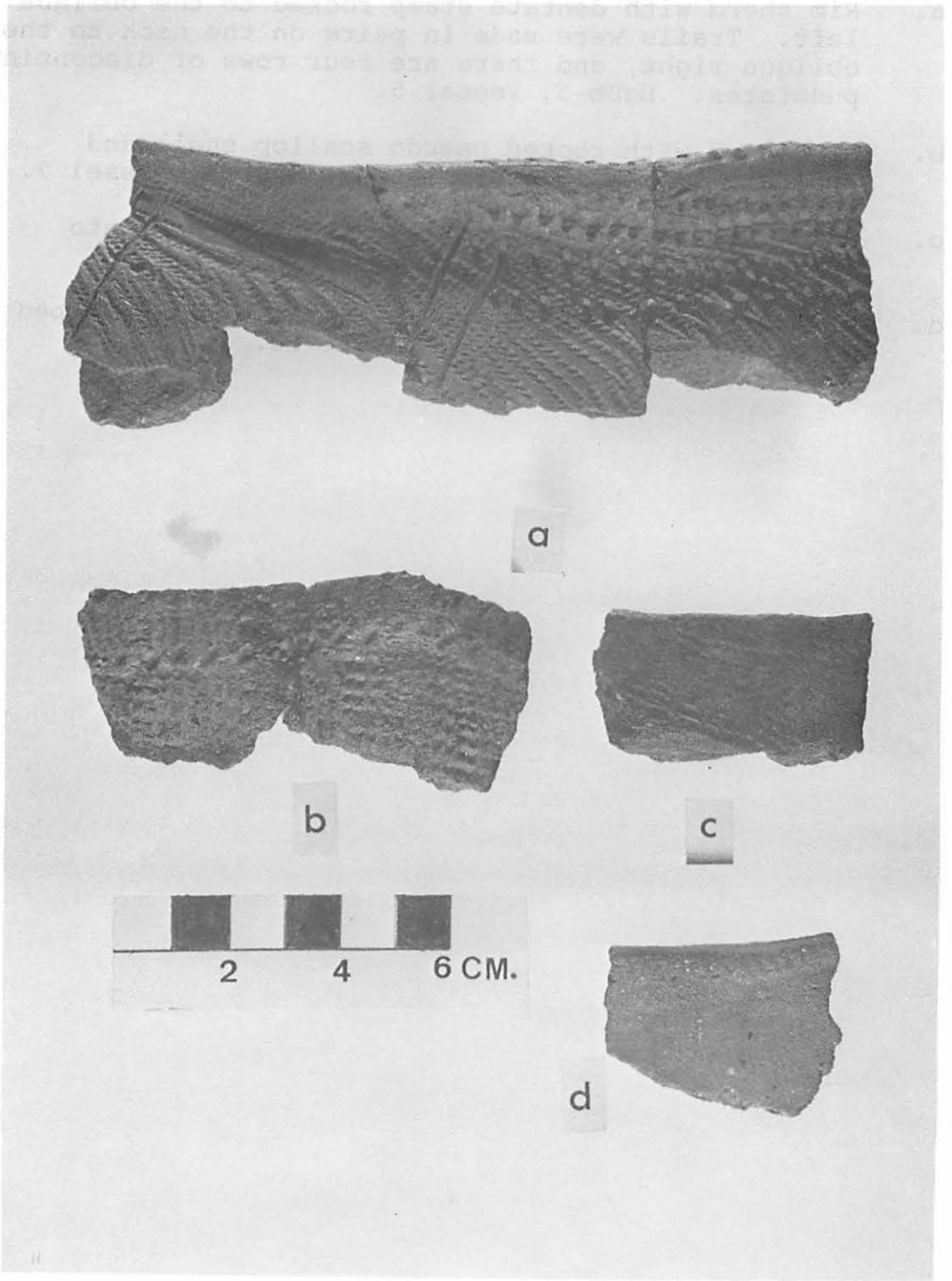


FIGURE 30

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APPENDICES

TABLE 1

SHERDS BY BORDEN AREA

BgDb-1	1
BgDb-2	41
BgDb-3	1
BgDb-4	363
BgDb-5	539
BgDb-7	73
TOTAL	1018

TABLE 2

TEMPER

FINE	< 1 MM
MEDIUM	1-3 MM
COARSE	> 3 MM

KEY TO TABLE 3

DECORATION -	CWS	cord wrapped stick impression
	PSS	pseudo scallop shell stamp
	D	dentate stamp
	LC	linear corded impression
	TR	trailing
	TLC	linear cord impression in a trail
	PU	punctates
	N	notches
	I	incising
APPLICATION -	M	messy
	R	rocked
	SS	simple stamp
INTERIOR FINISH -	SM	smoothed
	W	wiped
	TR	trailed
	CM	combed
LIP FORM -	FL	flat
	RND	rounded
	PT	pointed
LEVEL -	PZ	plow zone
	SUR	surface

ASSOCIATIONS -	H	hearth moulds	PM	post
	CH	charcoal	FK	flakes
	OC	ochre	R	rocks

	PT	pit
	FC	fire cracked stone
TEMPER TYPE -	0	organic
	G	grit
	0+G	organic & grit
	S	shell
TEXTURE -	CR	crumbly
	CMP	compact
	0	porous
	LA	layered-laminated
TEMPER SIZE -	F	fine < 1 mm
	MD	medium 1-3 mm
	C	coarse > 3 mm
	OTHER	temper unclassified
CARBON	PR	present
RIM SHAPE	P	parallel
	CT	contracting
	EXP	expanding
RIM PROFILE	V	vertical
	OS	outsloping
	IN	insloping

TABLE 3

CERAMIC VESSEL ATTRIBUTES

site area	BgDb-2		BgDb-4	T Pit 17		
vessel #	1	2	1	2	3	4
level	1,2	4	2	1,2	2	2
associations	H	Ch,DC	-	FC	-	-
# rim sherds	0	0	0	0	1	1
# body sherds	18	11	1	7	4	0
# base	0	0	0	1	0	0
lip thickness(mm)	-	-	-	-	5	5
rim thickness(mm)	-	-	-	-	5	7
mouth diameter(cm)	-	-	-	-	17.6	11.6
temper type	0	0+G	0	0+G	G	0+G
texture	CMP	LA	CMP	LA	CMP	CMP
temper size	-	C	-	MD-C	F-C	MD-C
carbon	PR	-	-	-	PR	PR
rim shape	-	-	-	-	P	CT
rim profile	-	-	-	-	V	OS
decoration	CWS	PSS	CWS	LC	PSS,PU	PSS,N
location of decoration	-	-	-	-	LIP+RIM	LIP+RIM
application	M,R	R	SS	SS	SS	SS
interior finish	SM,W,TR	SM,W	SM	SM,W	SM	SM,W
wall thickness(mm)	10	7	8	6	7	6
coil breaks	PR	-	-	-	-	-
lip form	-	-	-	-	F	RND
figure	-	BgDB2:(2) Fig. 9	-	-	BgDb-4: (84-85-89-90-94) Fig. 11	BgDb-4: (84-86-94) Fig. 12

Table 3 (continued)

CERAMIC VESSEL ATTRIBUTES

site area	Test Pit 21				Dyke	BgDb-4	
vessel #	5	6	7	8	1	2	3
level	1	PZ	P2	P2,1	1,2	1,2	2
associations	FC	FC,PM,FK	FC,PM,FK	R	-	-	-
# rim sherds	0	0	0	0	0	0	1
# body sherds	42	1	2	16	13	89	2
base	0	0	0	0	0	0	1
lip thickness(mm)	-	-	-	-	-	-	5
rim thickness(mm)	-	-	-	-	-	-	9
mouth diameter(cm)	-	-	-	-	-	0	27
temper type	S	0	0	0	0+G	0+G	0+G
texture	CMP	CMP	-	CMP	CR	CR	CMP
temper size	-	-	-	-	MD-C	C	MD
carbon	PR	-	-	PR	-	-	PR
rim shape	-	-	-	-	-	-	CT
rim profile	-	-	-	-	-	-	DS
decoration	TLC,CWSPU	-	CWS	CWS	D	D	PSS,D,N
location of decoration	-	-	-	-	-	-	LIP+RIM
application	M,R	-	SS	SS	SS	SS,R	SS
interior finish	SM,W,CM	SM	CM	SM	SM	SM,W	SM,W
wall thickness(mm)	10	10	7	6	9	13	11
coil breaks	-	PR	-	-	-	-	-
lip form	-	-	-	-	-	-	RND
figure	BgDb4:83) Fig. 13-14	-	-	-	-	-	BgDb-4:(143) Fig. 15

TABLE 3 (continued)

CERAMIC VESSEL ATTRIBUTES

site area	Dyke BgDb-4					
vessel #	4	5	6	7	8	9
level	1,2	2	4:1+2 2:2+3	2	1,2	1
associations	FC,FK	-	CH,FK,H	-	CH,FK	FK
# rim sherds	2	0	5	0	2	1
# body sherds	35	1	44	7	35	2
base	0	0	0	0	0	0
lip thickness(mm)	8	-	10	-	7	7
rim thickness(mm)	9	-	10	-	9	9
mouth diameter(cm)	22	-	29	-	12	24
temper type	O+G	O+G	O	O+G	O	O+G
texture	-	-	-	LA	CMP	CMP
temper size -	MD-C	MD-C	OTHER	MD-C	-	MD
carbon	PR	-	-	-	PR	-
rim shape	P	-	P	-	CT	CT
rim profile	V	-	OS	-	V	OS
decoration	CWS	D	CWS,N	D	CWS	CWS,PU
location of decoration	RIM	-	LIP+RIM	-	LIP+RIM	RIM
application	SS,R	R	SS	SS	SS	SS
interior finish	SM,W,CM	SM,W	SM,W,TR,CM	SM,W	SM,W,TR	SM,W
wall thickness(mm)	9	10	10	7	9	10
coil breaks	PR	-	PR	-	PR	-
lip form	F	-	F	-	F	RND
figure	-	-	BgDb-2:(6) Fig. 10	-	-	BgDb-4:(101) Fig. 16

TABLE 3 (continued)

CERAMIC VESSEL ATTRIBUTES

site area	Dyke	BgDb-4		BgDb-3:(12)		BgDb-5	
vessel #	10	11	12	1	1	2	3
level	1,2	1	1,2	SUR	SUR	SUR	SUR
associations	-	CH,FK	CH,FK	-	-	-	-
# rim sherds	0	1	1	1	1	1	1
# body sherds	4	16	2	0	0	0	0
base	0	0	0	0	0	0	0
lip thickness(mm)	-	12	8	5	6	5	8
rim thickness(mm)	-	11	10	9	7	-	12
mouth diameter(cm)	-	27	-	-	20	28	-
temper type	0	0+G	S	G	0+G	0+G	0+G
texture	-	CMP	PO	-	CMP	-	CMP
temper size -	-	MD	-	MD-C	MD-C	MD	F
carbon	-	PR	PR	-	-	-	-
rim shape	-	P	CT	CT	CT	CT	-
rim profile	-	OS	-	OS	OS	OS	-
decoration	CWS	CWS	CWS	D,PU	PSS,N,PU	D,PU,N	-
location of decoration	-	LIP+RIM	RIM	LIP+RIM	LIP+RIM	LIP+RIM	LIP
application	R	SS	SS,M	SS	R	SS	-
interior finish	SM,W,CM	SM,W,TR	SM,W,CM	SM	SM,W	SM,W,D,R	-
wall thickness(mm)	9	11	11	9	7	9	-
coil breaks	-	-	PR	-	-	-	-
lip form	-	F	RND	RND	RND	RND	PT
figure	-	-	BgDb-4:(123) Fig. 14	-	-	BgDb-5:(43) Fig. 18	BgDb-5:(43) Fig 19

TABLE 3 (continued)

CERAMIC VESSEL ATTRIBUTES

site area	BgDb05					
vessel #	4	3	6	7	8	9
level	SUR	SUR	SUR	SUR	SUR	SUR
associations	-	-	-	-	-	-
# rim sherds	3	1	1	1	1	1
# body sherds	0	0	0	0	0	0
base	0	0	0	0	0	0
lip thickness(mm)	8	8	7	5	7	6
rim thickness(mm)	10	9	10	7	7	8
mouth diameter(cm)	24	19	18	-	23	20
temper type	O+G	O+G	O+G	O+G	O+G	O+G
texture	-	LA	CMP	LA	-	CMP
temper size-	MC-C	F	F	F	MD-C	MD-C
carbon	-	-	-	-	-	-
rim shape	CT	P	CT	CT	CT	CT
rim profile	OS	OS	OS	OS	OS	OS
decoration	D,PU	D,PU,TR	D	PSS	D	PSS
location of decoration	LIP+RIM	LIP+RIM	LIP+RIM	BODY	LIP+RIM	LIP+RIM
application	R	R	SS	R	SS	SS
interior finish	SM,W(D,R)	SM,W	SM,W	SM,W	SM(B,R)	SM,W
wall thickness(mm)	12	8	10	7	11	8
coil breaks	PR	-	-	-	-	-
lip form	RND	RND	RND	RND	F	RND
figure	BgDb-5(43) Fig. 20	BgDb-5(43) Fig. 21	BgDb-5(43) Fig. 22	BgDb-5(43 Fig. 23		

TABLE 3 (continued)

CERAMIC VESSEL ATTRIBUTES

site area	BgDb-5					
vessel #	10	11	12	13	14	15
level	SUR	SUR	SUR	SUR	SUR	SUR
associations	-	-	-	-	-	-
# rim sherds	1	2	1	1	1	1
# body sherds	0	0	0	0	0	0
base	0	0	0	0	0	0
lip thickness(mm)	5	6	5	7	5	6
rim thickness(mm)	7	8	7	9	8	8
mouth diameter(cm)	-	-	-	-	-	-
temper type	0+G	0+G	0+G	0+G	0+G	0+G
texture	CMP	-	CMP	CMP	LA	CMP
temper size-	0+G	MD-C	MD-C	MD	MD	MD
carbon	-	-	-	-	-	-
rim shape	CT	CT	CT	CT	CT	CT
rim profile	-	OS	-	-	OS	OS
decoration	PSS	D,PU	I	-	PSS	PSS
location of decoration	LIP+RIM	LIP+RIM	RIM	LIP	LIP+RIM	LIP+RIM
application	SS	R	-	-	SS	SS
interior finish	SM,W	SM,W	SM,W	SM,W,CM	SM,W,TR	SM,W
wall thickness(mm)	-	-	-	-	-	7
coil breaks	-	-	-	-	-	-
lip form	RND	RND	RND	F	-	F
figure		BgDb-5(43) Fig. 24				

TABLE 3 (continued)

CERAMIC VESSEL ATTRIBUTES

site area							
vessel #	16	17	18	19	20	21	22
level	SUR	SUR	SUR	SUR	SUR	SUR	SUR
associations	-	-	-	-	-	-	-
# rim sherds	1	1	1	1	3	2	1
# body sherds	0	0	0	0	0	0	0
base	0	0	0	0	0	0	0
lip thickness(mm)	5	7	7	6	9	4	6
rim thickness(mm)	7	9	10	8	10	6	8
mouth diameter(cm)	-	-	-	-	-	28	-
temper type	O+G	O+G	O+G	O+G	O+G	O+G	O+G
texture	CMP	CMP	-	CMP	LA	CMP	CR
temper size-	MD	MDk-C	F	MD	MD-C	F	MD
carbon	-	-	-	-	-	-	-
rim shape	CT	CT	CT	P	CT	CT	CT
rim profile	V	OS	IN	OS	OS	IN	OS
decoration	D,PU	D	- PU	D	PSS,D,TR,	I	-
location of decoration	-	LIP+RIM	-	LIP+RIM	LIP+RIM	RIM	-
application	SS	R	-	R	SS	-	-
interior finish	SM,W	Sm,W	SM,W(D,SS)	SM,W	SM,W(D,R)	SM,W	SM
wall thickness(mm)	7	9	10	8	13	6	8
coil breaks	-	-	-	-	-	-	-
lip form	RND	RND	F	F	F	RND	RND
figure	-	-	-	BgDb-5(43)	- Fig. 25		

TABLE 3 (continued)

CERAMIC VESSEL ATTRIBUTES

site area			BgDb-7					
vessel #	23	24	1	2	3	4	5	6
level	SUR	SUR	2,3	00	1,2	00	03	03
associations	-	-	PT	-	PT	PT	-	-
# rim sherds	1	3	1	0	1	0	1	1
# body sherds	0	0	10	2	2	1	4	35
base	0	0	0	0	0	0	0	0
lip thickness(mm)	6	6	9	-	7	-	10	5
rim thickness(mm)	9	9	9	-	5	-	-	4
mouth diameter(cm)	-	22	-	-	-	-	-	-
temper type	0+G	0+G	0	S	0	G	0	S
texture	LA	CMP	CMP	CMP	CMP	OTHER	CMP	CMP
temper size -	C	MD	-	-	-	C	-	-
carbon	-	-	-	-	-	-	-	-
rim shape	CT	CT	EXP	-	EXP	-	EXP	EXP
rim profile	OS	OS	-	-	-	-	-	-
decoration	PU,TR	-	CWS	CWS	CWS	PSS	-	CWS
location of decoration	RIM	-	-	LIP+RIM	-	-	-	-
application	-	-	SS	SS	SS	R	-	SS
interior finish	(PSS,SS)	SM,W	SM,W	SM,W	SM,W	SM	SM,W,TR	SM,W
wall thickness(mm)	10	9	8	9	6	9	7	7
coil breaks	-	-	PR	PR	PR	-	PR	PR
lip form	RND	RND	RND	-	F	-	F	RND
figure	-			BgDb-7-5A Fig. 27	-	BgDb-7-5B Fig. 28	-	-

TABLE 4

 # OF VESSELS BY BORDEN AREA AND LEVEL

LEVELS	BgDb-2	BgDb-4	BgDb-7
SURFACE	-	2	2
PLOUGH ZONE TO 1	-	1	-
1	-	3	-
1-2	1	7	1
2	-	7	-
2-3	-	N/A	1
3	-	N/A	2
4	1	N/A	-
VESSEL TOTALS	2	20	6

TABLE 5
BgDb-2

VESSEL DECORATION BY LEVEL

LEVEL	CORD WRAPPED STICK	PSEUDO SCALLOP SHELL
1-2	1	-
4	-	1
# VESSELS	1	1

TABLE 6

BgDb-4

VESSEL DECORATION BY LEVEL

LEVEL	CORD WRAPPED STICK	DENTATE STAMP	CORD WRAPPED + PUNCTATES	LINEAR CORDED	PSEUDO SCALLOP SHELL	PSEUDO SCALLOP SHELL + PUNCTATES	CORD WRAPPED STICK, LINEAR CORD IN A TRAIL	PSEUDO SCALLOP SHELL + DENTATE STAMP	OTHER
SURFACE	1	--	--	--	--	--	--	--	1
PLOUGH ZONE TO 1	1	--	--	--	--	--	--	--	--
1	1	--	1	--	--	--	1	--	--
1-2	4	2	--	1	--	--	--	--	--
2	2	2	--	--	1	1	--	1	--

TABLE 7
BgDb-7

VESSEL DECORATION BY LEVEL

LEVEL	CORD WRAPPED STICK	PSEUDO SCALLOP SHELL	OTHER
1	1	-	-
2	1	-	-
3	1	-	1
PROVENIENCE UNKNOWN	1	1	-
# VESSELS	4	1	1

TABLE 8

RADIOCARBON DATES
SUB-AREA, LEVEL

BgDb-2-4	1760 +/60 B.P.(B-17908)	Charcoal
BgDb-7-2-3	790 ± 60 B.P.(B-17909)	Charcoal (6E,2N)
BgDb-7-5-3	560 ± 60 B.P.(B-17910)	Charcoal (18E,2N)

THERMOLUMINESCENT DATES

BgDb-5-44	730 ± 20% (A-3157)	Ceramic Sherd only
BgDb-7-5-1	500 ± 20% (A-3158)	Ceramic Sherd only (No soil analysis)

TABLE 9

TEMPER

# OF VESSELS	BgDb-5	BgDb-2 BgDb-4	BgDb-7
ORGANIC	-	7	3
ORGANIC AND GRIT	24	12	-
GRIT	-	1	1
SHELL	-	2	2
VESSEL TOTALS	24	22	6

TABLE 10

LOCATION OF DECORATION

# OF VESSELS	BgDb-5	BgDb-2 BgDb-4	BgDb-7
LIP	2	-	-
LIP AND RIM	14	6	1
RIM	3	3	-
VESSEL TOTALS	24	22	6

TABLE 11
LIP FORM

# OF VESSELS	BgDb-5	BgDb-2 BgDb-4	BgDb-7
FLAT	5	5	2
ROUNDED	16	3	2
POINTED	1	-	-
VESSEL TOTALS	24	22	6

TABLE 12
RIM SHAPE

# OF VESSELS	BgDb-5	BgDb-2 BgDb-4	BgDb-7
PARALLEL	2	4	-
CONTRACTING	22	4	-
EXPANDING	-	-	4
VESSEL TOTALS	24	22	6

TABLE 13
RIM PROFILE

# OF VESSELS	BgDb-5	BgDb-2 BgDb-4	BgDb-7
VERTICAL	1	3	-
OUTSLOPING	18	5	-
INSLOPING	2	-	-
VESSEL TOTALS	24	22	6

TABLE 14

CHRONOLOGY

Site Occupation

	OXBOW	MELANSON	DELOREY ISLAND
	(in years B.P.)		
Early	2700-2500	>1760+/-60	--
Middle	2200-1600	<1760+/-60*	--
Late	1675+/-50 1080 ± 90	>790+/60	1595+/-80 460+/-20%

* transitional period

Chapter 9

FAUNAL REMAINS FROM THE 1986 EXCAVATIONS AT THE MELANSON SITE (BgDb-7), NOVA SCOTIA

Frances L. Stewart

Introduction

The Melanson Site (BgDb-7) is believed to be one of the largest prehistoric sites in Nova Scotia and an obvious question arising from this observation is why was this location so favoured by the prehistoric peoples? In order first to be sure that the Melanson Site was the dominant one in the region, we searched the literature and then conducted a survey of the Gaspereau Valley and parts of the Minas Basin. The Melanson Site was indeed unparalleled in Kings County. In order to investigate the question of why this was so, we decided to inventory the natural resources of the valley. Underlying this decision was the assumption that a reliable food supply would have been necessary for a large population and so resources would be an important consideration for site selection. Sharon Jan was contracted to do a survey of the ecological zones within the valley, from Gaspereau Lake down the river to and including the Minas Basin (Jan 1986). Using a catchment model previously developed and applied to archaeology (see Bronitsky 1983 or Higgs and Vita-Finzi 1972), the surface area covered was delimited by a circle having a radius of 10 km centered on the site. From this study, the environment was classified into aquatic and terrestrial ecozones as outlined in the introduction. The variety of plant and animal life within these zones was great. Thus, that the Gaspereau valley was a rich environment, capable of supporting a large population, was confirmed. But there was still a nagging doubt about why the Gaspereau River was selected rather than the Cornwallis River. The latter is located slightly to the north and so closer to the Scots Bay quarries and like the former, flows into the Minas Basin, thus providing similar access to the basin's resources and travel routes. B. M. Jessop, a biologist with the Department of Fisheries and Oceans, stationed in Halifax, provided an answer. He wrote,

> Given the development that has occurred in these river systems since colonial times, today's catches perhaps only roughly indicate what they might once have been. Nonetheless, the Indians probably selected the Gaspereau River because it was, even then, much more productive of fish than was the Cornwallis River. The primary differentiating factors are the drainage area and

the lake surface area. The drainage area of the Gaspereau River system is about 419 km² and it contains about 34.3 km² of lake area whereas the Cornwallis River has a drainage area of 370 km² but has only two small lakes that probably total <10 ha in area. The lake area of the Gaspereau River has been much enlarged by the construction of various dams and the linkage (during the 1930's) with the Black River. Both rivers have small (<150 fish) runs of Atlantic salmon that were undoubtedly once larger but neither system has a large amount of salmon spawning and rearing area. The lower 25% of the Cornwallis River (mainly the four tributaries from the South Mountain slope and the main stem) is suitable for salmonids; the upper reaches are fish habitat. Surveys of the Cornwallis River have detected Atlantic salmon, brook trout, brown trout (introduced), American smelt, American eel, and white sucker while in Lakeville Lake (3.2 ha) brown bullhead, golden shiner, white sucker, and white and yellow perch have been found (Alexander et al 1986). The major difference in native fishes when compared to the Gaspereau River is the absence of alewife, which is the seasonally dominant anadromous species in the Gaspereau River (a small run of American shad also occurs). I suspect that the Indians found it easy to harvest large quantities of alewife from the Gaspereau River, particularly in the rocky sections of the stream near the outlet from the Gaspereau Lake; that may be why they camped there rather than on the Cornwallis River (Jessop; personal communications in 1989).

Realizing that alewife is an alternative name for gaspereau, Jessop's information and his conclusion are significant. Furthermore, the Gaspereau River is rocky where the Melanson Site was established. Thus, there were sound ecological reasons for camping there.

One of the major objectives in excavating the Melanson Site was to gather faunal remains in order to determine the resources which allowed this locality to become so important for the prehistoric inhabitants of Nova Scotia. Material collected prior to 1986 and now in private collections or curated at the Nova Scotia Museum, Halifax, and the Canadian Museum of Civilization, Ottawa, contained numerous ceramic and stone artifacts and a few carbon samples. However there was little information on settlement data and no faunal remains. Excavations in 1986 uncovered two features with large quantities of charcoal for dating but the recovery of

faunal elements was poor, despite techniques designed specifically for their collection.

Methods of Collecting and Analysing the Sample

Thirteen 2X2 metres squares were excavated in standard, conservative style with the use of trowels, dust pans and shovels. Heavy equipment was used only to remove large rocks from one feature and to backfill the excavation units at the end of the season. Throughout the excavation, all the backdirt was put through a 6 mm mesh screen and most of the faunal material was collected either in the squares or on these screens. The soil from the features was treated more carefully. It was floated in order to collect both seeds and small animal remains. The flotation procedure was as follows:

1. The soil sample was left to dry in the field bucket for about five days.

2. The dry sample was sifted through a 4 mm mesh screen, one litre at a time to remove any relatively large pieces of bone, pottery or stone which had been missed during excavation.

3. One litre of the screened material was poured slowly into a bucket containing seven litres of river water.

4. The mixture was stirred.

5. The floating material was skimmed off the surface of the water with a commercial tea strainer having a mesh of about 1 mm.

6. This skimmed debris was put on pieces of cotton and then hung to dry. Steps 4 to 6 were repeated until no more material floated to the surface.

7. The remaining water and heavy fraction that had sunken to the bottom of the pail were poured into the river through a kitchen sieve with a mesh size of about 1.5 mm. This step was discontinued due to time constraints and because no culture material was found in this heavy fraction.

Flotation produced most of our vegetal remains but only a few bones. Both were retrieved from the 4 mm mesh sieve and the floating debris. In fact, nearly all of the faunal elements were recovered by trowelling or on the 6 mm mesh screens in the field. Analysis of these faunal remains consisted of identifying them zoologically as precisely as

possible as to the animal from which they came and the parts of the bodies represented. In order to do this, each element was compared to my reference faunal collection. Zoological data, including the part of the element represented, the side of the body it came from, its age and its general condition were recorded wherever possible. Modifications to the elements were also noted. Then element totals and percentages, standard in faunal analyses, were calculated. The results follow.

The Data

A total of 374 faunal elements were recovered from the Melanson Site. Three of these were not burnt and appeared to be modern. (See Appendices for details on the specific faunal elements recovered.) The remaining specimens had all been altered by heat and most were calcined. In fact, it is assumed that these were preserved only because they were burnt and that any unburnt bones discarded by the prehistoric inhabitants of this site decayed in the acid soils typical of this region. One of the unburnt specimens was a domestic cow tooth which lent support to the assumption that unburnt remains were recent. That this particular tooth came from Level 3 in square 22N2E suggests mixing in that square. The other two modern specimens were found in the plough zone.

The 371 prehistoric faunal remains included one fish element, 204 (54.99% of the total of 371) mammalian remains and 166 or 44.74% not identified to class. The small size of the remains, most were smaller than two cm square, and the burning, which increased their fragility, accounts for the high percentage of poorly identified remains. The single fish element was a fragment of a vertebra centrum which was likely from the Atlantic cod (*Gadus morhua*) although it could only be positively recognized to the cod family (Gadidae).[1] The mammals represented were beaver (*Castor canadensis*) with ten elements, river otter (*Lutra canadensis*) and woodchuck (*Marmota monax*). For each of the last two there was a single element. These three medium-sized mammals are all native to the Gaspereau River valley; the beaver and the otter would be found in the river which was adjacent to the site. Woodchucks are not common in this

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1. The scientific names for the fish follow Leim and Scott (1966); those for mammals follow Peterson (1966). In the text the scientific names will be given only after the first use of the common name.

vicinity at present.[2] However, since their habitats are "fields, pastures, fence-rows, ravines, woodlots, semi-open forests, and rock slopes" (Peterson 1966:116), they could have inhabited the area immediately around the site as well as ravines and forests farther back from the river bank. The predominance of beaver remains in this admittedly small sample likely reflects the ability of beaver bones to survive heat exposure better than those of other animals (Sanger, personal communications in 1986) rather than any cultural selection. Likely for the same reason dense foot bones were the elements recognized most frequently in the sample. Both an immature and at least one mature beaver individual (MNI=2) were present at the Melanson Site. No large mammalian species were represented and even the small pieces of cortex were all too thin to prove that any of them originated in a large mammal. Similarly, there were no bird remains and none of the unidentified specimens were similar to avian bone in structure.

Interpretations

Consideration of the environment within the site's catchment area revealed that the river was the richest ecozone although resources were also available from the sea and its associated mudflats and estuary (See Figure 5). Terrestrial ecozones included the valley bottom lands and the uplands of South Mountain and the Ridge. These were interspersed with thickets and ravines. On the uplands there were some bog areas and at the western extreme of the catchment area was Gaspereau Lake. Higgs and Vita-Finzi forewarned against associating archaeological sites with a single, uniform environment. "Sites are commonly located at the junction of very different habitats, the integration of whose resources results in a viable economy" (Higgs and Vita-Finz 1972:28). Certainly, there was great diversity in the Melanson environment and we hypothesized that the site was a spring camp ground located here, at the head of tide, primarily to harvest the rich fish runs in the river, particularly the gaspereau (Alosa pseudoharengus).

Leim and Scott (1966:89) included the Gaspereau River in their list of those rivers accounting for the principal fisheries of gaspereau. In April and May, the ascending fish are still taken from this river at the location of the Melanson Site. At present the fish are dipped out of the

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[2]. When a dead woodchuck was found on a raised net in April of 1986 the local fishermen did not know what the animal was. When I identified it, an older man responded that woodchucks used to be common but that he had not seen one for years.

water on nets placed at the river's edge where there are gaps in the stone weirs built across the river. The early historic Micmacs also constructed weirs in the 1600s.

> At the narrowest place of the rivers, where there is the least water, they make a fence of wood clear across the river to hinder the passage of the fish. In the middle of it they leave an opening in which they place a bag-net like those used in France, so arranged that it is inevitable the fish should run into them. These bag-nets, which are larger than ours, they raise two or three times a day, and they always find fish therein. It is in the spring that the fish ascend, and in autumn they descend and return to the sea. At that time they placed the opening of their bag-net in the other direction (Denys 1908:437).

Lescarbot reported the Indians intercepting "multitudes" of smelt and herring (gaspereau) as well as sardines, sturgeons and salmon in weirs although the latter two were also speared (1914:236). To-day the caught fish are salted, pickled or smoked but fish left on the shore dried quickly in the sun too. Gaspereau run in large spawning schools, are easy to procure and can be preserved by a number of simple techniques. Therefore, although there were no gaspereau bones recovered from the 1986 excavations, it is highly probable that this was one of the reasons the Indians camped on the banks of this river.

Other species run in the river but none are as plentiful as the gaspereau. As Jessop wrote (see above), the Atlantic salmon (Salmo salar) was more common prior to the building of a saw mill, dams and a power house on the river. Salmon run in the spring and early summer and again in the fall (Gilhen 1974:20). In the spring the Rainbow smelt (Osmerus mordax) leave the estuary and move into fresh water to spawn (ibid.:24-25). In the Gaspereau River these smelt run just prior to the gaspereau. Other species such as the Atlantic sturgeon (Acipenser oxyrhynchus), the American eel (Anguilla rostrata), the American shad (Alosa sapidissima), the White perch (Roccus americanus), and the Striped bass (Roccus saxatilis) run in the early spring to summer period. For the Brook trout (Salvelinus fontinalis), "seaward movement occurs in the spring and early summer and in some areas there is a strong spawning movement to fresh water culminating in spawning in October or November" (Leim and Scott 1966:116). On the Gaspereau River, there used to be a large sea run of this trout (Dodds, personal communications 1987). From this information, it can be concluded that the best season to fish this river is the

spring, although the fall salmon run may have attracted fishermen too. Some species remain in the river throughout the year. Small fish such as the minnows (family Cyprinidae) and the sticklebacks (family Gasterostedidae) likely were not sought by the native people. But the white sucker (Catostomus commersoni) and the Brown bullhead catfish (Ictalurus nebulosus), being larger, were likely welcome additions to the diet.

The only fish bone identified in the faunal refuse from the Melanson Site was from the cod family. The only species of this family known to enter fresh water in Nova Scotia is the Atlantic tomcod (Microgadus tomcod). It runs up to the head of tide to spawn in December and January (Leim and Scott 1966:209), an unlikely season for the Indians to have been fishing this river. Secondly, the identified cod centrum was too large to have originated in a tomcod. Considering the size of the archaeological specimen and the distributions of the cod species as given by Leim and Scott (1966), it is probable that this vertebra came from an Atlantic cod (Gadus morhua) and thus is an indicator of salt water fishing. Although it is not abundant, this species can be found in the Minas Basin throughout the year with a movement inshore in summer and offshore in winter (ibid.:196-197). Cod were, therefore, most likely caught in the warm weather months but could have been taken in winter too.

The archaeological specimen is incomplete, having only 4 mm of the outer rim on one side. The rings of this burnt specimen were difficult to read but it appears to have come from a 4+ year old fish caught in the spring to fall period (Rojo 1987:216-221). The outer band is one from the rapid growth period but it is not quite as wide as the previous summer band. This specimen's greatest significance is in showing that the Melanson inhabitants or their visitors fished in the Minas Basin, which is eight to ten kilometers down river from the site, and that some of the catch was transported to the riverine camp site. It is possible that expeditions to stone quarries on Scots Bay were combined with fishing in the Minas basin. Alternatively, this cod bone may be evidence of trading, with marine fish being exchanged for gaspereau or other riverine species.

Knowing that the Melanson people had access to the marine ecozone, the major resources of this area will be summarized. The chief food resources in the Minas Basin region are the invertebrates, primarily found in the intertidal region and the Basin's ocean fishes. Of the former the softshell clam (Mya arenaria) and the common clam (Macoma balthica) are common. The softsbell clam "lives in the muds and gravels between tides where it is exposed to

air twice each day" (Morris 1973:90). The common clam "is abundant in muddy bays and coves and commonly travels part way up many creeks and rivers" (ibid.:77). The elusive razor clam (Ensis directus) and other invertebrates can be found in this area (Gosner 1979:157-158). Shells of invertebrates were not found in the 1986 excavations of the Melanson Site but they were not expected considering its location. However, they were common at the prehistoric, coastal Delorey Island site (Nash 1986:23) and Champlain noted their importance as an alternative food source in the early 1600s when the Indians could not go hunting (1922:308). Therefore despite the lack of evidence, it is highly probable that the people camped at the Melanson site ate some aquatic invertebrates.

Marine fish which are found in the Minas Basin include a number of species that may have been exploited by the ancestral Micmacs. The intertidal region supports Atlantic sturgeon, gaspereau, smelts, and eels, all of which would be most concentrated in the shallow waters of the bay, just prior to their river runs in the late winter and early spring. Of the subtidal species, the flatfish were possibly important contributors to the diet. The Atlantic halibut (Hippoglossus hippoglosus) prefers cold waters and so is not usually found close to shore but the spotted flounder (Scophthalmus agosas), the smooth flounder (Liopsetta putnami), and the winter flounder (Pseudopleuronectes americanus) all swim in both intertidal and subtidal waters. Like the cod and these flatfish, the thresher shark (Alopias vulpinas), the butterfish (Poronotus triacanthus), the rock gunnel (Pholis gunnellus), the Atlantic sea raven (Hemitripterus americanus) and the monkfish (Lophius americanus) remain in the salt water throughout their life cycles. From the Melanson Site faunal sample, it is not evident how many of these species were harvested. However, from the Delorey Island site, it has been shown that these prehistoric people fished striped bass, Atlantic sturgeon and some flatfish (Stewart 1986:110). It has been reported, that both riverine and ocean fishing were practiced by this culture and the weak evidence from the Melanson site collaborates this. Before leaving the ocean habitat, it can be added that harbour seals (Phoca vitulina) breed in the Minas Basin and that seal remains have been found on other sites.

Numerous birds live and/or migrate through this area. Unfortunately, no archaeological bird remains were found even though bird sightings of numerous species were common over the valley in the summer of 1986.

The few species of mammals identified in the Melanson Site faunal material were all medium-sized animals available

in the immediate vicinity of the site, within a one kilometer radius area. It is possible that when the Indians were camping here, they were not pursuing game but were rather expending their efforts on fishing to obtain their protein. Ethnographic reports on the seasons for mammal hunting are not decisive (see Stewart, in press) but Lescarbot, like Champlain (1922:308), stated that hunting was a winter activity and that "for all the spring and summer, and part of the autumn, having fish in abundance for themselves and their friends, without taking any trouble, they seek hardly any other food" (1914:219). The specific mammals represented, the beaver, the river otter and the woodchuck, were also found at the Delorey Island site as were many other species (Stewart 1986:177-119). An unusual piece of evidence for large mammal procurement occurs on a piece of flat, ground stone which was surface collected from the Melanson Site and donated to the Nova Scotia Museum. It has on it a petroglyph of a deer or a caribou and so attests to the carver's familiarity with large cervids (See Figure 35). While hunting may have been limited at Melanson, the sample at this site possibly greatly under-represents the animal meat procured. At the Delorey Island Site, for example, the burnt remains comprised just over six percent only of the total faunal sample (ibid.:128). Thus, it could well be that at least 94 percent of the skeletal material discarded at the Melanson Site was not calcined and so decomposed prior to our excavations.

The small sizes of the individual faunal pieces may be a result of their fragile conditions and thus their reduction after burning or they may be refuse from the mashing and boiling of bones to extract grease (Velick 1977). The distribution of these burnt specimens does not support such an interpretation. however. Almost half (54.71%) were found in features and the rest (45.29%) were scattered throughout the other levels and squares. There were no definite concentrations of these remains although 66 (17.79%) elements were found dispersed throughout one hearth feature, the greatest density of bones on the site. Some of the elements found outside the hearths' perimeters may well have been scattered when the fires were extinguished or years later when people or animals walked over the previous seasons' hearths. Except to state that some bones were burnt in the hearths, there is little that can be concluded about cultural practices from these small calcined remains.

Since some mammal bones were recovered, it is evident that exploitation of the food resources was not limited to fish. On the other hand, if we accept the premise that fishing was the major activity, then hunting was likely restricted to the ecozones closest to the river. The river itself would support aquatic mammals such as beaver, otter

and muskrat (*Ondatra zibethicus*). Along its banks members of the weasel family (*Mustelidae*) and raccoons (*Procyon lotor*) might be encountered. In the grasses of the river's flood plain, rodents abound but the inhabitants of the Melanson site may have considered them too small to be worth hunting. While larger mammals such as carnivores and deer may have come out of the forested ravines and uplands to drink at the river, it is likely that these creatures would have avoided those sections populated with Indians. Furthermore, these mammals would have required more energy to exploit as they inhabit the outer circles of the catchment area primarily. From this reconstruction, it can be supposed that the meat diet at the Melanson site was predominantly fish with some small mammals and that the site was located in an ideal position for exploiting these. Birds and turtles may have been taken too but the evidence is lacking. Considering the available resources and the limited faunal sample, it can be hypothesized that inhabitation occurred in the spring to fall period. During this period, fishing was likely the main economic activity, centered on the river but extending beyond it to the Minas Basin. There was also some exploitation of mammals most of which could be procured within a one kilometer radius of the site, often from the river. This concentration of activity within the central ring is what Chisholm (quoted in Higgs and Vita-Finzi, 1972) and Higgs and Vita-Finzi (1972) would predict for agricultural populations but not necessarily for hunters and gatherers. From this Gaspereau River study, it can be argued that even mobile populations, once they camp for a season when and where resources are abundant, restrict their exploitation to their immediate vicinity with occasional forays to the outermost limits of their catchment area. At the Melanson Site, for example, some ocean fish and large cervids may have been procured. Such alterations in the catchment model should be tested in further studies.

It is clear that the Gaspereau River valley was a productive and diverse ecosystem when the Indians lived here. It is still rich in fauna, despite recent alterations in water flow and extensive clearing for agriculture. Many diverse habitats still exist along the valley and on its delimiting uplands. The aquatic component contains marine or sub-tidal areas, mudflats or inter-tidal areas, estuaries, the river itself, small streams and lakes. Within the terrestrial ecozone are uplands, bottom lands, ravines, thickets, bogs and swamps (Jan 1986). Undoubtedly, the environment was an important factor both for the location of the Melanson Site and also for its expansion into the most prominent site in King's County in the Middle to Late Woodland period.

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Chapter 10

PRELIMINARY REPORT ON THE MACROPLANT REMAINS FROM THE MELANSON SITE., KINGS COUNTY, NOVA SCOTIA

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Introduction

This paper is an interim report on the analysis of the ethnobotanical materials recovered during the 1986 excavations at the Melanson site (BgDb-7), Kings County, Nova Scotia. The following sections include an outline of the methodology used to collect and analyze these materials, and a discussion of the implications of this information for the interpretation of prehistoric plant use at the Melanson site. Further, this information will be compared with other ethnobotanical studies in the Maine-Maritime area.

Recovery and Analysis

During the 1986 field season at the Melanson site, nine soil samples were taken from four pit features for water flotation by Frances Stewart. The first flotation sample, from Feature #1, was associated with a number of chipped stone artifacts and ceramic sherds (Scott and McNeil 1986). Five samples were recovered from the basal levels of a large pit feature in excavations units 6E2N and 8E4N. These units also contained several chipped stone artifacts and flakes, and the flotation sample from level four in the latter unit also contained a large quantity of micro debitage. Two samples were recovered from a feature in unit 18E2N, which also contained chipped stone artifacts, pottery sherds and celt blank. The final sample was taken from a feature in unit 10E2N. This unit contained the greatest artifact diversity, including chipped stone tools, pottery, two hammer stones and a bone bead.

The nine flotate samples were sent to the author at Memorial University for further analysis. With the aid of three graduate students, macroplant and insect remains were removed from the samples. The former included charred and uncharred seeds, buds and conifer needles, while charred wood remains were left for future analysis. This work was done using a binocular microscope at 10x to 20 x magnification. Further sorting was undertaken by the author, using the same microscope at 30x to 40x magnification. This involved the separation of seeds by genus, and where possible, by species. Identifications were made by comparing the seeds with specimens from a collection of uncharred seeds from the herbarium at the Nova Scotia Museum, as well as the use of several seed reference manuals (especially, Berggren 1969, 1981; Martin and Barkley 1961; Montgomery 1977; Roland and Smith 1969; U.S. Forest Service 1974), and a small collection of charred seeds from archaeological sites in Nova Scotia and New Brunswick. Allowances were made for size variations between charred and uncharred seeds due to heat shrinkage (e.g., for discussion see Conety 1983:283).

Results

A summary of the identified macroplant remains from each of the flotation samples from the Melanson site appears in Tables 1-9 (to be found in the Appendices), and the charred specimens are further summarized in Table 10 below. Of the 892 specimens, 617 are charred, and of these, 514 are seeds that can be identified at least to genus. Twenty-seven others are tentatively identified to family, and two samples are charred fruit (i.e., both berries). The ninety-six conifer needles are from balsam fir (*Abies balsamea*) and hemlock (*Tsuga canadensis*). The following discussion emphasizes the relative quantities and diversity of macroplant remains associated with each feature.

Flotate #1 contained only 15 charred seeds (see Table 1). Thirteen of these are from the genus Rubus, and probably represent raspberries or blackberries. One other specimen is a pin cherry seed (*Prunus pensylvanica*), while the final specimen is a sedge seed (*Carex sp.*). By contrast, there were 80 uncharred seeds in the sample representing at least eight species. The latter includes primarily lamb's quarters (*Chenapodium album*), Rubus seeds, and common weeds and grasses.

Flotates #2, #3 and #4 from unit 6E2N exhibit an increasing frequency and diversity in both charred and uncharred seeds in each descending level. In total 144 charred specimens representing 19 genera were identified and 68 uncharred specimens representing 14 genera. The majority of charred specimens represent the genus Rubus (i.e., 81 specimens). Among the uncharred specimens, an unidentified member of the chickweed family and Rubus seeds were the most abundant, while a variety of weeds and grasses were represented.

Flotates #5 and #6 come from the same feature as the previous three samples, but come from unit 8E4N. The 32 charred specimens represent eight genera, while the 41 uncharred specimens represent at least 15 different genera. Rubus seeds were the most abundant in both groups, while lamb's quarters and a variety of grass species were well represented among the uncharred specimens.

Flotates #7 and #8 were recovered from unit 18E2N, level 3. These two samples were almost identical in character and contained the greatest quantities and diversity of charred seed remains. These two samples also have the highest ratios of charred to uncharred seeds (i.e., 8.4 and 7.0 respectively). The most common species represented among the seeds are staghorn sumac (*Rhus*

typhina), various Rubus and common elder (Sambucus canadensis), while charred needles from both balsam fir and hemlock were well represented. Among the uncharred specimens, lamb's quarters and various grasses were the most common. This feature has been dated to the Late Ceramic Period by a C-14 date of 560 ± 60 (B-17910), and a thermoluminescent date of 500 ± 20% (A-3158).

Flotate #9, from unit 10E2N, level 3, contained only five charred seeds. These included two Rubus seeds, one common elder, one yellow wood sorrel seed (Oxalis stricta) and one unknown seed probably of the Labiatae family. The uncharred seeds were dominated by the genus Rubus (i.e., 23 of 31 specimens).

Seeds and site formation

Charred seeds found in undisturbed contexts are generally assumed to date to the occupation of the site from which they are recovered (Hally 1981; Largy 1983:12; Minnis 1981). By contrast, uncharred seeds that are found in the acidic soils of this region are obviously of modern origin. Uncharred seeds can be present in a site for a number of reasons. First of all, seed mortality for most plants is relatively high (Fenner 1985:24-36), and therefore many seeds are present in the initial A horizon (i.e., the upper layer of forest litter). Seeds are dispersed by a variety of methods, including wind (i.e., seed rain), water, animals and birds (Fenner 1985; Janzen 1971). During archaeological excavations, seeds from excavated sod layers are being dispersed about the site, and other seeds are constantly being introduced to the site from elsewhere. Therefore, it should not be surprising to find uncharred seeds in any soil samples, not matter how carefully they are collected. It is even likely that many seeds are added to excavation levels from the footwear the excavators themselves (e.g., see Clifford 1956).

Another major agent for seed dispersal for some species is predation by invertebrates such as ants, beetles, earthworms and snails (Beattie and Culver 1982). Ant remains were quite common in the Melanson flotation samples, and it seems likely that ant predation may be an important factor in the distribution of uncharred seeds throughout the site.

Charred seeds found in cultural features are probably present due to domestic activities at the site during occupation. Seeds from hearth features might be dropped into the hearth during food preparation, dumped into the hearth as leftovers, and may include seeds dispersed into the hearths by non-human agents during use. Seeds found in

non-fire related pit features are likely to represent refuse dumped into the features. Charred seeds may also be found in non-hearth contexts, through the distribution and dispersal of abandoned hearths, or may result from a burning over of the site, before, during or after occupation (i.e., either natural or man-initiated). Uncharred seeds dispersed into abandoned features are not likely to be preserved.

Prehistoric plant use

During the 1950s and 1960s, John Erskine carefully recorded the wild plant species growing around many prehistoric sites in Nova Scotia, however, he was unable to recover charred macroplant samples from his excavations (1986:118-121). This situation undoubtedly is a reflection of inadequate recovery techniques rather than an absence of such materials from the sites he visited. In fact, during the 1980s, macroplant remains have been recovered from sites in Nova Scotia (i.e., the Eel Weir and Indian Garden sites; Wells 1986), New Brunswick (i.e., sites on Passamaquoddy Bay and the Chiputneticook Lakes; Deal 1984, 1986; Warman 1986) and Maine (e.g., Spiess and Hedden 1983).

Several of the identified genera at Melanson are also represented at the above sites. In particular, seeds from wild edible fruits are well represented (especially Rubus, Prunus, Rhus, Sambucus, and Pyrus). Among these, blackberry and raspberry (Rubus sp.), and elderberry Sambucus canadensis are among the principal berries collected by the historic Micmac and Maliseet, and sometimes dried and stored for winter consumption (Speck and Dexter 1951:257; 1952:5). In general, these plants point to a summer to fall occupation of the Melanson site. Although not included in the Speck and Dexter lists, pin cherry (Prunus pensylvanica) is commonly associated with Ceramic period sites (see above references). In fact, since Prunus species are so closely associated with prehistoric sites, Gorham (1943) has suggested that they may represent aboriginal horticulture.

The presence of conifer needles of balsam fir (Abies balsamea) and hemlock (Tsuga canadensis) is not surprising, since conifer wood had many uses in historic times, and especially as fuel (e.g., Speck and Dexter 1951:257). The charred buds may be from balsam fir, since they come from features also containing fir needles. The presence of buds is interesting, but they are difficult to assign to a season, since they can remain dormant from late summer to late winter (Harlow 1946:1-3).

Among the remaining charred specimens, lamb's quarters, or pigweed seeds (Chenepodium album), were also widely used as food in historic and prehistoric times (Speck and Dexter

1951. The various specimens of Polygonum may indicate the use of smartweed tubers, which Crabtree (1983) believes were probably being consumed in prehistoric times. Various species of wood sorrel (*Oxalis*) are edible and have medicinal uses (e.g., Gunther 1974:39). Charred seeds of grasses (i.e., *Eichinochloa crusgali* and *Ruppia maritima*) and sedge (*Carex sp.*) may have entered the features through natural dispersal mechanisms. However, various grasses were used for textile manufacture in prehistoric times (Whitehead 1987), and it would not be surprising if grass seeds recovered from some sites represented this industry.

Table 10: Summary of Charred macroplant remains from the Melanson site.

Feature Location:	2E2N	6E2N/8E4N	10E2N	18E2N
Genus (Species)				
[Charred seeds]				
Rubus (sp.)	15	100	2	138
Pyrus (sp.)	-	-	-	1
Prunus (pennsylvancia)	1	2	-	-
Prunus (sp.)	-	3	-	-
Rhus (typhina)	-	-	-	140
Oxalis (stricta)	-	3	1	-
Sambucus (canadensis)	-	22	1	34
Chenapodium (album)	-	9	4	9
Chenapodium (sp.)	-	-	-	4
Stellaria (sp.)	-	3	-	3
Polygonium (sagittatum)	-	2	-	2
Polygonium (hydropiper	-	-	-	3
Polygonium (natans)	-	1	-	-
Polygonim (sp.)	-	2	-	-
Carex (sp.)	1	-	-	-
Echinochloa (crusgali)	-	1	-	1
Viburnum (sp.)	-	0	-	1
Ruppia (maritima)	-	11	-	-
Unknown	-	1	-	3
[Seeds: Family only]				
Graminae	-	-	-	9
Polygonaceae	-	4	-	1
Labiatae	-	4	1	7
Rosaceae	-	1	-	-
[Charred fruit]				
Prunus (sp.)	-	1	-	-
Unknown	-	1	-	-
[Needles and Buds]				
Tsuga (canadensis)	-	-	-	29
Abies (balsamea)	-	8	-	30
Abies (sp.:buds)	-	1	-	2
Totals:	15	180	5	417

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Chapter 11

MELANSON IN THE CERAMIC AGE

In the sections to follow, earlier interpretations are summarized, integrated and then directed towards explaining Melanson's rise to prominence. The site is spread over a minimum of 24.3 hectares (60 acres), a size which raises questions concerning the population and socio-political complexity of its inhabitants. By way of contrast, Delorey Island is an important site in Antigonish County and on Georges Bay and of comparable antiquity, yet it is much smaller in area -- a comparison pursued below.

Although Melanson is obviously a large and significant Micmac site, the target of collectors for decades, the native prehistory of King's County is practically unknown. It has been the apple blossom festival and the colorful Acadian history which have attracted tourists and historians to this region, promoted as the Land of Evangeline. In spite of some scientific testing and evaluation in 1958 and exploratory excavations in 1965, the Melanson site remained, simply a large, Woodland site of no special significance, unconnected to the arrival of the Acadians.

Preliminary reconnaissance in 1985 and fieldwork in 1986 were directed towards defining the site in space and time as well as comprehending its growth and economic functions. Particular operations included the examination of private collections, mapping of the site, a field school on the northwest sub-area, definition of the ecological variability within the catchment area and survey downriver to Minas Basin.

Zonal Settlement Pattern

The site surveys, although not extensive, did entail some examination of the various ecozones within a 10 km radius of the Melanson site. These zones, discussed in the ecology chapter, included Aquatic environments (marine, mud flats, estuary, river) and Terrestrial environments (thickets, borders, ravines, bottomlands, uplands, swamps and bogs) each with a distinctive suite of plant and animal resources. At one end of the river is the marine zone of Minas Basin, at the other, in the interior, is Gaspereau Lake, a focus for Archaic peoples.

The surveys produced numerous small, mostly lithic assemblages downriver to Minas Basin. The Melanson site itself is in the riverine zone which is, the most productive

in potential food resources, but the particular location on the river is better viewed as a transitional, ecotonal locality. In very general terms, its position at the tide head on the top of an estuary makes it a coastal site, yet the marine zone is 8-10 km down river and there are a series of adjacent terrestrial zones more representative of an interior site. At Melanson, the South Mountain slope meets the Windsor lowlands. Melanson is at a juncture, the particular characteristics of which are explored below. This position, near but not on the coast, is consistent with Turnbull's conclusion (1988) that the upper Bay of Fundy and Minas Basin are ecologically "stressed" owing to the great tidal energies. This stress makes the maritime area resource poor compared to the lower Bay of Fundy and the Gulf of Maine. The solution reached by Nova Scotia's native people appears to have been to settle just beyond the immediate stress area.

Community Pattern

In 1965, five Borden numbers were assigned to various collections from different parts of the river banks above Melanson bridge. Surface collecting in 1985-87, often on ploughed, unseeded fields together with information from local collectors have confirmed the variability, extended the known range of occupation and raised the total of Borden numbers to seven. At this point, we can suggest that the largest of the Melanson Borden numbers, BgDb-7, be used to designate not only the westernmost part of the site, but the site in general. The east-west boundaries are logically and easily defined by sharp drop-offs in the frequency of artifacts. North-south perimeters are also recognizable, not only by the distribution of artifacts, but also by the presence of the second (10 m) terrace back from the river. This terrace was intermittently utilized, but most of the habitation has been on the lower terrace. This lower area is also a floodplain with a high water table which accounts for the absence of material in lower places, such as the area fronting parts of the lower terrace.

Figure 36 illustrates, in approximate fashion, the extent of the site, together with the Borden localities. The Borden collections cannot in all cases be equated with a distinct or clustered occupation. BgDb-1 consists of a general surface collection; BgDb-6 has a distinct locus, but the type artifacts are historic, the prehistoric component remaining undefined culturally. Others, especially BgDb-5 and 7 appear to be historically distinct realities, but for purposes of analysis and modeling the growth process, it is also useful to discuss the site in terms of three subareas.

The variation in artifacts and features over this 60 acres of occupation has been described in the chapters on lithics and ceramics, but should be summarized here.

Eastern sub-area: This downriver portion at the present tide-head (BgDb-5) is a small area with pseudo scallop shell and dentate stamped pottery, plus stemmed points as a preferred style. The artifacts suggest an early occupation, although the one thermoluminescent date contradicts this idea.

Central sub-area: (BgDb-1/4). A radiocarbon date from BgDb-2 reveals that occupation begins shortly before 1760 ± 60 years ago (190 A.D.). The stratigraphy from the north side suggests at least three occupations, possibly separated by intervals of flooding and silting. Pseudo-scallop shell and dentate stamp pottery are minority types with cord-wrapped stick decoration becoming dominant. Unnotched/ unstemmed points or notched points are characteristic. Testing and trenching in 1965 revealed only a small, oval pit, a hearth and several post molds.

Western sub-area: (BgDb-7). This upriver sub-area, excavated in 1986 produced only a small sample of mainly cord-wrapped stick decorated pottery. The use of pottery is apparently declining in prehistoric times. Corner-removed points predominate and large basin-shaped (cooking?) pits are specialized features of this last occupational phase. Carbon-14 and thermoluminescent dates indicate that this is the latest part of the site where occupation began no earlier than about 1160 A.D.

The medium-sized corner-notched, corner-removed and tapering stem points and the declining use of cord-wrapped stick decorated pottery over the site generally are traits which link Melanson to other sites of Ceramic Age in the Maritimes and permit us to identify the occupation as prehistoric Micmac. While the Micmac continued to live in the western sub-area into protohistoric times, the site was abandoned during Acadian period.

With this variability, the question arises as to how much of the occupation is contemporaneous and indicative of substantial settlement at any one time. Or could the distribution and variability be a product of the recurrent visits of small bands over 1500 years?

Most of the artifactual material belongs to the Ceramic or Woodland Period, but there are traces of earlier activity. There are at least two projectile points in collections from Melanson that have Paleo-Indian affiliations and two points illustrated in this report that

pertain to the Archaic. The documented ceramics begin with the pseudo-scallop and dentate decorated pottery of the eastern sub-area, types which decline in popularity upriver and through time, to be replaced by cord-wrapped stick decorated pottery (type 3).

The Melanson Site Expansion figure attempts to model the initial, Middle Woodland habitations to 500 A.D. These are small areas in the central or eastern parts of the site near the river and containing type 1 and 2 pottery and stemmed points. Of the estimated 54 vessels, 15 are cord-wrapped stick (type 3) style distributed over a much larger and better defined area together with new styles of notched and triangular points. This material dating from about 500-1600 A.D., blankets not only the earlier occupation spots but is found over 60 acres, including land further upriver and back from the river.

Of this 60 acres, at least the upriver three acres (1.2 h) of BgDb-7, most of which has material, can be identified as contemporaneous occupation based on the homogeneity of the artifacts and the tight dating. The three acre figure is a conservative areal estimate for the lower terrace of the Coldwell farm where the 1986 excavations were located. Two charcoal dates from the bottom of the occupation layer at either end of BgDb-7 yielded dates of 560 ± 60 B.P. (B-17910) and 790 ± 60 B.P. (B-17909) and the single thermoluminescent date (A-3158) of 500 years ± 20% (no soil analysis) came from a cord-wrapped stick sherd near the top of the occupation. These dates testify to the narrow, almost protohistoric slice of time represented in the westernmost portion of Melanson. Except for a single pseudo scallop sherd lacking provenience, the ceramics are uniformly type 3, cord-wrapped stick. The lithics in turn, reveal no statistically significant variation either horizontally or vertically.

These facts seem best modeled not as recurrent small group occupation, but as evidence of a larger, more sedentary group, living not only on the [excavated] area beside the river, but as far back as the base of the second (10 metre) terrace. A thin scatter of late material (but no ceramics) from the front half of the upper terrace or bench, might represent a distinct occupation. This area has not been excavated.

While a few families could have lived in the central area down river in late prehistoric times, the community at Coldwell farm was unlikely to have extended further east. The western and central subareas share cord-wrapped stick style pottery, but the late points from the central subarea tend to be corner-notched unlike the corner-removed style

preferred at the western end of Melanson. The large pits from the western end have not been reported from other parts of Melanson and as one moves east into Martin's farm (BgDb-1), there is a drop-off in the density of artifacts.

POPULATION

Surface collecting produced material from all of the first terrace on the Coldwell farm (BgDb-7) except for the southeast corner where a slough has replaced a small river channel. The occupation was, however, concentrated on the southwest part of the terrace above the river, where the 1986 excavations were located. A more accurate estimate of village area calculated in "bottom-up" fashion from field measurements rather than field size (1.2 h) would indicate a heavily utilized area of 200-250 m^2 and a secondary area with lesser occupational debris of at least 3500 m^2, still on the lower terrace of BgDb-7, i.e., almost one acre in total.

At Delorey Island, only about 100 m^2 [and 140 m^2 maximum] were occupied at any one time. Ethnographic analogy and crude site area-population relationships were used to settle on a figure of 30-35 persons on the entire island (ibid.:156). The western end of Melanson is 2.0 to 2.5 times larger than area 1 at Delorey Island ($\approx$ 100 m^2) and by the same reasoning, a population of 60-90 persons can be suggested for westernmost Melanson with 70 being a reasonable number for this late community.

We can note that if the core area of about 250 square metres is regarded as floor area and the secondary zone as village area we could calculate anywhere from 25 to 134 persons using Naroll's ratio of 10:1 (1962) or Rathje and Schiffer's ratio of 1:86/1 (1982:272) for roofed floor space. Comparisons of village size with coastal California groups (Cook and Heizer 1968) produces figures from 30 to 100 persons depending on whether the site area is taken to be 250 m^2 or 3750 m^2.

These figures help to delimit the range of the population, and little else. But if the summer village at Delorey Island can be estimated at 30-35 persons based primarily on ethnographic data [which is at least not outside the range of area-population figures] then it seems reasonable to place 2 to 2.5 times as many people at the larger Melanson site. Seventy persons is a reasonable, if approximate, figure for village size and the fish catch statistics cited in the ecology section show that this

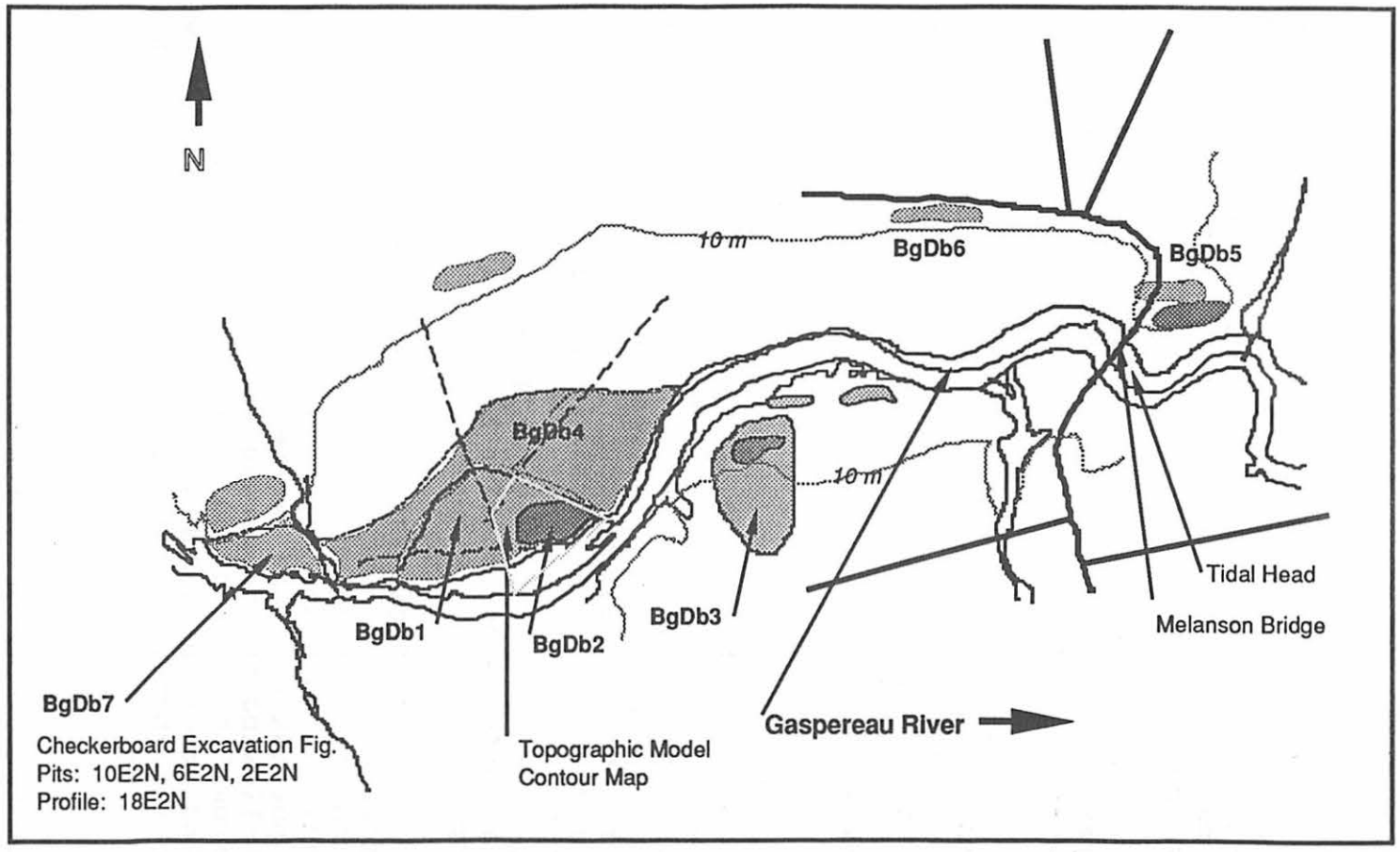
number of persons could be easily supported in the non-winter months.

A seasonal aggregation of 70 people during the fish runs can be classified structurally as a composite band. The population of ≈ 70 exceeds that of patrilineal bands and is compatible with that of composite bands which can coalesce under favorable ecological conditions (Steward 1955:149), in this case, the immense gaspereau runs in April and May.

The most plausible model of the population dynamics is a growing Woodland settlement, expanding upriver and back from the river, an increasingly larger, more populous village. Judging by area, the long-term growth trend would appear non-linear with a quantum jump in occupation during the Late Woodland Period. The ceramics decrease from east to west owing to a drop-off in their manufacture, but lithics increase. Thus while there are 8 points from the east end (BgDb-5), there are 45 from the central area (BgDb-1/4) and 53 from the late, western area (BgDb7), exclusive of those in private collections. The end product of this growth was a composite band.

Figure 36 Melanson Site Expansion, should be regarded as a first approximation of the settlement model. The radiocarbon dates and the stylistic changes identified in the chapters on material culture provide strong evidence of westward, upriver, expansion. The peripheries of the site and the total occupation area are accurate enough, but the occurrence of settlement prior to 500 A.D., as depicted in Figure 36, rests on the presence or absence of pseudo scallop shell or dentate style pottery, tapering stem points and a single radiocarbon date. Some confidence can be placed in <u>where</u> the earliest occupations were, but the areal <u>extent</u> of these three early occupations cannot now be specified. It does appear that the later occupations are much more extensive, being exclusive in BgDb-7 and covering most or all of the central area, which is the largest portion of the Melanson Site.

The material culture of the large central area is, however, more diverse than is the case for the homogeneous component at BgDb-7, and presumably represents a longer period of occupation by successive composite bands. An estimated population of 70 persons at any one time calculated for BgDb-7 might also be the group size resident in the central area at any one time, especially after 1000 A.D.



Melanson Site Expansion

Legend

AD 1-500 (est.)

AD 500-1600

0 50100 200 300 400 500 m

FIGURE 36

Seasonality

The short term occupation was seasonal. The western excavations provided a large floral sample containing the charred seeds of edible berries available in the summer and fall (Deal, this volume). Poor preservation left only a small faunal sample with the calcined bones of medium-sized mammals--beaver, otter and woodchuck plus a vertebral centrum from a species of cod, likely the Atlantic Cod. Judging by its vertebral growth rings and availability, this particular cod was taken in Minas Basin during the warm weather months (Stewart, this volume).

Hunting was undoubtedly of greater dietary importance than is indicated by the meagre faunal sample. We can assume that some large mammals were killed, for such is the case elsewhere; moreover, projectile points are numerous and a petroglyph depicting a deer or caribou was collected at Melanson.

But the gaspereau was the principal food resource. Natural and cultural processes have left no bones, yet the prolific spring runs, the ease with which the gaspereau can be caught and preserved and their exploitation today and in historic times, leave little doubt that river fishing was the spring time activity at Melanson. Other fish such as the Atlantic Salmon could be tapped as the seasons progressed. Bone fishing implements have also disappeared, but there is a historic iron fish spear and two possible net-sinkers in private collections from Melanson. An artist's reconstruction by Sharon Jan illustrates this spring fishing (Figure 38).

Thus, beginning in early spring, increasing numbers of people, sufficient to comprise a composite band, concentrated on the Gaspereau River. River fishing was the main attraction, while some ocean fishing was also undertaken in the marine zone of Minas Basin, perhaps following the gaspereau run. There are small sites known from Long Island and elsewhere in the marine zone, but these and other small hunting camps in the uplands, were not base camps, but rather satellites of Melanson on the outer zones of the catchment area.

Melanson is thus a central place and semi-permanent base camp, where activities centered on the riverine ecozone. Stewart notes that small mammals could also be obtained within a one kilometre radius of the site and concludes:

> From this Gaspereau River study, it can be argued that even mobile populations, once they camp for a season when and where resources are abundant, restrict their exploitation to their immediate vicinity with occasional forays to the outermost catchment rings (1989:18).

This interpretation is compatible with the idea of increasing population. There is likely a feedback loop between population growth and decreasing mobility, a process which would eventually have led to year-round occupation, an interpretation which cannot be absolutely rejected for protohistoric Melanson.

Gaspereau Lake and Archaic Settlement

Only the occasional Archaic point has been collected at Melanson and Archaic sites are unknown further down river. But 17 kilometers upriver from Minas Basin at 186 metres above sea level, there is substantial Archaic material on Gaspereau Lake at the outlet for the river. This small multi-component site has some ceramic period occupation, but is predominantly of late Archaic age, and contains ground slates.

Almost no bone was recovered, but there were some possible net-sinkers and the site's excavator, John Erskine, was confident about the reasons for the site's existence:

> The outlet of the lake formed a natural weir for the netting of gaspereaux and salmon from May to July or for catching eels in October. The lake would have given canoe access to many miles of hunting country and up tributary rivers to yet other lakes (1965:3).

The question that arises is why settlement should have shifted down river in Woodland times to be followed by a rise in population. There was no gradual, downriver drift and only a few implements have been found above the steep gorge in which the Gaspereau River flows from the lake to Melanson. This abrupt shift in settlement pattern might have been prompted by a trend towards coastal stabilization.

Some 3000 years ago, close to the beginning of the Woodland Period, the shoreline would have been located outside Boot Island, Oak Island and Long Island in Minas Basin (Figure 5). Continuing sea level rise and coastal submergence resulted in drowned forests off the coast and ". . . a high tide mark about nine metres below the present high water mark 3000 years ago" (Jan 1986:4). There was

already a tidal amplitude and wide inter-tidal platforms together with estuaries, saltwater and freshwater marshes and inter-tidal sand bodies. Three thousand years ago, the head of tide would have been further down river, below Wallbrook, in the vicinity of Curry Brook. There is unfortunately, no evidence of a stand in sea level at Wallbrook, but there are some terraces (and deltas?) and one marine cut terrace on the north side of the river, which is 30 feet above present high tide (MacNeill 1950:47). These are glacial related features however.

Some lithics have been collected near Curry Brook and probably other sites are now underwater. However, by 2000 years ago, and possibly earlier, there is a small settlement at Melanson, 2 km upriver. By this time too, sea levels had stabilized to about their present position (Grant 1977; Scott and Greenberg 1983). About 2500 years ago, the rate of increase in tidal amplitude slows down as does the rate of submergence giving stability for the whole Bay of Fundy (Turnbull 1988:100). Adopting an argument from Fladmark (1983), we can argue that this coastal geomorphic equilibrium would have resulted in a mature ecosystem with fish runs approaching climax productivity. The building of stable estuaries and consistently large gaspereau runs may have induced people to abandon the old camp on Gaspereau Lake and settle in the bottomlands.

Settling Down at Melanson

This is little evidence of settlement between Melanson and Gaspereau Lake and no indication of a gradual shift up or down river. Nor is there any sense of historical inevitability for settlement at Melanson. Increasingly reliable fish runs may indeed have lured small bands towards coastal camps and, as discussed in chapters two and nine, the Gaspereau fishery is more productive than that of the nearby Cornwallis River.

There are five rivers between North and South Mountain -- the Pereau, the Habitant, the Canard, the Cornwallis and the Gaspereau -- flowing in parallel fashion into Minas Basin. The first three are small, sluggish rivers, the Pereau being unnavigable, ". . . and only the Cornwallis has any considerable wanderings above tide level" (Wright 1957:61). The Gaspereau, the most southerly of the five, has the deepest valley. The Gaspereau Valley is secluded, even isolated, with a slightly more favorable microclimate.

> The Gaspereau Valley is sheltered by the North and South Mountains providing a January mean 2° warmer than Northern Nova Scotia. There is a warm early

> spring, a hot summer, less precipitation and a frequency of clear skies. The area around the Minas Basin is a little cooler because of marine influences (Jan 1988:5).

Spring thunderstorms tend to move eastward down the valley from Gaspereau Lake and the interior.

The two low mountains enclose Melanson within a U-shaped valley. On the flanks of South Mountain are numerous ravines originally cut by streams flowing down to the Gaspereau River. More generally, the mountains support an upland vegetation of mixed forest in which hardwoods are less dominant than they once were. Thickets, bogs and barrens are interspersed through the forest providing additional habitat for the deer, caribou and moose which formerly were common on these mountains (Jan ibid:35).

It is significant that in zones 1 to 3 of the catchment area, i.e., up to 3 km from Melanson in any direction, at least 50% of the total area consists of wooded uplands. While there is no direct evidence for the hunting of these ungulates at Melanson, there is indirect evidence in the projectile points and the petroglyph for such hunting. Caribou, deer and moose were available within walking distance of the site and could most easily be killed in the fall or winter when hunting did not conflict with gaspereau fishing. The proximity of such animals may be another factor in explaining Melanson's existence, though it must be admitted that there is, at present, no evidence for winter residency at the Melanson site.

Incipient Specialization

The position and very existence of the Melanson site are more than a product of reliable fish runs and good prospects for winter hunting, for Melanson is reasonably near the stone quarries of Scots Bay.

Typically, the lithic tools at Melanson are of high quality, fine-grained stone in a wide spectrum of colors. For example, a sample of 63 projectile points from the Gertridge and Legge collections contains the following array of stone types:

TABLE 19

Projectile Points: Lithic Types

banded rhyolite	1	quartzite	11	chalcedony	9
black rhyolite	1	vein quartz	10	jasper	1
rhyolite	17			chalcedony - jasper	6
sheared rhyolite	2	meta-greywacke	2	chalcedony (banded agate)	1
ignium rhyolite	1			banded jasper	1

This sort of variety holds for the scrapers and to a lesser extent for biface knives. Large tools such as celts are made from foliated meta-greywacke or porphorytic basalt. Nor is there any shortage of raw material with hundreds and occasionally several thousand waste flakes coming from most 2 x 2 m pits excavated in 1986. There are cores, most of them small in size, but few blanks or preforms.

The quartzite is local in origin, coming from the White Rock formation further up the Gaspereau River, but eroded pieces can be collected in the river right at the site. The various rhyolites probably came from the Nictaux locality, while the jaspers and chalcedony can be tied to Scots Bay on the Bay of Fundy. The stone occurs in beds or as nodules in limestone deposits found at seven of the coves in the vicinity of Ross Creek (Figure 37). This is a one-way distance of 32 miles (51.5 km) from Melanson by canoe around Cape Blomidon and Cape Split. Overland, the distance is only 14 miles (22.5 km) and there are historic trails, thus direct procurement of these materials is the simplest explanation for their presence at Melanson. Although chalcedony can be found in other parts of the Maritimes (Deal 1989), the Melanson sample can be safely linked to Scots Bay, where the stone is much closer and much more accessible.

The pleistocene geology, stratigraphy and geochemistry of the Scots Bay formation have been well researched (MacNeill 1950, Thompson 1974, Cameron, Rodgers, Grantham and Jones 1985) and the nature of the stone can be specified. It is not a homogeneous stone, but is rather, unique in its diversity and heterogeneity. The stone has a definite internal structure owing to replacement of pre-existing biological structures (algal, bacterial, wood) by precipitates. This "signature" makes it readily identifiable under low

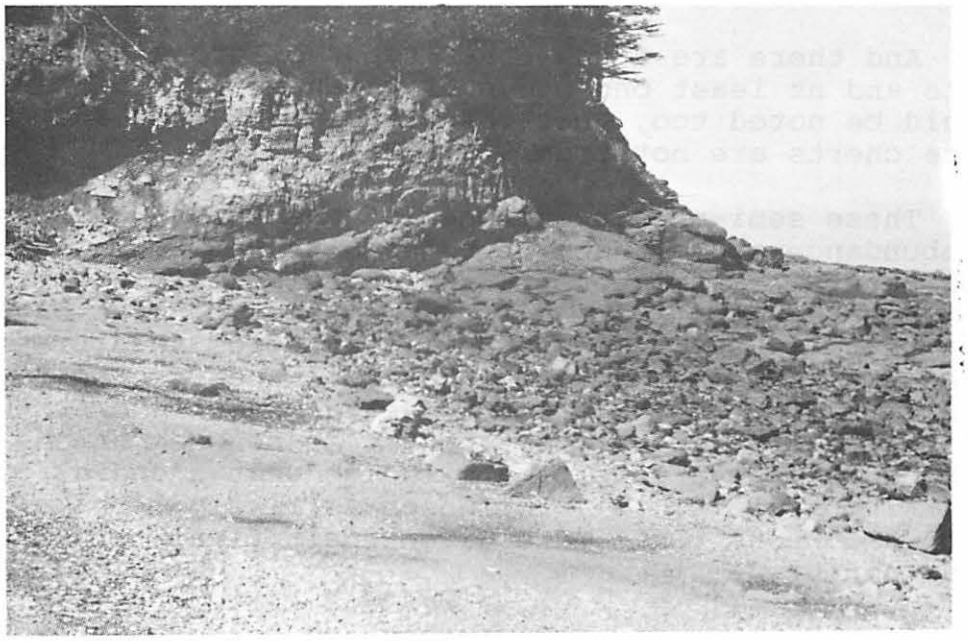


FIGURE 37: LIME COVE, SCOTS BAY, NOVA SCOTIA

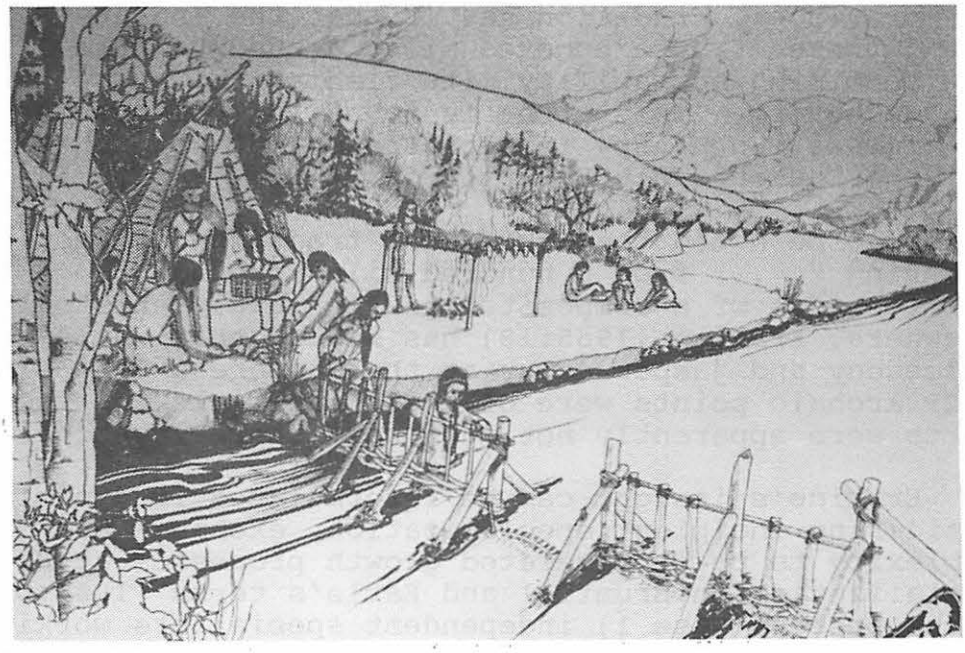


FIGURE 38: SPRING FISHING USING A WEIR, GASPEREAU RIVER

magnification. Petrographic descriptions of the chert beds and chert nodules can be found in Thompson (1974).

And there are a few other types of stone at Melanson--slate and at least one piece of Ramah chert from Labrador. It should be noted too, that the translucent grey and creamy white cherts are not from Scots Bay.

These semi-precious stones of the Scots Bay Formation are in abundance at Melanson, but the site was not a primary treatment site analogous to the Ingonish Island workshop (Nash 1978) where quarrying and reduction were carried out at the same place. Reduction of the linear cores into transportable blanks/preforms may have been accomplished at the Davidson Cove Site (Deal 1989). This cove has massive chert beds and unlike the other coves, ". . . can be reached at any tide by walking three quarters of a mile due west along an old trail . . ." (Thompson 1974:2). Melanson is likely to have been the base camp where tools were given their final form by part-time flintknappers.

John Erskine did some survey and collecting at Melanson; his report is included in Chapter Four. Despite his brief investigation, he appreciated the connection to Scots Bay and its role in the site's rise to prominence.

> At all times, the Micmacs used chiefly local stones for their never-satisfied demand for arrowheads, but, after 1200, chips and arrowheads of North Mountain stone began to appear over the whole province. Tradition has it that the Indians gathered from a hundred miles around to this site, combining sociability with fishing and stone gathering. This stone is found in Indian sites as far as South Aspy in Cape Breton but not north of the Shubenacadie River (n.d.:24).

It should be noted that this oral tradition of people gathering ". . . from a hundred miles around . . ." fits well with the idea of a composite band in late prehistoric times. Elsewhere, Erskine (1965:18) has stated that while chips of chalcedony and jasper occur at the Gaspereau Lake site, only 3 of 29 Archaic points were of these materials and the Scots Bay cherts were apparently not much used there in Archaic times.

Erskine's insight can be reformulated in dynamic terms by considering incipient specialization, exchange and cultural complexity to be interrelated growth processes at Melanson. Specialization in Brumfiel and Earle's terms (1987:5) involves in the present case 1) independent specialists working on an ad hoc basis. The only evidence for individual (as opposed to site) specialization occurs with respect to six end scrapers

clustered together in BgDb-7. Their generally rectanguloid shape, thinness, little retouch and manufacture from the same red-brown chert, leaves little doubt but that they were made by the same person; 2) the procurement and distribution of Scots Bay cherts, which would be subsistence-related rather than items of wealth; 3) specialization on a part-time basis; 4) small-scale production, and 5) a low volume, perhaps seasonal output. As this Melanson--Scots Bay link intensified, specialization began and acted as a stimulus or initial kick towards centralized leadership, site hierarchy and expanding exchange networks.

Earlier in this chapter, it was suggested, but certainly not proven, that the growth of the Melanson site was not regular, it was non-linear with a quantum jump in the Late Woodland Period. The emergence of a social group the size of a composite band may be partly attributed to intensified dealings in stone.

Table 20 shows the changing selection of raw materials over time using reasonably good samples of projectile points. The trend towards increasing utilization of the Scots Bay cherts is real, although the sample from BgDb-7 probably contains a few rhyolites and other foreign cherts which have not been factored out. The surface sample from BgDb-4 would also cover a lot of time. While the numbers cannot be taken at face value, they do offer some support for Erskine's assertion concerning the proliferation of the Scots Bay stone after 1200 A.D. and for the present proposal that the growth of Melanson is linked not only to its strategic location and gaspereau runs, but also to intensified exploitation of the Scots Bay quarries.

An Exchange Network

In this section, we examine several recent site reports from the Maritimes in an effort to document a trade in the Scots Bay cherts and then to argue that Melanson was a key player in the trade with the incipient specialization stimulating centralized leadership and greater socio-political complexity. We can also ask, as is often done with distance-decay models, whether there is any regular fall-off in the frequency of these cherts with increasing distance from Melanson. Attention is necessarily focused on projectile points, but other lithic types or observations on sources are noted if useful.

Erskine states (n.d.:24) that the North Mountain stone can be found in sites at South Aspy, Cape Breton Island. It apparently does not occur in the Magdalen Islands sites,

TABLE 20 RAW MATERIAL SELECTION

TIME	SITE	SAMPLE	RAW MATERIALS PROJECTILE POINTS			
			OTHER	QUARTZ QUARTZITE	RHYOLITE	CHALCEDONY JASPER
LATE ARCHAIC	GASPEREAU LAKE	ERSKINE 1965		26		3/10.3%
MIDDLE WOODLAND	MELANSON BgDb5	MACDONALD 1965		7		1/12.5%
	BgDb4	GERTRIDGE/ LEGGE SURFACE COLLECTION	2	21	22	18/28.5%
LATE WOODLAND	BgDb7	NASH/ STEWART 1986 EXCAVATED SAMPLE	1	22	--	22/48.9%

although andesite was taken from Ingonish Island, Cape Breton to the Magdalens (Trudel and McCaffrey 1986:152, 153).

Delorey Island (BjCj-9). This site, already mentioned in connection with population estimates, is smaller than Melanson, but of comparable age. Located in northeastern Nova Scotia on Georges Bay, it is 217 air kilometers from Melanson and not much farther by water via Cobequid Bay, Salmon River, West River and Northumberland Strait. The smaller stone tools here are most often local rhyolites. This is true of the illustrated projectile points (10 specimens) followed by quartzite (2 specimens) and vein quartz (1) plus 2 specimens of agate (Nash 1986:40). The agate specimens are of unknown origin, and could be imports from Scots Bay, but no strong connection is indicated which is keeping with the considerable distance involved.

Passamaquoddy Bay. Chalcedonies and jaspers occur approximately 204 kilometers to the southwest of Melanson at the Carson Site and on the Bliss Islands of Passamaquoddy Bay, New Brunswick. Non-Quoddy Region lithics are common at the Carson Site, comprising for example, 64% of the stemmed bifaces (Sanger 1987:78)--although this figure includes a variety of other foreign stones beyond the chalcedonies and jaspers. Foreign chalcedony also occurs, but to a lesser extent, in the shell midden sites of the Bliss Islands (Black 1985:36, 62). In neither case have these chalcedonies/jaspers been traced to a source. The Scots Bay quarries are a possible source, and directly accessible by water, moreso than Delorey Island which is about the same distance away in the opposite direction.

Mersey River System, Nova Scotia. Stone from Scots Bay is abundant in the southern interior of Nova Scotia, both at Kejimkujik and Lake Rossignol. These lakes are connected by the Mersey River which, together with the Lequille River, formed a canoe route between the Atlantic and the Bay of Fundy (Raddall 1974, cited in Deal 1986). Agate, jasper and chalcedony occur in many of the sites on the Mersey River and Kejimkujik Lake (Ferguson 1986:21, 25) and at Indian Gardens, Lake Rossignol. At Indian Gardens, "Local quartz predominates as raw materials, followed by Scots Bay agate. The former is used primarily for bifaces, while the latter is used primarily for unifaces . . ." (Deal 1986:23).

As for these unfaces,

> Agate or agate-like stone is the most abundant material in the Indian Gardens collection, with twenty of the thirty-five scrapers and retouched flakes belonging to this category. Though we cannot say that this percentage is representative of all

> collections, it is probably safe to assume that it was highly sought after for its inherent material qualities and that it was fairly easy to obtain due to Indian Gardens access to the Fundy Shore where it is common (Murchison 1986:40).

But, such a journey to the Bay of Fundy and Scots Bay still represents a distance of more than 200 km. Granted that the Micmac were a maritime people, never far from the sea and easily capable of such trips, but it is unlikely that the quarries were exploited by the various bands on an ad hoc basis.

It is claimed that the Scots Bay cherts are found from central Maine (Spiess, Bourque and Cox 1983:100) north to Cape Breton, but are more frequent to the south and west of Scots Bay than in the north. There is not a series of well studied sites in which to test for monotonic drop-off in frequency of chalcedony/jasper, but sites such as Indian Gardens which are closer to the quarries, clearly have more of this raw material.

Until trace element studies are done the formation "signatures" compared, and other possible source localities investigated, we cannot specify the role of the Scots Bay quarries in the chalcedony trade. At least two conflicting models can be proposed.

In Deal's model (1989), there are a variety of potential sources for chalcedony in the Maine-Maritimes area, to which local bands have unrestricted access during Middle and Late Ceramic times. Intentional exchange of quarry blanks is said to be small scale and infrequent although conducted with some regard to political districts.

If, however, the Scots Bay quarries prove to be pre-eminent such that the chalcedony is indeed represented as far away as Maine (and this will be easy to determine given the heterogeneous nature of the Scots Bay cherts), then a more hierarchial model is required. Such a model would emphasize social ranking in the context of a more complex society and a more developed exchange system in a context of ideology--a substantivist view of trade.

It is proposed here that different mechanisms of exchange operated according to distance.

1) Direct or quasi-direct procurement. As mentioned earlier, Erskine was of the opinion that in the spring people came from up to 100 miles around to Melanson for fishing and stone-gathering. Individuals and small bands may well have come from within the limits of the

watershed or territorial district in which they habitually moved about. From Melanson, visits could be made directly to Scots Bay or, reciprocal exchanges could be carried out, perhaps involving some of the foreign cherts recovered at Melanson.

Chiefs or other influential persons having some expertise in commerce or lithics could benefit in the sense that the information and prestige accrued would validate claims of social status. The historic Micmac were a ranked society (Miller 1983) with weak chiefs (sagamores) enjoying some tribute and redistributive functions (Clermont 1986:23).

2) Long-distance trade. Even in Late Archaic times, Ramah chert was traded south along the Atlantic coast as far as Maine. The Moorehead complex spread along the coast and is even linked by arch-diffusionists with the megalithic cultures of coastal Europe. Long before the appearance of Melanson, there were well established trade routes along the Bay of Fundy and the Gulf of Maine.

The Scots Bay stone became widely distributed in the Late Woodland Period, not so much to the north but into Passamaquoddy Bay, N.B. and Penobscot Bay, Maine. At the Goddard Site in Maine, there were, in the late Ceramic Period, ". . . hundreds of endscrapers and bifaces made of Nova Scotian chalcedonies . . ." (Spiess, Bourque and Cox 1983:100) which may have arrived following the ancient trade routes.

The greater distances to such southern localities and the large quantities of stone involved do not indicate village to village trade, but rather more formalized trade, perhaps between a few particular localities with the importing groups acting as secondary centers of dispersal.

Bourque and Whitehead (1985) have proposed an ethnohistorical model, which although specific to the early fur trade context, does have some features which may apply to the late prehistoric period. In their view, "shallop-sailing native middlemen" were conducting the fur trade in the Gulf of Maine at the end of the 16th century and the beginning of the 17th century. There were some eastern Etchemin among these native mariners, but most were Micmac (Sourisquois), familiar with the Bay of Fundy and engaged in transporting French merchandise from the Gulf of St. Lawrence area to Maine and beyond. Evidently, most of these entrepreneurs were chiefs.

However, as Bourque and Whitehead note, trade and economic ties were already established prior to the fur trade. In Late Woodland times, commerce in the Bay of Fundy involved copper and Busycon shell beads (Whitehead 1986:226) and it may be that part-time specialization in trade also predates the

fur trade. In this view, long-distance trade in Scots Bay chalcedony was likely controlled by chiefs and their families. Such trade can be be seen as a preadaptation for the fur trade which intensified the power of the chiefs and the ranking within Micmac society.

As the nearest location which combined seasonally abundant food resources and a strategic riverine location with respect to Minas Basin and Scots Bay, Melanson was a natural candidate for growth, its chiefs advantageously positioned for economic and social gain.

The Blomidon Factor

> In the distance where the Bay narrows and the great tides of Fundy rush into Minas Basin, Glooscap saw a long purple headland like a moose swimming, with clouds for antlers, and headed his canoe in that direction. Landing, he gazed at the slope of red sandstone, with its groves of green trees at the summit and admired the amethysts encircling its base like a string of purple beads.
>
> "Here I shall build my lodge," said Glooscap, and he named the place Blomidon" (Hill 1963:25).

Blomidon (Owkogege'chk) was home to the culture hero Glooscap who lived on the hill in his wigwam with an old woman, Grandmother, and a young man, Marten, his servant. Glooscap created the Micmacs, Children of the Light or Dawn, from ash trees and transformed the natural world for the benefit of the Micmac.

Glooscap travelled widely, but Blomidon was his home which is not surprising, given its central location within Micmac territory. Besides being a mythological center and a place of supernatural power, it is a place of economic significance owing to the occurrence of semi-precious stones at its base and the presence of the chalcedony quarries on Scots Bay which is also a part of North Mountain.

In her charming and informative book, Blomidon Rose, Esther Wright describes Cape Blomidon and its changing seasonal appearance.

> Blomidon is the abrupt ending of that ninety mile rampart we call North Mountain, which extends from the Digby Gut to Minas Basin. North Mountain is the long wall which cuts off the cold winds from the north and the fogs from the Bay of Fundy, and makes our valley the pleasant place it is (1957:2).

> Its fields, its woods, its cliffs change with the season's changes, the snow of winter, the new growth of spring, the abundant foliage of summer, the brilliance of autumn and its high tides. . . . . As light and shadow change, as seasons come and go, these tree-banded slopes appear green, or blue, or purple, or black. The red cliffs below may be streaked with white in winter, or darkened by the melding snow of spring or the rains of autumn, or made vivid by the sun of summer (ibid:3).

Figure 13 in Chapter Two is William Eager's lithograph of Blomidon as seen from the Horton Mountains, in 1836. For the Children of the Light living at Melanson in the Late Ceramic Age, a better view of Blomidon could be obtained from the top of North Ridge above the village site. This magical headland may well have served as a kind of ecological calendar signaling, for example, the timing of the sun ceremony (day sun) to be given in late spring following the gaspereau run.

The growing village at Melanson is thus best understood as a product primarily of the gaspereau runs and secondarily a product of the stone and mythology of North Mountain/Blomidon. Melanson reached its zenith in Late Ceramic times, but when his loons told Glooscap that ships were coming bearing a new race of powerful humans, Glooscap departed. Melanson too, was abandoned when the Acadians arrived in the Gaspereau River Valley.

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APPENDIX A

Geometric and Metric Attributes for the Projectile Points Collected by G. MacDonald, 1965

CROSSTABULATION OF STYLE AND BLADE OUTLINE, ALL AREAS, BgDb1-2, 4, 5

Crosstabulation: BLADE By STYLE — BLADE OUTLINE PROJECTILE POINT STYLE

STYLE--> / BLADE	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
1 Triangular	1		1	5	2	3	11
			25.0	50.0	18.2	15.8	23.4
2 Excurvate	2	2					2
		66.7					4.3
3 Parallel Excurva	3		1	2		1	4
			25.0	20.0		5.3	8.5
4 Contracting Excur	4		1	1	4	1	7
			25.0	10.0	36.4	5.3	14.9
6 Other	6			1			1
				10.0			2.1
7 Indeterminate	7		1	1	4	11	17
			25.0	10.0	36.4	57.9	36.2
8 Asymetrical	8	1			1	3	5
		33.3			9.1	15.8	10.6
	Column Total	3	4	10	11	19	47
		6.4	8.5	21.3	23.4	40.4	100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.< 5
56.12287	24	.0002	.064	34 of 35 (97.1%)

Number of Missing Observations = 0

Appendix A (continued)

CROSSTABULATION OF STYLE AND BLADE OUTLINE, ALL AREAS, BgDb1-2, 4, 5

Crosstabulation: STEM STEM OUTLINE
By STYLE PROJECTILE POINT STYLE

STYLE--> STEM	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
Expanding	1		4 100.0	2 20.0			6 12.8
Contracting	2			1 10.0			1 2.1
Contracting Expan	5	2 66.7		1 10.0			3 6.4
Contracting Cont	6			3 30.0			3 6.4
Contracting Para	7			3 30.0			3 6.4
Indeterminate, N	9	1 33.3			11 100.0	19 100.0	31 66.0
	Column Total	3 6.4	4 8.5	10 21.3	11 23.4	19 40.4	47 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F. < 5
88.81147	20	.0000	.064	27 of 30 (90.0%)

Number of Missing Observations = 0

Appendix A (continued)

CROSSTABULATION OF STYLE AND BLADE OUTLINE, ALL AREAS, BqDbl-2, 4, 5

Crosstabulation: BASE BASE OUTLINE
By STYLE PROJECTILE POINT STYLE

STYLE --> / BASE	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
Straight	1			5	7		12
				50.0	63.6		25.5
Convex	2	2	4	3	2		11
		66.7	100.0	30.0	18.2		23.4
Concave	3	1		1	2		4
		33.3		10.0	18.2		8.5
Indeterminate, 1	5			1		19	20
				10.0		100.0	42.6
	Column Total	3	4	10	11	19	47
		6.4	8.5	21.3	23.4	40.4	100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F.< 5
62.67508	12	.0000	.255	19 of 20 (95.0%)

Number of Missing Observations = 0

Appendix A (continued)

METRIC ATTRIBUTES, PROJECTILE POINTS

Summaries of LENGTH MAXIMUN LENGTH
By levels of STYLE PROJECTILE POINT STYLE, BgDbl-2,4, 5

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		4.6929	1.4912	14
STYLE	1 Side Notched	3.7667	.4509	3
STYLE	3 Corner-removed, Sten	5.4667	1.7478	6
STYLE	4 Unnotched, Unstemmed	4.3200	1.2617	5

Total Cases = 47
Missing Cases = 33 or 70.2 PCT
****

METRIC ATTRIBUTES, PROJECTILE POINTS

Summaries of WIDTH MAXIMUM WIDTH
By levels of STYLE PROJECTILE POINT STYLE, BgDbl-2,4,5

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		2.3030	.4991	33
STYLE	1 Side Notched	2.1333	.6658	3
STYLE	2 Corner Notched	2.6000	.6557	3
STYLE	3 Corner-removed, Sten	2.3700	.5498	10
STYLE	4 Unnotched, Unstemmed	2.4222	.4631	9
STYLE	5 Indeterminate	2.0375	.3159	8

Total Cases = 47
MIssing Cases = 14 or 29.8 PCT.
****

METRIC ATTRIBUTES, PROJECTILE POINTS

Summaries of THICK MAXIMUN THICKNESS
By levels of STYLE PROJECTILE POINT STYLE, BgDbl-2,4,5

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		.7400	.2199	35
STYLE	1 side Notched	.7000	.1000	3
STYLE	2 Corner Notched	.7333	.1528	3
STYLE	3 Corner-removed, Sten	.8100	.2767	10
STYLE	4 Unnotched, Unstemmed	.6400	.1430	10
STYLE	5 Indeterminate	.7889	.2571	9

Total Cases = 47
Missing Cases = 12 or 25.5 PCT.

APPENDIX B

Geometric and Metric Attributes for the Projectile Points, End Scrapers and Bifaces, BgDb-7 (1986)

DESCRIPTION OF BgDb07, TERRACES 1 & 2

Crosstabulation: BLADE By STYLE — BLADE OUTLINE PROJECTILE POINT STYLE

STYLE-->	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
BLADE							
1 Triangular	1	3		5		1	9
		42.9		29.4		4.5	17.0
2 Excurvate	2				1		1
					20.0		1.9
3 Parallel Excurva	3	2	2	6	4	2	16
		28.6	100.0	35.3	80.0	9.1	30.2
4 Contracting Excur	4	1		1		1	3
		14.3		5.9		4.5	5.7
7 Indeterminate	7	1		3		18	22
		14.3		17.6		81.8	41.5
8 Asymetrical	8			2			2
				11.8			3.8
Column Total		7	2	17	5	22	53
		13.2	3.8	32.1	9.4	41.5	100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F. < 5
48.53432	20	.0004	.038	26 of 30 (86.7%)

Number of Missing Observations = 0

Appendix B (continued)

DESCRIPTION OF BgDb07

Crosstabulation: STEM By STYLE — STEM OUTLINE PROJECTILE POINT STYLE

STYLE--> / STEM	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
Expanding	1	2 28.6	2 100.0	8 47.1		1 4.5	13 24.5
Parallel	3			1 5.9			1 1.9
Parallel Expandi	4	2 28.6					2 3.8
Contracting Expan	5	2 28.6		2 11.8			4 7.5
Contracting Cont	6			1 5.9			1 1.9
Contracting Para	7			1 5.9			1 1.9
Asymmetrical	8	1 14.3		3 23.5			5 9.4
Indeterminate, N	9				5 100.0	21 95.5	26 49.1
	Column Total	7 13.2	2 3.8	17 32.1	5 9.4	22 41.5	53 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with e.F.<5
70.74707	28	.0000	.038	37 of 40 (92.5%)

Number of Missing Observations= 0

Appendix B (continued)

DESCRIPTION OF BgDb07

Crosstabulation: BASE BASE OUTLINE
By STYLE PROJECTILE POINT STYLE

STYLE-->	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
BASE							
Straight	1	2 28.6		9 52.9	2 40.0	1 4.5	14 26.4
Convex	2	2 28.6	1 50.0	5 29.4	2 40.0	1 4.5	11 20.8
Concave	3	1 14.3					1 1.9
Pointed	4			1 5.9			1 1.9
Indeterminate, I	5	2 28.6	1 50.0	2 11.8	1 20.0	20 90.9	26 49.1
	Column Total	7 13.2	2 3.8	17 32.1	5 9.4	22 41.5	53 100.0

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F. < 5
37.54659	16	.0018	.038	22 of 25 (88.0%)

Number of Missing Observations = 0

Appendix B (continued)

DESCRIPTION OF BgDb07

Crosstabulation: TERRACE By STYLE — TERRACE NUMBER PROJECTILE POINT STYLE

STYLE--> / TERRACE	Count / Col Pct	Side Notched 1	Corner Notched 2	Corner Removed 3	Unnotched Unstemmed 4	Indeterminate 5	Row Total
First Terrace (0)	1	6	2	17	4	22	51
Second Terrace	2	1			1		2
Column Total		7	2	17	5	22	53

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F. < 5
7.36359	4	.1179	.075	7 OF 10 (70.0%)

Number of Missing Observations = 0

Appendix B (continued)

DESCRIPTION OF BgDb07

Summaries of LENGTH MAXIMUM LENGTH
By levels of STYLE PROJECTILE POINT STYLE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		4.6700	.7761	10
STYLE	1 Side Notched	4.7333	.6658	3
STYLE	3 Corner-removed, Stem	4.4667	.8017	6
STYLE	4 Unnotched, Unstemmed	5.7000	.0000	1

Total Cases = 53
Missing Cases = 43 or 81.1 PCT
****

DESCRIPTION OF BgDb07

Summaries of WIDTH MAXIMUM WIDTH
By levels of STYLE PROJECTILE POINT STYLE

Variable	Value Label	Mean	Std Dev	Cases
For Entiire Population		2.3586	.3386	29
STYLE	1 Side Notched	2.1500	.2082	4
STYLE	2 Corner Notched	2.6000	.2828	2
STYLE	3 Corner-removed, Stem	2.4533	.3662	15
STYLE	4 Unnotched, Unstemmed	2.3400	.2966	5
STYLE	5 Indeterminate	2.0333	.1155	3

Total Cases = 53
Missing Cases = 24 or 45.3 PCT.
****

DESCRIPTION OF BgDb07
Summaries of THICK MAXIMUM THICKNESS
By Levels of STYLE PROJECTILE POINT STYLE

Variable	Value Label	Mean	Std Dev	Cases
For entire Population		.7342	.1564	38
STYLE	1 Side Notched	.6800	.1483	5
STYLE	2 Corner Notched	.7000	.1414	2
STYLE	3 Corner-removed, Stem	.8000	.1837	17
STYLE	4 Unnotched, Unstemmed	.6200	.1095	5
STYLE	5 Indeterminate	.7111	.0782	9

Total Cases = 53
Missing Cases = 15 or 28.3 PCT.

Appendix B (continued)

END SCRAPER ANALYSIS BgDb07

Summaries of LENGTH MAXIMUM LENGTH
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		2.8407	.9185	54
SHAPE	1 Triangular	1.7750	1.0626	4
SHAPE	2 Trianguloid	2.3714	.5122	7
SHAPE	3 Rectanguloid	3.2778	.9843	18
SHAPE	4 Squarish	2.3400	.3406	10
SHAPE	5 Ovate	3.8750	.6898	4
SHAPE	6 Polygonal	2.6800	.8871	5
SHAPE	7 Irregular	3.0667	.4274	6

Total Cases = 56
Missing Cases = 2 or 3.6 PCT.

****

END SCRAPER ANALYSIS BgDb07

Summaries of WIDTH MAXIMUM WIDTH
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		2.2604	.4439	53
SHAPE	1 Triangular	2.1500	.4041	4
SHAPE	2 Trianguloid	2.1857	.3976	7
SHAPE	3 Rectanguloid	2.2176	.4626	17
SHAPE	4 Squarish	2.1800	.3120	10
SHAPE	5 Ovate	2.7750	.1708	4
SHAPE	6 Polygonal	2.0200	.6760	5
SHAPE	7 Irregular	2.5333	.3502	6

Total Cases = 56
Missing Cases = 3 or 5.4 PCT.

Appendix B (continued)

END SCRAPER ANALYSIS BqDb07

Summaries of THICK MAXIMUM THICKNESS
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		.7564	.2339	55
SHAPE	1 Triangular	.7750	.3096	4
SHAPE	2 Trianguloid	.6286	.1976	7
SHAPE	3 Rectanguloid	.7722	.2469	18
SHAPE	4 Squarish	.7400	.1897	10
SHAPE	5 Ovate	1.0250	.2500	4
SHAPE	6 Polygonal	.6400	.2074	5
SHAPE	7 Irregular	.8333	.1633	6
SHAPE	8 Indeterminate	.5000	0.0	1

Total Cases = 56
Missing Cases = 1 or 1.8 PCT.
****

END SCRAPER ANALYSIS BqDb07

Summaries of WEND WIDTH OF DISTAL END
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		2.1000	.4678	54
SHAPE	1 Triangular	2.1500	.4041	4
SHAPE	2 Trianguloid	2.1167	.4215	6
SHAPE	3 Rectanguloid	2.1294	.4607	17
SHAPE	4 Squarish	2.0100	.4383	10
SHAPE	5 Ovate	2.5000	.3367	4
SHAPE	6 Polygonal	1.7800	.6834	5
SHAPE	7 Irregular	2.2333	.4803	6
SHAPE	8 Indeterminate	1.7500	.3536	2

Total Cases = 56
Missing Cases = 2 or 3.6 PCT.

Appendix B (continued)

END SCRAPER ANALYSIS BgDb07

Summaries of HEIGHT DISTAL EDGE HEIGHT
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		.5786	.2121	56
SHAPE	1 Triangular	.6750	.3500	4
SHAPE	2 Trianguloid	.4429	.0787	7
SHAPE	3 Rectanguloid	.5889	.1997	18
SHAPE	4 Squarish	.5900	.2025	10
SHAPE	5 Ovate	.8000	.2944	4
SHAPE	6 Polygonal	.5600	.1517	5
SHAPE	7 Irregular	.4833	.2137	6
SHAPE	8 Indeterminate	.6000	.1414	2

****

BIFACE ANALYSIS BgDb07

SHAPE OVERALL SHAPE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Trianguloid	1	1	2.4	2.4	2.4
Polygonal	2	4	9.5	9.5	11.9
Elliptical	3	5	11.9	11.9	23.8
Oval	4	2	4.8	4.8	28.6
Ovate	5	2	4.8	4.8	33.3
Lenticular	6	4	9.5	9.5	42.9
Other	7	4	9.5	9.5	52.4
Indeterminate	8	20	47.6	47.6	100.0
	TOTAL	42	100.0	100.0	

Valid Cases 42 Missing Cases 0

****

BIFACE ANALYSIS BgDb07

FORM FORM SYMMETRY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Symmetric	1	14	33.3	33.3	33.3
Asymmetric	2	10	23.8	23.8	57.1
Indeterminate	3	18	42.9	42.9	100.0
	TOTAL	42	100.0	100.0	

Valid Cases 42 Missing Cases 0

Appendix B (continued)

BIFACE ANALYSIS BgDb07

COMPLETE COMPLETENESS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Mostly Complete	1	13	31.0	31.0	31.0
Proximal Fragment	2	12	28.6	28.6	59.5
Distal Fragment	3	11	26.2	26.2	85.7
Medial Fragment	4	1	2.4	2.4	88.1
Indeterminate	5	4	9.5	9.5	97.6
Lateral Fragment	6	1	2.4	2.4	100.0
	TOTAL	42	100.0	100.0	

Valid Cases 42 Missing Cases 0

****

BIFACE ANALYSIS BgDb07

Summaries of LENGTH MAXIMUM LENGTH
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		6.2222	1.7697	9
SHAPE	1 Trianguloid	4.9000	0.0	1
SHAPE	3 Elliptical	4.6000	1.1314	2
SHAPE	4 Oval	7.9000	0.0	1
SHAPE	6 Lenticular	6.3000	2.2539	3
SHAPE	7 Other	7.5500	.4950	2

Total Cases = 42
Missing Cases = 33 or 78.6 PCT.

Appendix B (continued)

BIFACE ANALYSIS BgDb07

Summaries of WIDTH MAXIMUM WIDTH
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		3.4053	.9749	19
SHAPE	1 Trianguloid	2.7000	0.0	1
SHAPE	2 Polygonal	2.8000	.1414	2
SHAPE	3 Elliptical	3.0000	.5050	5
SHAPE	4 Oval	4.8000	0.0	1
SHAPE	5 Ovate	4.1000	0.0	1
SHAPE	6 Lenticular	3.2000	1.4095	4
SHAPE	7 Other	3.8000	1.1015	4
SHAPE	8 Indeterminate	4.5000	0.0	1

Total Cases = 42
Missing Cases = 23 or 54.8 PCT.

****

BIFACE ANALYSIS BgDb07

Summaries of THICK MAXIMUM THICKNESS
By Levels of SHAPE OVERALL SHAPE

Variable	Value Label	Mean	Std Dev	Cases
For Entire Population		1.2063	.5588	32
SHAPE	1 Trianguloid	.9000	0.0	1
SHAPE	2 Polygonal	.9000	.2000	4
SHAPE	3 Elliptical	1.0800	.1483	5
SHAPE	4 Oval	1.7000	.5657	2
SHAPE	5 Ovate	1.0000	.1414	2
SHAPE	6 Lenticular	1.7250	1.0720	4
SHAPE	7 Other	1.5750	.5852	4
SHAPE	8 Indeterminate	1.0100	.4122	10

Total Cases = 42
Missing Cases = 10 or 23.8 PCT.

APPENDIX C

HISTORIC ARTIFACTS FROM THE MELANSON FIELD SCHOOL, 1986.

BgDb-3

1	slip-dipped white salt-glazed stoneware ca. 1710-1776*
2	Maritime slipped redware (ca 1840-1900)
1	pearlware
2	vitrified white earthenware (1 green transfer print)
1	brown stoneware, uncertain 18th or 19th C.
1	brown stoneware, 19th C.
1	pipestem, 5/64" bore dia.
1	pearlware or white earthenware (blue shell-edge)
7	white earthenware
2	bone china
1	lithic

BgDb-6

1	white salt-glazed stoneware, press-moulded; ca. 1740-1780*
1	buff earthenware, 19th C.
7	white earthenware, 19th C.
2	hard-paste porcelain, undated
1	bisque (unglazed) porcelain, undated
3	Maritime slipped redware
2	red earthenware, 19th C.
1	coarse red earthenware, undated
1	Derbyshire stoneware, 1800-1875 (bottle base)
3	grey salt-glazed coarse stoneware, 19th C.
2	brown stoneware, 19th C.
16	pipe stems: 14 bore dia: 5/64" -19th C. (one with spur) 2 bore dia: 4/64" -could be 18th or 19th C.
1	translucent white glass, machine-made bottle, 20th C.
1	straight-stemmed English lead glass drinking glass, 18th C.*
1	iron plate with hole, undated
1	copper alloy small hinge (furniture), undated
1	slag nodule
1	copper alloy button, date uncertain (**sent to Stephen Davis, Canadian Parks Service, Ottawa, for identification)***
1	blue-green glass bead, date uncertain (**sent to Karlis Karklins, C.P.S., Ottawa, for identification)***
-	lithics and bone, not analyzed

BgDb-7c

2	white earthenware
1	buff earthenware bottle neck, 19th C.
2	pipe stems, undated

1 red earthenware, 18th-19th C.
1 dark green glass, moulded pattern, 19th-20th C.
1 cylindrical dark green glass bottle; English, with quatrefoil pontil mark; 1775-1825

BgDb-7-2-2
1 plaster? - painted

BgDb-7-3-2
1 milk glass, late 19th-20th C.
1 piece of lead
2 wrought iron nails, 18th-19th C.
1 wire nail, probably 20th C.

BgDb-7-3-3
1 sheet copper fragment

BgDb-7-5-2
1 pipe stem, bit portion; bore dia: 5/64"

BgDb-7-6-1
1 copper alloy shell case
1 plaster? same as in BgDb-7-2-2
1 iron bolt
2 cut iron nails, 19th C.
1 unidentified iron nail
1 unidentified iron piece

BgDb-7-6-2
3 vitrified white earthenware
1 white earthenware (pearlware?)
2 red earthenware
1 wire nail, late 19th-20th C.
1 burnt flint
3 small lithic fragments
1 small bone fragment

BgDb-7-6-3
1 iron nail, flat head; possibly wrought iron, common 18th-19th C.

BgDb-7-8-2
1 bisque (unglazed) porcelain
1 lithic
1 unidentified

BgDb-7-9-1
2 white earthenware
1 ceramic, unidentified
1 burnt glass, undiagnostic
1 plastic fragment

BgDb-7-9-2
1 copper alloy fragment
1 lithic
1 unidentified

BgDb-7-10-1
1 white earthenware
1 porcelain

BgDb-7-10-2
2 lithic

BgDb-7-12-1
1 white earthenware

BgDb-7-13-1
1 tin-glazed earthenware (glaze missing); probably predates 1780; common in early-to-mid 18th C.*
1 red coarse earthenware; may be 18th C. Anglo-American, but could be 19th C.*

BgDb-11-1
1 white earthenware, hand-painted; probably 19th C.
3 ironstone; 1820-present, but most common after 1850
1 amber glass; probably 20th C.
1 plastic fragment
1 colourless flat glass; undated
1 tobacco pipe bowl fragment; undated
1 iron nail, type uncertain
1 natural lithic?

BgDb-13
4 Maritime slip ware
2 brown stoneware; 19th C.
4 white earthenware, Mocha ware; ca. 1830-1870
1 pearlware, hand-painted; ca. 1780-1820
1 pearlware, polychrome; ca. 1796-1840
1 pearlware, shell-edged; ca. 1780-1830
11 white earthenware, transfer-printed; ca. 1820-present
2 pipe stems: 1 unmarked; bore dia: 4/64"; 19th C.
1 marked **GLASGOW DAVIDSON**; 19th C.
1 English lead glass dessert dish; 1780-1st half 19th C.
1 blue glass; undated
2 lithic

BgDb-14
4 pipe stems; bore dia: 4/64"; 19th C.

Level 1, 16E 4N Melanson
1 unidentified; lithic form?

APPENDIX D

Faunal Remains from the Melanson Site (BgDb-7) 1986 Excavations

Square 2E2N Level 3

1.	Beaver *Castor canadensis*	Right humerus distal condyle fragment; calcined
2	"	Right metacarpal I; 2 fitted pieces; small size; adult; calcined
3.	Medium-sized Mammal	Rib shaft fragment; calcined
8		Medium to Large Mammal fragments; one is 2 fitted pieces; all are calcined
45		Mammal fragments; all calcined
21		Class unidentified fragments; all calcined

Square 6E2N Level 1

1.	Beaver *Castor canadensis*	Metacarpal distal end fragment; adult; calcined
1		Medium-sized Mammal rib shaft fragment; calcined
6		Mammal bone fragments; all calcined

Square 6E2N Level 2

1.	Beaver *Castor canadensis*	Left innominate acetabulum fragment; calcined
7		Mammal bone fragments; all calcined

Square 6E2N Level 5 Hearth

1.	Beaver *Castor canadensis*	Right tibia fragment from the proximal 2/3 of shaft; 2 fitted pieces; immature; calcined
2.	Beaver *Castor canadensis*	Metacarpal distal epiphysis; immature; calcined
19		Mammal bone fragments; all calcined

34 Class unidentified fragments; all calcined

Square 10E2N Level 2

1. Medium-sized Mammal — Tibia shaft fragment; calcined

2. Muskrat *Ondatra zibethicus* — Thoracic vertebra 11 or 12 arch; Not calcined, recent?

3. Cod family *Gadidae* — Thoracic vertebra centrum fragment; calcined

5 Mammal bone fragments; all calcined

Square 10E2N Level 3

1. River otter *Lutra canadensis* — Right calcaneus fragment; missing posterior border

2. Medium-sized Mammal — Carpal or tarsal fragment

3 Small to Medium-sized Mammal rib shaft fragments; one is 2 fitted pieces; all calcined

8 Mammal bone fragments; all calcined

47 Class unidentified bone fragments; all calcined

Square 18E2N Level 1

1. Beaver *Castor canadensis* — Left metatarsal III proximal 1/3; calcined

4 Mammal bone fragments; one is 2 fitted pieces; all calcined

Square 18E2N Level 2

5 Mammal bone fragments; all calcined

11 Class unidentified; all calcined

Square 18E2N Level 3

1 Mammal bone fragment; calcined

2 Class unidentified bone fragments; both calcined

Square 22N2E Level 1

3 Mammal bone fragments; all calcined

1 Class unidentified bone fragment; calcined

Square 22N2E Level 2

1. Medium-sized Mammal Rib shaft portion; calcined

2. " Carpal or tarsal fragment; calcined

11 Mammal bone fragments; all calcined

4 Class uncertain bone fragments; all calcined

Square 22N2E Level 3

1. Domestic Cow *Bos taurus* Left lower premolar 1; 2 fitted pieces; Not calcined, recent

2. Beaver *Castor canadensis* Right navicular fragment; calcined

3. " Right central cuneiform fragment; calcined

4. " Right humerus distal condyle; calcined

1 Medium-sized Mammal skull fragment; calcined

15 Mammal bone fragments; all calcined

6 Class unidentified bone fragments; all calcined

Square 22N2E Level 4

2 Mammal bone fragments; both calcined

Square 4E4N Level 1

2 Mammal bone fragments; both calcined

Square 4E4N Level 2

13 Mammal bone fragments; all calcined

3 Class unidentified bone fragments; all calcined

Square 4E4N Level 3

3 Mammal bone fragments; all calcined

7 Class unidentified bone fragments; all calcined

Square 8E4N Level 1

5 Mammal bone fragments; all calcined

5 Class unidentified bone fragments; all calcined

2 Class unidentified bone fragments; both charred

Square 8E4N Level 2

1. Woodchuck Right mandible fragment with fossae for premolar 3 and molar; calcined
Marmota monax

8 Mammal bone fragments; all calcined

12 Class uncertain bone fragments; all calcined

Square 8E4N Level 3

1. Medium-sized Mammal Carpal or tarsal fragment; 2 fitted pieces; calcined

5 Mammal fragments; all calcined

5 Class unidentified fragments; all calcined

Square 8E4N Level 4

1 Class unidentified bone fragment; calcined

Square 16E4N Level 1

1. Large Mammal Long bone shaft portion, cortex; 2 fitted pieces; eroded; not burnt, likely modern

Square 20E4N Level 2

5 Class uncertain bone fragments; all calcined

Square 20E4N Level 3

1 Mammal bone fragment; calcined

Square 2E6N Level 2

4 Mammal bone fragments; all calcined

Square 2E6N Level 3

1 Medium-sized Mammal rib shaft portion; calcined

APPENDIX E

Table 1: Melanson site ethnobotanical remains: Flotate 1 (Feature 1, 2N2E).

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Chenopodiacae	Chenopodium (album)	lamb's quarters	0	58
Rosaceae	Rubus (various?)	raspberry/ blackberry	13	12
	Viola (?)	violet	0	1
	Prunus (pensylvanicus)	pin cherry	1	0
Cyperaceae	Carex (?)	sedge	1	0
Caprifoliaceae	Sambucus (canadensis)	common elder	0	5
Compositae	Hieracium (?)	hawkweed	0	1
Gramineae	Calagrostis (canadensis)	bluejoint	0	1
	Danthonia (spicata)	wire-grass	0	1
	Unidentified (?)	(?)	0	1
Totals:			15	80

Table 2: Melanson site ethnobotanical remains: Flotate 2, (6E2N).

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Chenopodiacae	Chenopodium (album)	lamb's quarters	0	1
Rosaceae	Rubus (various?)	raspberry/ blackberry	6	0
Najadaceae	Ruppia (maritimis)	ditchgrass	1	0
Pinaceae	Abies (balsamea)	fir needle	1	0
Oxalidaceae	Oxalis stricta	yellow wood sorrel	1	0
Rosaceae	?	nutlet	1	0
Graminae	?	grass	0	1
Unknown	?	bud	1	0
Totals			11	2

Table 3: Melanson site ethnobotanical remains: Flotate 3 (6E2N).

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Pinaceae	Picea (rubens)	red spruce	0	1
	Abies (balsamea)	fir	1	0
Rosaceae	Rubus (sp.)	raspberry	8	1
	Prunus? (sp.)	nutlet	1	0
Caprifoliaceae	Sambucus (canadensis)	common elder	2	0
Oxalidaceae	Oxalis (stricta)	yellow wood sorrel	1	0
Chenapodiaceae	Chenapodium (album)	lamb's quarters	0	2
Najadaceae	Ruppia (maritimis)	ditchgrass	2	1
Polygonaceae	Polygonum (sp.)	smartweed	1	0
	Rumex (maritimis)	goldenrod	0	1
	unknown	knotweed?	1	0
Graminae	Echinochloa (crusgali)	barnyard grass	1	0
	Phleum (pratense)	timothy	0	1
	unknown	grass	0	1
Compositae	unknown	composite	0	1
Unknown	unknown	dried fruit	1	0
Totals:			19	11

Table 4: Melanson site ethnobotanical remains: Flotate 4 (6E2N, level 3)

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Pinaceae	Abiesbalsamea needles	balsam fir	4	0
Rosaceae	Rubus (sp.)	raspberry	67	12
	Prunus (pensylvanica)	pin cherry	1	0
	Prunus (sp.: on dried fruit)	nutlet	2	0
Caprifoliaceae	Sambucus (canadensis)	common elder	16	6
Caryophyllaceae	Unknown	chickweed	0	16
Chenapodiaceae	Chenapodium (album)	lamb's quarters	8	0
Polygonaceae	Polygonum (sagittatum?)	smartweed	2	0
	Polygonum (natan?)	smartweed	1	0
	Polygonum (sp.)	smartweed	1	0
	Polygonum (sp.)	knotweed	0	1
	Unknown	unknown	3	0
Najadaceae	Rappia (maritima)	ditchgrass	5	0
Graminae	Echinochloa (crusgali)	barnyard grass	0	1
	Glyceria (sp.)	mannagrass	0	8
	Calagrostis (canadensis)	bluejoint	0	3
	unknown	grass	0	2
Compositae	Hieracium (sp.)	hawkweed	0	2
	Bidens cernua	nodding bur-marigold	0	4
Caryphyllaceae	Stellaria (sp.)	chickweed	2	0
Labiatae?	Unknown	nutlet	4	0
Unknown	Unknown	seed?	1	0
Totals			117	55

Table 5: Melanson site ethnobotanical remains: Flotate 5 (8E4N)

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Pinaceae	Abies balsamea needles	balsam fir	2	0
Rosaceae	Rubus (sp.)	raspberry	17	6
	Prunus (pensylvanica)	pin cherry	1	0
	Prunus (sp.)	nutlet	1	0
Ericaceae	Vaccinium (sp.)	blueberry	0	1
Caprifoliaceae	Sambucus (canadensis)	common elder	3	2
Chenapodiaceae	Chenapodium (album)	lamb's quarters	1	2
Najadaceae	Rappia (maritima)	ditchgrass	1	0
Graminae	Echinochloa (crusgali)	barnyard grass	0	1
	Glyceria (sp.)	managrass	0	5
	Calagrostis (canadensis)	bluejoint	0	1
Compositae	Hieracium (sp.)	hawkweed	0	5
Caryphyllaceae	Stellaria (graminea)	stitchwort	1	0
Caprifoliaceae	Unknown	honeysuckle	0	1
Corylaceae	Betula (sp.)	birch	0	1
Leguminosae	Trifolium (sp.)	clover	0	1
Totals:			27	26

Table 6: Melanson site ethnobotanical remains: Flotate 6 (8E4N)

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Pinaceae	Abies (balsamea)	fir needle	1	0
Rosaceae	Rubus (sp.)	raspberry	2	0
Caprifoliaceae	Sambucus (canadensis)	common elder	1	0
	Sambucus (sp.)	elder	0	2
Oxalidaceae	Oxalis (stricta)	yellow wood sorrel	0	2
Chenapodiaceae	Chenapodium (album)	lamb's quarters	0	4
Najadaceae	Ruppia (maritimis)	ditchgrass	2	1
Polygonaceae	Polygonum (sagittatum?)	smartweed	0	2
Graminae	Echinochloa (crusgali)	barnyard grass	0	1
	Glyceria (sp.)	managrass	0	1
Leguminosae	Trifolium (sp.)	clover	0	2
Totals:			6	15

Table 7: Melanson site ethnobotanical remains: Flotate 7 (18E2N), level 3).

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Pinaceae	Abies (balsamea)	fir needles	27	0
	Tsuga (canadensis)	hemlock needles	29	0
Rosaceae	Rubus (sp.)	raspberry	85	1
	Pyrus (sp.)	apple	1	0
Caprifoliaceae	Sambucus (canadensis)	common elder	18	0
Chenapodiaceae	Chenapodium (album)	lamb's quarters	6	6
Polygonaceae	Polygonum (sagittatum?)	smartweed	0	2
	Polygonum (hydropiper?)	smartweed	2	0
	unknown	knotweed?	1	0
	unknown	bud	2	0
Graminae	Echinochioa (crusgali)	barnyard grass	1	0
	Digitaria (ischaemum)	crabgrass	0	1
	unknown	grass	2	0
Anacardinceae	Rhus (typhina)	staghorn sumac	22	0
Compositae	unknown	composite	0	2
Umbelliferae	Daucus (carota)	wild carrot	0	2
Labiatae?	unknown	nutlet	3	0
Unknown	unknown	seed frags.	2	0
Totals:			201	14

Table 8: Melanson site ethnobotanical remains: Flotate 8 (18E2N, level 3).

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Pinaceae	Abies (balsamea)	fir needles	3	0
Rosaceae	Rubus (sp.)	raspberry	53	0
Caprifoliaceae	Sambucus (canadensis)	common elder	16	0
	Viburnum (sp.)	honeysuckle	1	0
Chenapodiaceae	Chenapodium (album)	lamb's quarters	3	12
	Chenapodium (sp.)	pigweed	4	1
Polygonaceae	Polygonum (sagittatum?)	smartweed	2	1
	Polygonum (hydropiper?)	smartweed	1	0
Graminae	Echinochloa (crusgali)	barnyard grass	0	9
	Digitaria (ischaemum)	crabgrass	0	3
	unknown	grass	7	1
Anacardinceae	Rhus (typhina)	staghorn sumac	118	0
Compositae	unknown	composite	0	1
Umbelliferae	Daucus (carota)	wild carrot	0	1
Caryphyllaceae	Stellaria (sp.)	chickweed	3	0
Cyperaceae	Carex (sp.)	sedge	0	1
	unknown	sedge	0	2
Labiatae?	unknown	nutlet	4	0
Unknown	unknown	seed frag.	1	0
Totals:			216	31

Table 9 Melanson site ethnobotanical remains: Flotate 9 (10E2N, level 3).

FAMILY	GENUS (SPECIES)	COMMON	CHARRED	UNCHARRED
Rosaceae	Rubus (sp.)	raspberry	2	23
Caprifoliaceae	Sambucus (canadensis)	common elder	1	0
Oxalidaceae	Oxalis (stricta)	yellow wood sorrel	1	0
Najadaceae	Ruppia (maritimis)	ditchgrass	0	2
Polygonaceae	Polygonum (sp.)	knotweed	0	1
Gramine	unknown	grass	0	1
Labiatae	unknown	nutlet	1	0
Totals:			5	31

APPENDIX F

The Ellis Gertridge Collection

For over 30 years, Mr. Ellis Gertridge of White Rock, made surface collections from the Melanson Site. The large collection is uncatalogued, but the artifacts below are definitely from the Melanson Site and in some cases, can be specified as to a particular farm or even a particular place on that farm.

In the summer of 1986, Mr. Gertridge was kind enough to bring his collection to the lab at Acadia for our examination. The following inventory, photographs and accompanying notes present a general look at the collection as of 1986 and are included as part of the overall objective of pulling together the various dispersed collections from Melanson. The scrapers, although recorded, are not included in the illustrations.

Inventory
(R. Nash, D. Kerr)

LITHICS	TOTALS
Projectile Points	
Notched (side, corner)	54
Stemmed, corner removed	62
Unnotched, unstemmed	50
Others (broken, asymm)	43
Scrapers	
End Scrapers	39
Marginal retouch tools	3
Bifaces	
Complete	123
Incomplete	156
Unifaces	14
Other Tools	
Celts, Adzes	7
Grooved axes	1
Abraders	1
Hammerstone	3
Triangle	8
Drill	1
Chisels	10
Other	17
Cores	5
Flakes	67
Misc.	3
Bone	
Worked	2
Unworked	
Shell	
Pottery	
Rims	31
Body Sherds	249
Bases	1
Clay Pieces	
Metal	1
Historic	
Crockery	3
Pipe fragments	13
Other	1

Projectile Points: Gertridge Collection
Nos. A - W

Specimen No.	Notes
A	possible Paleo-Indian point found on the Martin farm, near the Wellwood--Martin fence line and north of the old meander channel. Material is reddish-brown banded rhyolite. style: unnotched/unstemmed.
B	Melanson Site; rhyolite. Style: unnotched/unstemmed. Archaic?
C	Melanson Site; rhyolite. Style: unnotched/unstemmed. Archaic?
D	Wellwood farm, near the western property line, north of the meander channel; rhyolite. Style: unnotched/unstemmed. Archaic?
E	Same location as (D). Brown ignium rhyolite. Style: unnotched/unstemmed.
F	Melanson Site; vein quartz. Style: unnotched/unstemmed
G	Melanson Site; chalcadony: Style: unnotched/unstemmed
H	Melanson Site; chalcedony: Style: unnotched/unstemmed
I	Melanson Site; vein quartz. Style: unnotched/unstemmed
J	Melanson Site; rhyolite/chert? Style: stemmed
K	From near the Gaspereau River, south of the meander channel. Red and white chalcedony. Style: stemmed.
L	Melanson Site. rhyolite or jaspery chert. Style: side-notched
M	Melanson Site; green, fine-grained rhyolite or chert. Style: corner-removed stemmed
N	Melanson Site; brown quartzite, White Rock formation: Style: stemmed
O	Melanson Site; grey-green rhyolite. Style: corner-notched

Projectile Points of the Gertridge Collection (continued)

P Merck's farm (BgDb-3), upper terrace near river; vein quartz. Style: side-notched

Q Melanson Site: vein quartz. Style: stemmed

R Melanson Site; vein quartz. Style: stemmed

S Melanson Site; vein quartz. Style: side-notched

T Melanson Site; black meta-greywacke. Style: corner-notched

U Melanson Site; black, fine-grained rhyolite? Style: corner-removed/stemmed

V Melanson Site; vein quartz. Style: side-notched

W Melanson Site; brown chalcedoney. Style: corner-removed/stemmed

Most of these points would belong to the BgDb-4 sub area. There is said to be a tendency for the unnotched-unstemmed points to occur north of the meander channel, with the narrow, stemmed points occurring south of the meander channel. The illustrated examples were selected to reflect the stylistic variation.

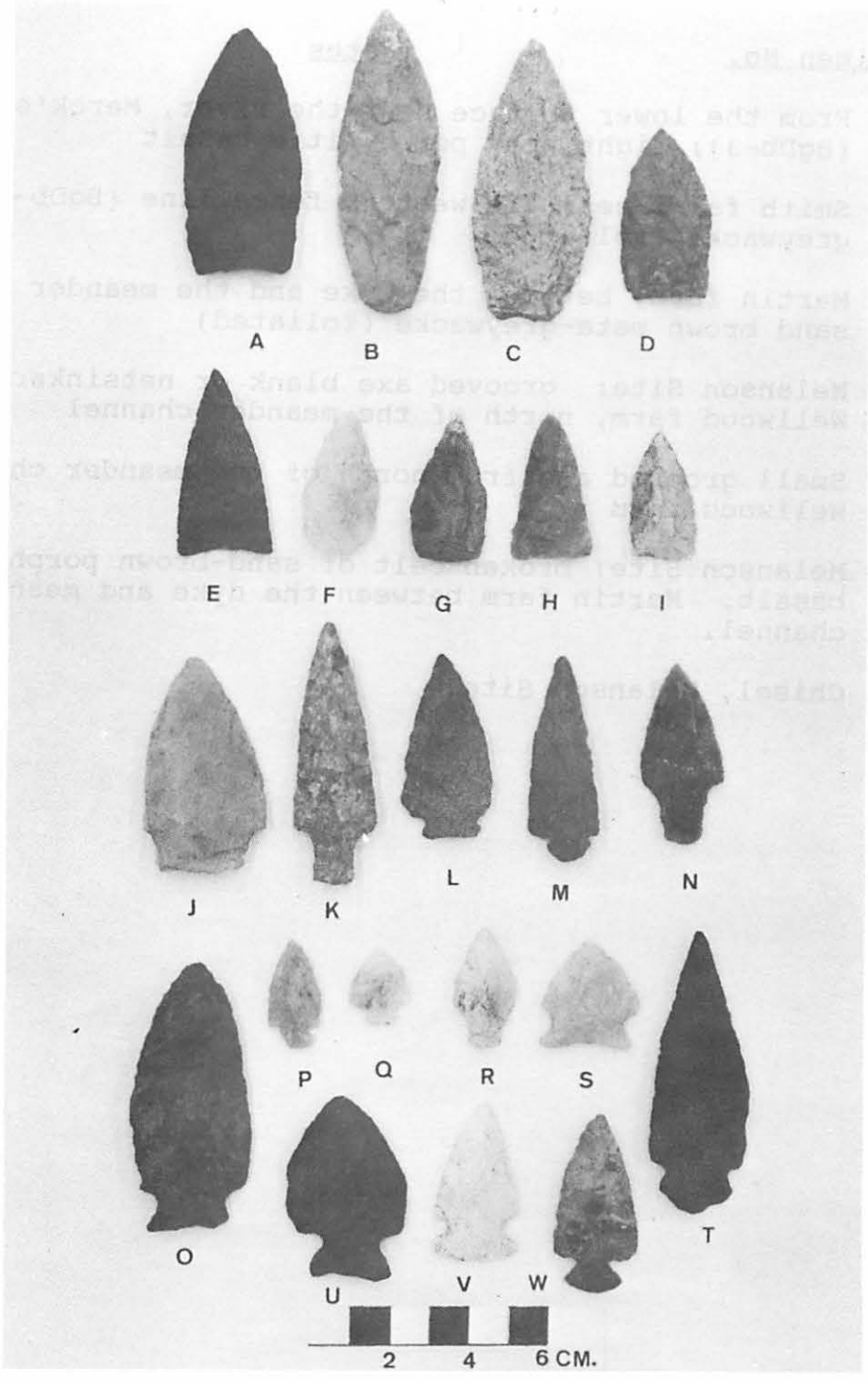

FIGURE 39: PROJECTILE POINTS, GERTRIDGE COLLECTION

Celts and Axes: Gertridge Collection
Nos. A - G

Specimen No.	Notes
A	From the lower terrace near the river, Merck's farm (BgDb-3); light grey porphyritic basalt
B	Smith farm, near the western fence line (BgDb-4); meta-greywacke (foliated)
C	Martin farm, between the dyke and the meander channel; sand brown meta-greywacke (foliated)
D	Melanson Site: grooved axe blank or netsinker. Wellwood farm, north of the meander channel
E	Small grooved axe from north of the meander channel, Wellwood farm
F	Melanson Site; broken celt of sand-brown porphyritic basalt. Martin farm between the dyke and meander channel.
G	Chisel, Melanson Site.

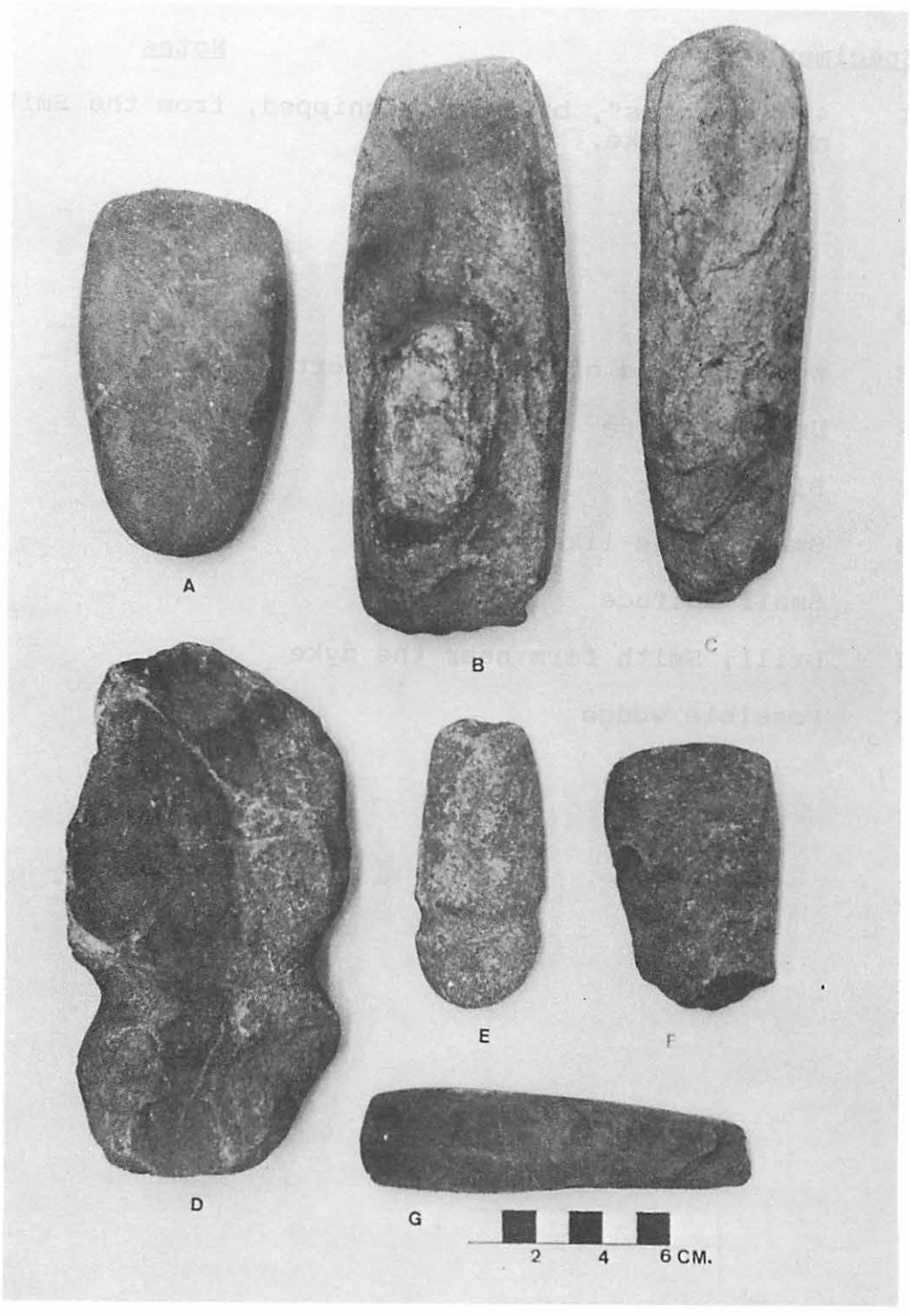

FIGURE 40: CELTS AND AXES, GERTRIDGE COLLECTION

Other Tools: Gertridge Collection
Nos. A - K

Specimen No.	Notes
A	4 "triangles", bifacially chipped, from the Smith farm, near the dyke.
B	
C	
D	
E	Worked piece of Ramah (?) chert
F	Uniface knife
G	Blunt point
H	Small gouge-like implement
I	Small uniface
J	Drill, Smith farm near the dyke
K	Possible wedge

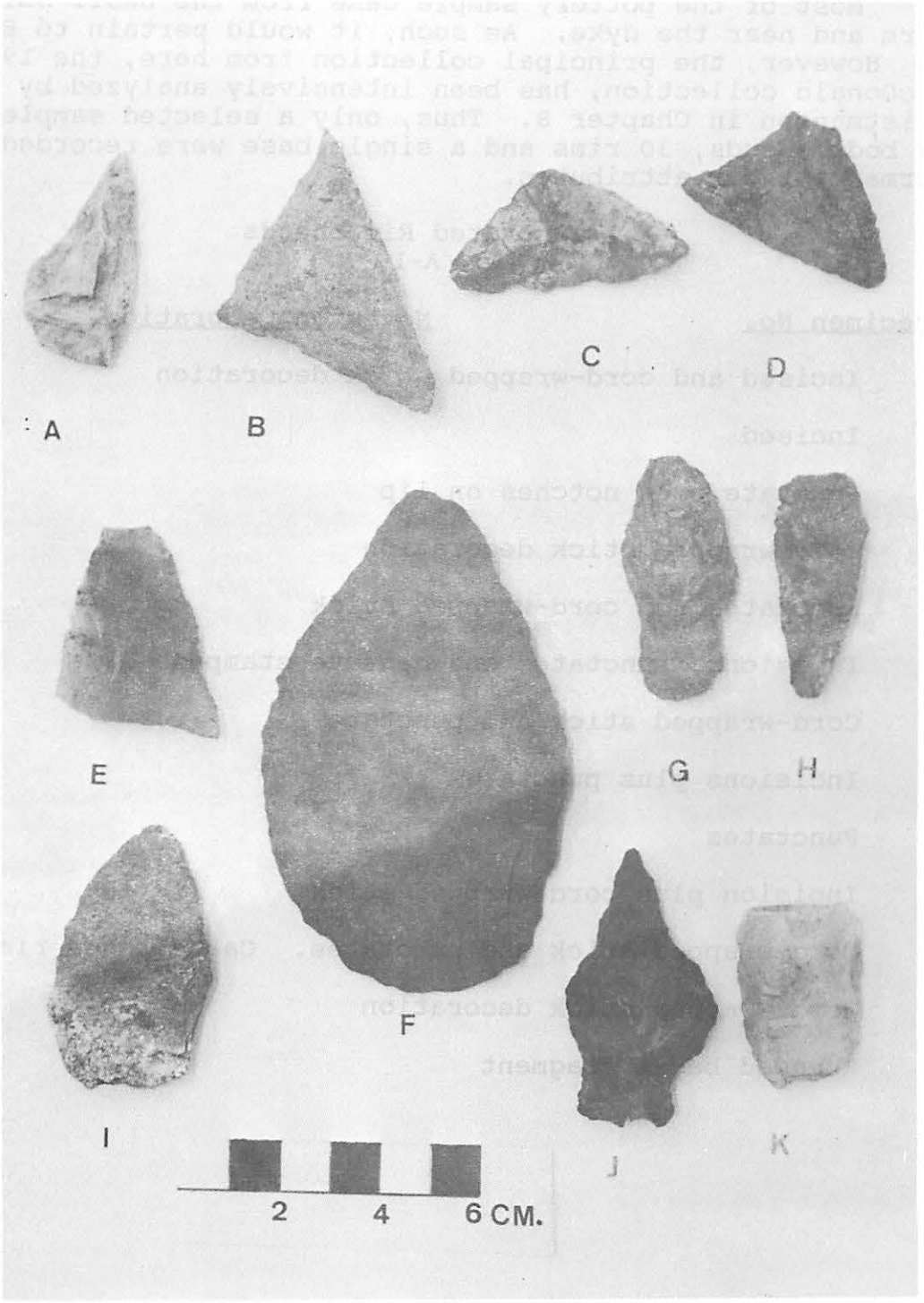

FIGURE 41: OTHER TOOLS, GERTRIDGE COLLECTION

Pottery: Gertridge Collection
Nos. A - M

Most of the pottery sample came from the Basil Smith farm and near the dyke. As such, it would pertain to BgDb-4. However, the principal collection from here, the 1965 MacDonald collection, has been intensively analyzed by Kristmanson in Chapter 8. Thus, only a selected sample of 11 body sherds, 30 rims and a single base were recorded in terms of their attributes.

Illustrated Rim Sherds
Nos. A-L, M

Specimen No.	Notes on Decoration
A	Incised and cord-wrapped stick decoration
B	Incised
C	Punctate plus notches on lip
D	Cord-wrapped stick decoration
E	Punctates and cord-wrapped stick
F	Incisions, punctates and dentate stamped
G	Cord-wrapped stick and punctate
H	Incisions plus punctates
I	Punctates
J	Incision plus cord-wrapped stick
K	Cord-wrapped stick and punctates. Castellated rim
L	Cord-wrapped stick decoration
M	Rounded basal fragment

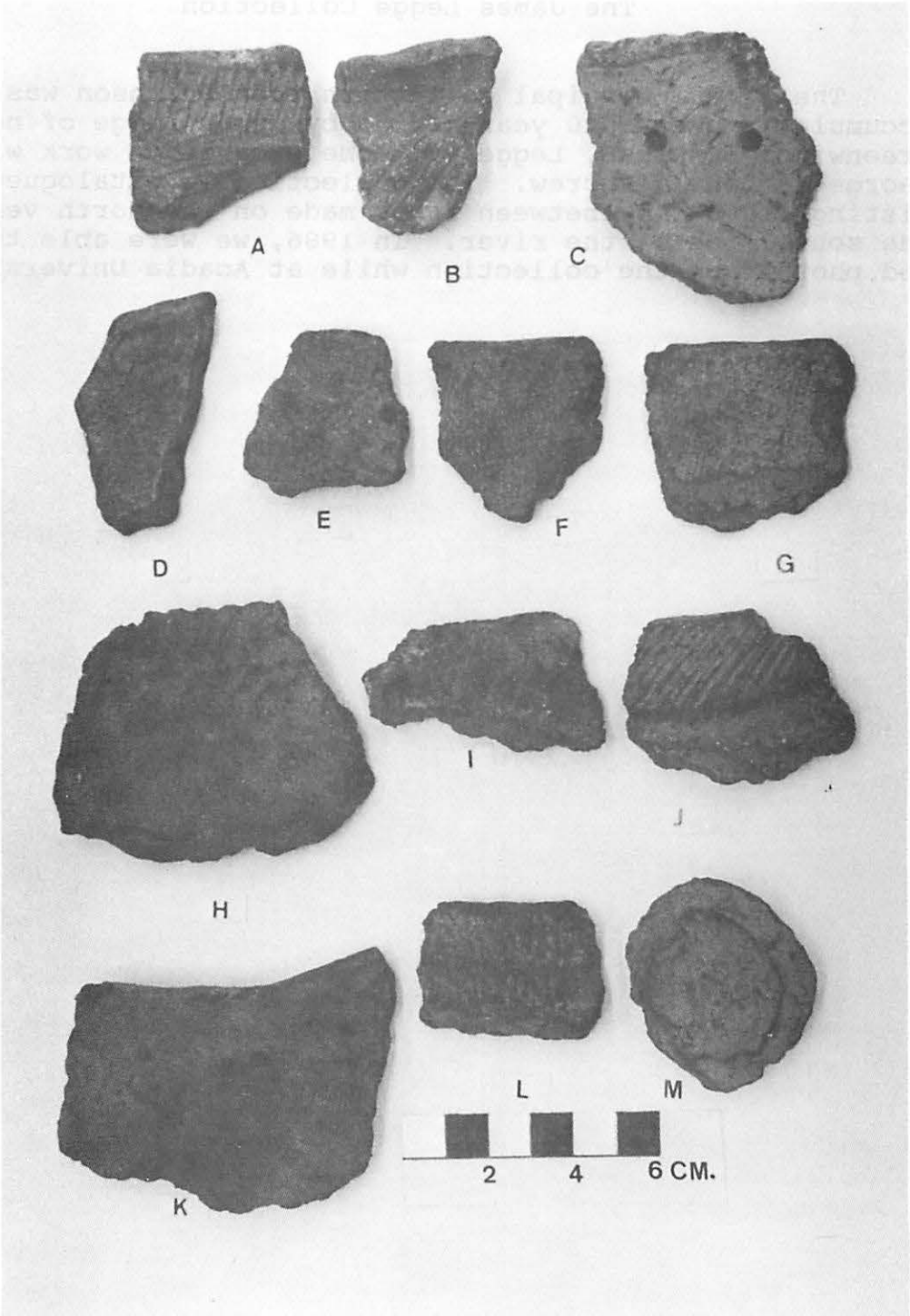

FIGURE 42: POTTERY, GERTRIDGE COLLECTION

APPENDIX G

The James Legge Collection

The other principal collection from Melanson was accumulated over a 20 year period by James Legge of nearby Greenwich. In 1965, Legge did some excavation work with George MacDonald's crew. The collection is catalogued, but distinguishes only between finds made on the north versus the south side of the river. In 1986, we were able to study and photograph the collection while at Acadia University.

Inventory
J. Legge Collection/Melanson Site
R. Nash

LITHICS	TOTALS
Projectile Points	
Notched (side, corner)	31
Stemmed, corner removed	82
Unnotched, unstemmed	33
Others (broken, asym.)	12
Scrapers	
End Scrapers	2
Marginal retouch tools	
Bifaces	
Complete	15
Incomplete	
Unifaces	
Other Tools	
Celts,	
Adzes	2
Grooved axes	
Abraders, whetstones	
Hammerstones	
Triangle	1
Drill	1
Chopper	
Chisels	
Other	6
Cores	
Flakes	
Misc.	
Bone	
Worked	
Unworked	
Shell	
Pottery	
Rims	9
Bodysherds	21
Bases	
Clay Pieces	
Metal	1
Historic	
Crockery	
Pipe fragments	
Other	

Projectile Points: Legge Collection
Nos. A - R

Specimen No.	Notes
A	From the south side of the Gaspereau River (BgDb-3); Red/beige chalcedony. Style: corner-removed/stemmed
B	From the south side of the river; sheared rhyolite, Nictaux source? Style: side-notched
C	North side of the river (BgDb-1,2,4); yellowish chalcedony-jasper. Style: unnotched/unstemmed
D	North side of the river; charcoal coloured rhyolite. Style: corner-notched
E	North side of the river; reddish quartzite. Style: side-notched
F	South side of the river, pink, purple and white coloured chalcedony. Style: stemmed bipoint
G	North side of the river, white chalcedony. Style: corner-notched
H	North side of the river, light brown quartzite. Style: stemmed
I	North side of the river, red-beige quartzite. Style: unnotched/unstemmed
J	North side of the river; black rhyolite, Nictaux locality? Style: side-notched
K	North side of the river; red-brown rhyolite, Nictau? Style: side-notched
L	North side of the river; mottled white rhyolite. Style: stemmed
M	North side of the river; dark grey meta-greywacke. Style: corner-removed/stemmed
N	North side of the river; translucent grey quartzite. Style: stemmed
O	North side of the river; black rhyolite. Style: assymetrical tang
P	North side of the river; beige quartzite, White Rock Formation? Style: unnotched/unstemmed

Projectile Points: Legge Collection (continued)

Specimen No.	Notes
Q	North side of the river; sandy quartzite. Style: unnotched/unstemmed. Archaic?
R	North side of the river; tan coloured quartzite. Style: unnotched/unstemmed

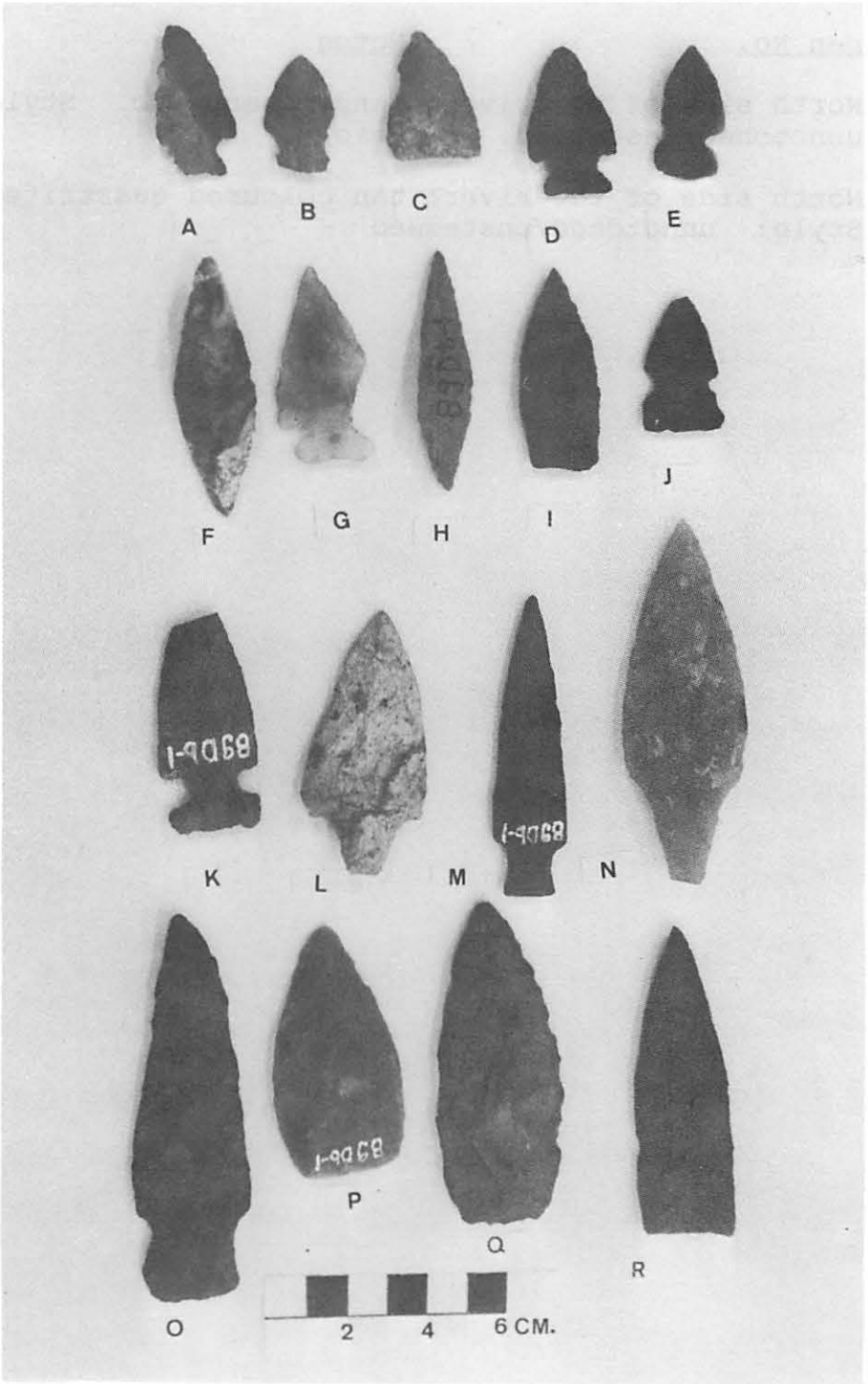

FIGURE 43: PROJECTILE POINTS, LEGGE COLLECTION