THE PARTRIDGE ISLAND SITE

THE PARTRIDGE ISLAND SITE:

EARLY AND MIDDLE WOODLAND-RELATED ASSEMBLAGES IN PASSAMAQUODDY BAY

By

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ABSTRACT

This thesis deals primarily with the description and analysis of archaeological material excavated at the Partridge Island site. A secondary focus is the assessment of assemblage variation, reflecting differences in site utilization, between island and mainland sites in Passamaquoddy Bay, New Brunswick.

Artifacts, features and supporting faunal data from two Partridge Island components are examined, first to ascertain the position of Partridge Island in relation to chronological sequences suggested for the Maine/Maritimes region. Comparison between Partridge Island assemblages and those from contemporaneous mainland sites is then provided.

The result of analysis of the Partridge Island data indicates that the site compares well with other Early and Middle Woodland-related assemblages throughout the Maine/Maritimes region. The sole exception to this is the presence of well documented and dated features, diagnostic artifacts and faunal remains, predating circa 2,000 B.P. that have not been identified elsewhere. Comparisons of artifact and feature forms from island and mainland sites do not suggest differing utilization of island and mainland sites, however, no firm conclusions can be drawn.

The problems of comparing sites in Passamaquoddy Bay are discussed and suggestions are offered for the direction of future research.

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INTRODUCTION

1. Introduction

Archaeological investigations of shell midden sites located on the shores of Passamaquoddy Bay, New Brunswick, began during the latter part of the nineteenth century. The early excavators who carried out their investigations, prior to the development of culture history sequences for the region, dealt primarily with problems of lifeway reconstruction. Baird (1881) examined the shellfish content of the Oak Bay midden in some detail. George Matthew (1884) reported on excavations at the Phil's Beach site. He was able to determine two distinct strata, numerous living floors and hearth and pit features. The distribution of artifacts was interpreted as reflecting areas of activity at the site. Subsistence data was also drawn from analysis of the faunal remains. Additionally, the historian, William Ganong (1899) published a list of historic and prehistoric sites in New Brunswick. Matthew, Baird, Ganong, and other individuals and organizations operating in New Brunswick and Nova Scotia around the turn of the century have been highly regarded as very early practitioners of problem-oriented archaeology (Connolly 1977).

For fifty years professional interest in New Brunswick shell midden sites was non-existent. During the 1950's a renewal of interest was prompted by survey and excavations sponsored by the Robert S. Peabody Foundation (Fowler 1966). Between 1960 and 1964 Richard Pearson (1971),

under the auspices of the National Museum of Canada, conducted a survey and some excavations in the St. Andrews area of Passamaquoddy Bay. David Sanger's Passamaquoddy Bay Archaeological Project, jointly funded by the National Museum of Canada and the Province of New Brunswick, was undertaken to establish a regional chronology. "Survey and excavation from 1967 to 1970 resulted in the location of more than fifty sites, the excavation of eight, and the recovery of over 4,500 artifacts, not including unused flakes, small pottery sherds, etc." (Sanger 1971:15).

These more recent inquiries into shell midden archaeology documented the prehistory of Passamaquoddy Bay from about 2,000 years ago to roughly 400 years ago. This sequence began with the introduction of ceramics to the region and the spread of the shell midden site. The regional chronology constructed focused upon changes in ceramic decoration and projectile point morphology. The earliest examples of ceramics "...share many attributes with the Point Peninsula wares such as dentate and rocker dentate design, some pseudo scallop motifs, and later cord wrapped stick impressed pottery." (Sanger 1971:16). Projectile points were noted to change through time "...from the stemmed forms to those with wide corner notches, to specimens with narrow corner and side-notching." (Sanger 1971:16). Other stone tools, such as scrapers and drills as well as organic tools, such as the modified beaver incisor, bone harpoons, awls and needles were also uncovered from the shell middens (Sanger 1971:17). The 'semi-subterranean' house form discussed in detail by Stephen Davis (1978), was also identified as a characteristic of many shell midden sites prehaps, representing a winter shelter (Sanger 1971:

17). Analysis of faunal remains suggested possible year round habitation of the shell midden sites as well as demonstrating a broad subsistence base which included marine and terrestrial mammals, birds and fish as well as shellfish (Burns 1970a; 1970b; Churcher 1963; Matthew 1884; Pearson 1971).

During the past five years investigations have included salvage work at the Minister's Island site (Ferguson and Turnbull 1980), as well as additional surveys along the more easterly reaches of the Bay (Davis and Christianson 1979; Davis and Ferguson 1980), an area essentially neglected by earlier work. None of these archaeological excursions had been designed to amplify or refine chronological data or subsistence, seasonality and settlement information obtained by earlier work.

Prior to 1981, all studies examined sites located on mainland shores or, as in the case of Minister's Island, on islands sufficiently close to the mainland to be accessible by foot at low tide. Because of this, the relationship of island sites to general patterns and sequences established for mainland Passamaquoddy Bay was totally unknown.

The 1981 project at Partridge Island was initiated to examine an hypothesis posited by the author and others regarding offshore island sites (Sanger 1982:202; Turnbull 1981:personal communication). The hypothesis is that island sites differ from contemporaneous mainland sites in terms of the degree of maritime specialization.

A number of implications follow from this hypothesis. The first is that island sites will bear evidence of heavier utilization of sea mammal and/or fish resources than will mainland sites. The second is that there will be a restricted seasonality of island site utilization,

relative to mainland sites. Offshore islands would be inaccessible at many times of the year and also would not provide the direct access to inland resources known to be exploited by those living on the mainland. The third is that variation in artifact and feature forms, related to the differences in site utilization patterns, will be found. Differences between site assemblages with close temporal and cultural affinities would be reflected, not in formal attributes, but rather in the percentages of functional tool types recorded. For example, if a group of people were using a mainland coastal site, in part as a base for exploiting inland mammal species, one might expect to recover numerous chipped stone projectile points or bifacial knife blades utilized in both hunting and the butchering of animals. The same group visiting an island to fish might be expected to leave fewer projectiles and more hooks, netsinkers, and/or harpoons. Additionally, if an island site was utilized for a restricted period of time during a year, one would not expect to find large and complex habitation features which usually suggest a degree of permanency to site occupation (Ritchie and Funk 1973:eg. 3-5, 41-44, 337-339).

This thesis focuses primarily upon the third implication. First, analysis of an offshore island site, Partridge Island, is provided. Variability in the feature and artifact collections of Partridge Island, Teacher's Cove, Minister's Island, Pagan Point and Sandy Point (also known as Sand Point) is discussed. Other Passamaquoddy Bay sites, for example, the Carson site, are not addressed because they fall outside the temporal range delineated by radiocarbon dating of the Partridge Island site and thus are not comparable analytic units. Supporting subsistence and seasonality data will be drawn

study of the Partridge Island site (Black 1982), and varied other sources on the comparative sites. This work concludes, contrary to the original implication, that variability cannot be demonstrated at the present stage of research. The reasons for this conclusion are discussed.

Comparative studies of this type are rare in the Passamaquoddy Bay region. It is hoped this work will provide a base for future and more refined comparative studies.

2. Study Limitations

A number of problems were encountered during the course of this project. These included logistical difficulties which severely restricted the extent of excavations and thus the sample size. Also, difficulties were encountered in locating complete site reports for comparative study. A lesser problem regarding nomenclature peculiar to the Maine/Maritimes region was also met.

Access to Partridge Island was only possible via water transport which was impossible or extremely dangerous during fog or storm conditions. Of the ninety-five days spent in the general area of the site, weather conditions permitted excavation on only forty-five (Black 1981). This combined with fluctuating numbers of crew (from two to six persons), reduced the area excavated from an anticipated low of 75 square meters to a figure of 24.5 square meters. As it became apparent that very little of the site could be excavated, an attempt was made to sample deposits near the shoreline, along the inland extent of the site as well as centrally located deposits.

As a consequence of our limited excavations, only a small

sample of artifacts were recovered. The artifacts consisted of 22 lithic, and 30 organic artifacts, plus 470 ceramic fragments representing 22 individual vessels. Small sample size constituted a relatively serious problem at the comparative level. Many diagnostic artifact categories were absent or poorly represented in the sample and it was largely impossible to safely say whether this phenomenon reflected cultural differences or was simply a function of the limited sample. However, the ceramic element of the artifact collection was adequate compared to collections from other sites such as Teacher's Cove where a total of 234 fragments representing 19 vessels with rims was considered a fairly reasonable sample (Davis 1978:26). As a result the comparative study was strongly biased towards information derived from ceramic analysis.

Literature search for detailed studies of other Passamaquoddy Bay shell middens provided a frustratingly inadequate base from which to work. Only two sites, Sandy Point (Lavoie 1972) and Teacher's Cove (Davis 1978) were fully analyzed, although numerous short articles (eg. Fowler 1966; Pearson 1971: Sanger 1971; 1982) outlined chronological sequences for the region and provided isolated references to specific sites. This drawback was in part circumvented by examination of the numerous Passamaquoddy Bay site collections housed at the Archaeological Survey of Canada. Field records were also available in some cases and were invaluable in providing data on the features found at other sites. Nonetheless the extent of comparative material varied from site to site.

The final difficulty, regarding nomenclature, stems from a decision made in the early 1970's by "...archaeologists working in the

Maine-Maritimes regions...not to use named types and to declare a moratorium on naming new cultures." (Sanger 1979:8) A further result of this meeting was labelling the period of time after about 2,000 B.P. as the Ceramic period rather than using the Woodland terminology defined for areas further south and west (Ritchie 1980:199-324). This simplification in classification has, however, caused some question regarding how best to integrate the separate Maine-Maritime term (Ceramic period) with the traditional, and far more widely used and accepted Woodland designation. The crux of the issue appears to focus on the absence of many classic Woodland traits from Northern Maine and Maritimes collections; for example, agriculture, triangular points and Vinette 1 type ceramics. Despite this, certain characteristics are shared in some contexts, such as the presence of Adena-related mortuary ceremonialism in New Brunswick (Turnbull 1976) and certain attributes of ceramic decoration, particularly during the Middle Woodland period of Northeastern prehistory (Bourque 1971:189; Sanger 1971:16).

Throughout this thesis, I have consistently utilized Woodland nomenclature, primarily as a time unit but also as a form unit (see Stoltman 1978) with the deliberate intent to imply a spatial relationship between the archaeological assemblages of the Maine-Maritime region and other regions of the Northeast.

II

PARTRIDGE ISLAND: THE ENVIRONMENT AND THE ARCHAEOLOGY

1. The Locale

Partridge Island is part of the Campobello-Deer Island archipelago, an area also known as the West Isles (Barto 1975). The archipelago stretches across the mouth of Passamaquoddy Bay at the western end of the Bay of Fundy. Partridge Island lies in the northerly sector of the archipelago between Deer and Parker Islands (Figure 1). This area is geologically within the Mascarene formation which is characterized by isoclinally folding gray and black shales, phyllites, and siltstones (Ruitenberg 1968:9).

Partridge Island is approximately .41 kilometers long and .16 kilometers wide (MacKay, Bosien, and Wells 1978:12) and consists of three hillocks covered by a shallow gravelly soil (Figure 2). Two of the knolls are joined by a narrow swampy area and form the larger portion of the island. The third area of the island has the highest elevation, is generally unwooded, and is separated from the rest of the island by a tidal channel at all but the lowest high tides (Black 1981:1).

At present Partridge Island, and the rest of the Campobello-Deer Island archipelago, falls within the Southeastern Mixed forest (Acadian Forest) vegetation zone, a transitional area between deciduous and boreal forest regions (Clayton, Ehrlich, Cann, Day and Marshall 1977:89). Characteristic tree species of this zone include the red spruce

Figure 1: The Campobello-Deer Island Archipelago

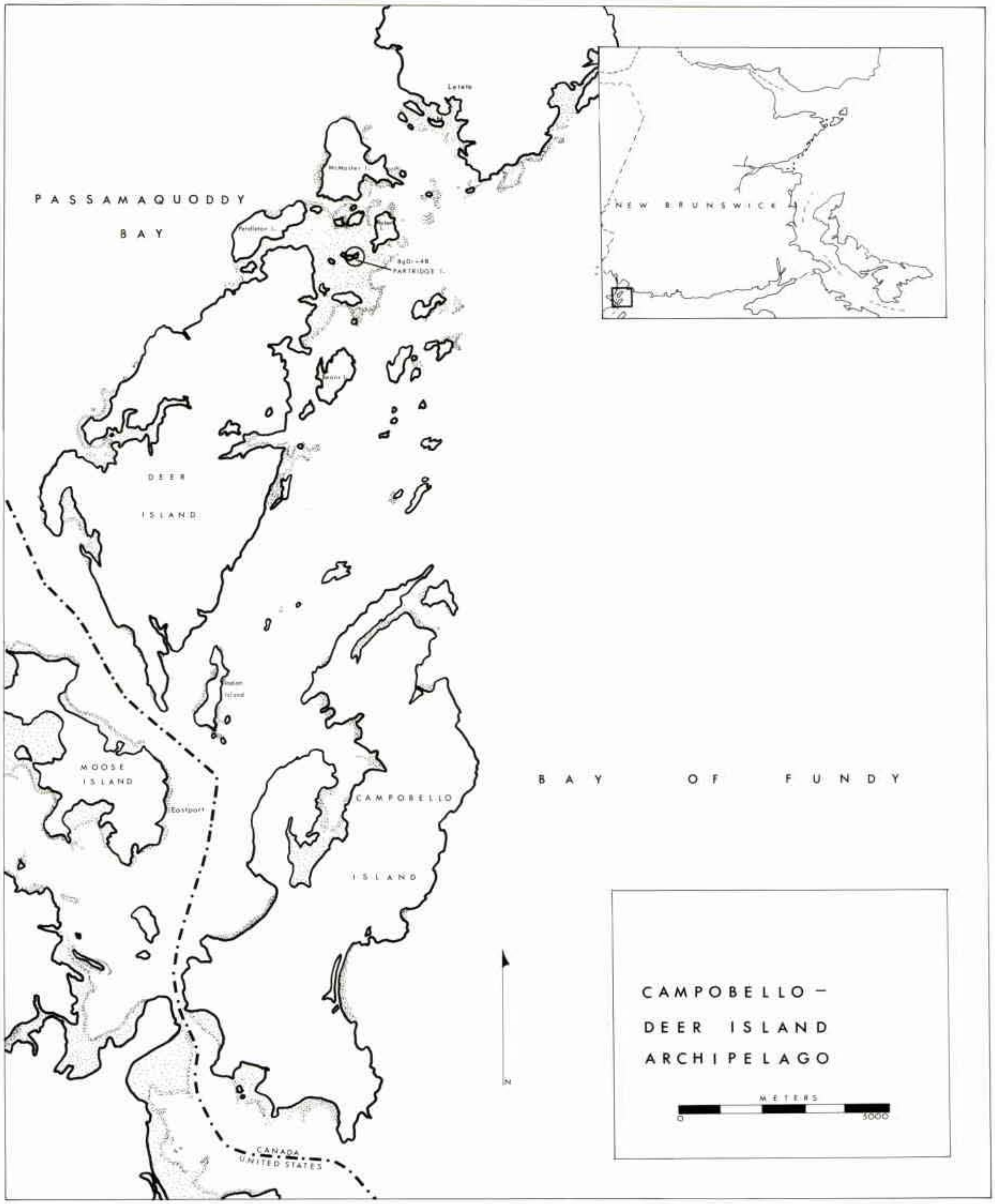
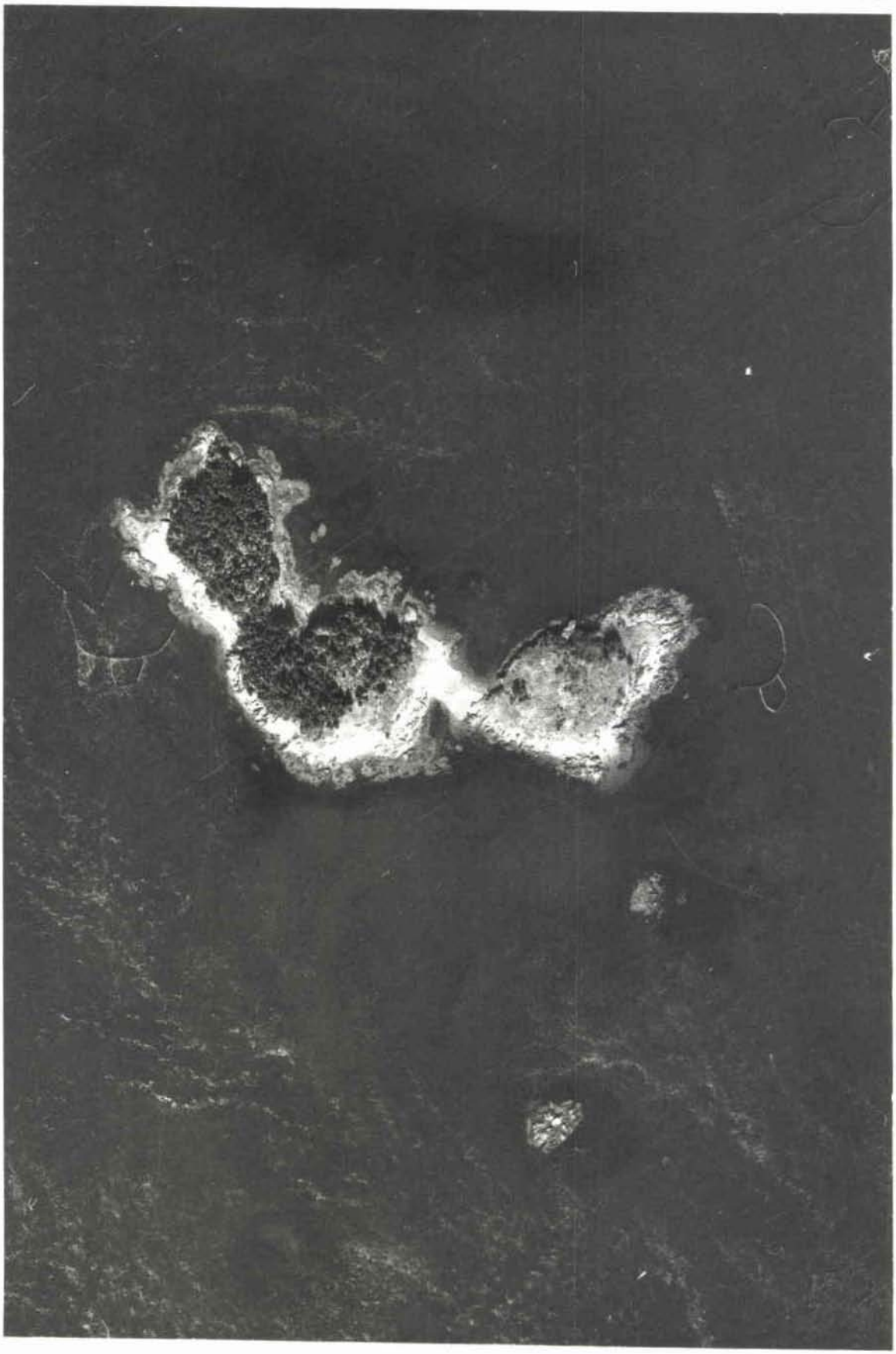

PASSAMAQUODDY
BAY
Letete
McMaster I.
Pendleton I.
PARTRIDGE I.
NEW BRUNSWICK
DEER
ISLAND
MOOSE
ISLAND
Eastport
CAMPOBELLO
ISLAND
BAY OF FUNDY
CANADA
UNITED STATES
N
CAMPOBELLO –
DEER ISLAND
ARCHIPELAGO
METERS
0
5000

Figure 2: Aerial Photograph of Partridge Island



(Picea rubens), balsam fir (Abies balsamea), yellow birch (Betula lutea), and sugar maple (Acer saccharum). Lesser but significant species consist of the red and white pine (Pinus resinosa and P. strobus), and hemlock (Tsuga canadensis) (Clayton, Ehrlich, Cann, Day and Marshall 1977:90).

The flora noted on Partridge Island included black spruce (Picea mariana), white spruce (Picea glauca), and balsam fir (Abies balsamea). Flowering plants included the beach pea (Lathyrus japonicus), ox-eye daisy (Chrysanthemum leucanthemum), common buttercup (Ranunculus acris), bull thistle (Cirsium vulgare), wild mustard (Brassica spp.), bramble (Rubis spp.), and wild iris (Iris spp.).

Climatically, the region is considered Boreal prehumid, moderately cool and damp (Clayton, Ehrlich, Cann, Day and Marshall 1977:90). The strong maritime influence of the Bay of Fundy causes the Campobello-Deer Island area to have cooler summers and warmer, more rainy winters than adjacent mainland regions (MacKay, Bosien, and Wells 1978:11).

2. The Prehistoric Setting

Prehistorically, the environment and geography of Partridge Island and surrounding areas were somewhat different than present. Though glacial and postglacial events in the Maritimes are still under debate, recent studies of foraminifera found in sediment core samples from raised basin lakes in the Maritime provinces suggests that Southwestern New Brunswick was an ice-free and emerging land mass about 16,000 years ago (Scott and Medioli 1980:442). Definitely, by about 12,000 years ago most of the Maritime region was ice free and submerging, rather than isostatically rebounding. Environmentally the region was characterized by a boreal parkland vegetational zone (Davis 1969:317-332; Davis,

Bradstreet, Struckenrath and Borns 1975:447-450).

The period of time from about 5,000 years ago to 2,000 years ago was most critical in shaping the environment within which the prehistoric occupants of Partridge Island lived. Prior to 5,000 years ago, the present Passamaquoddy Bay was part of a "...near tideless body of water known as the DeGeer Sea..." (Sanger 1979:19). The submergence of Georges Bank in the Gulf of Maine led to increasing tidal amplitude in the area which, combined with world wide rising sea levels caused even more rapid coastal submergence. The most dramatic increase in tidal amplification occurred between about 4,000 and 2,000 years ago (Grant 1970:686). The effect of increasing tidal activity was to create, in combination with changing wind, water current patterns, and water temperatures (Grant 1970:687), a cold but very productive body of water supporting a broad range of fish, sea mammal and avian species (Sanger 1979).

Palynological data from the Maine-Maritimes region indicate that a temperate climate, characterized by conifer-hardwood forests, existed by 5,000 B.P. (Davis, Bradstreet, Struckenrath and Borns 1975:450; Mott 1975). From about 4,700 to 2,000 years ago, the climate may have been warmer than at present with pollen analysis indicating a hardwood-dominated mixed forest. After about 2,000 B.P., increasing environmental severity indicated by the increasing presence of spruce pollen is suggested (Davis, Bradstreet, Struckenrath and Borns 1975:455).

Very briefly then, during the period when Partridge Island was occupied prehistorically, sea levels were somewhat lower than at present. Based on present ocean bottom topography and a submergence

rate in the Bay of Fundy of as much as 30 cm per century (Grant 1977:144; Simonsen 1979:8), Partridge Island would have been closer to neighbouring islands, though still separated by channels of water. The climate was somewhat warmer than at present; however, inhabitants of the coastal regions would have had to contend with increasing cooling as well as rising sea levels.

3. Archaeological Sites Of Partridge Island

Two sites of a purported prehistoric nature were found on Partridge Island by Davis and Ferguson during a 1980 survey of the Campobello-Deer Island region (1980). One, BgDr-49 (Latitude 45° 01' 31" north, Longitude 66° 55' 42" west) was located on the northeast end of the main, wooded island. This site was tested in 1981 and contained only limited historic material (Appendix I). BgDr-48, (Latitude 45° 01' 28" north, Longitude 66° 55' 42" west), hereafter referred to as the Partridge Island site, was discovered at the southeast end of the main island bordering the channel. It consisted of a substantial shell midden presumed to be prehistoric in nature.

The Partridge Island site was selected for excavation for a number of reasons. First, the island had neither been occupied nor farmed historically and the site appeared undisturbed. Secondly, the original survey report indicated that 25% of the total remaining site area would be lost in the next five to ten years to coastal erosion. Subsequent recommendations to extensively test or excavate the site were considered in site choice (Davis and Ferguson, 1980). A third factor in choosing the site was that permission to excavate could be obtained from the landowner.

The Partridge Island site is bounded to the northwest by stands of fir and spruce. The beach bordering southerly and easterly site extensions consists of folded rock outcrops and deposits of storm beach gravel. The site proper slopes gently south-east towards the beach. At the time of excavation, it was covered by assorted wild grasses, and low bush plants listed in the floral description of the island (Figure 3).

Due to extreme coastline erosion common in the Maritime Provinces (Simonsen 1978), the original extent of the site will never be known. At present the area of prehistoric deposition, determined by visual inspection of surface deposits and shovel probing, covers a triangular area about 800 m^2 (Black 1981:2). The volume of the site based on an average depth of 40 cm for the cultural deposits is about 320 m^3 (Black 1981:2).

4. Excavation Methodology

The site was initially gridded on a main north/south line oriented 35° east of magnetic north and a series of parallel east/west lines set at 90° to the main line. Stakes were set at 10 m intervals across the main site and extended across the island clearing at 15 and five meter intervals to facilitate tying BgDr-49 into the same grid. A vertical datum was established on the site and a second was located on the most easterly hillock of the island.

As previously mentioned, the necessity of commuting by boat to the site, which was impossible in inclement weather, and the small, fluctuating numbers of crew severely restricted the extent of excavation

Figure 3: The Partridge Island Site (Looking East At The Bay Of Fundy)

that could be carried out. With an average crew size of four persons, it was possible to excavate nine units representing 4% (17.54 m^3) of the site (Black 1981:6). All units, except #6, were located within the site boundaries (Figure 4).

The placement of excavation units was related primarily to examining a number of areas of the site in order to determine relative homogeneity or variation of midden form, feature types and artifact clusters. Unit #1 was excavated in hopes of examining the depositional sequence at the front of the site, as well as to recover artifactual material. Unit #2 was positioned at the back of the site to examine depositional variation across the site, as well as to locate structural features purportedly more common in areas away from the shore (Davis 1981:personal communication). Units #3 and #9 were set adjacent to Unit #2 in order to uncover more of Feature #2 .

Units #4, #7 and #8 were established in the deeper midden deposits of the site primarily to collect artifacts and examine stratigraphy. Units #5 and #6 were opened in order to examine both the northerly extent of the site and to take into account the possibility that major areas of settlement might be north of the midden deposits.

The site was excavated in 10 cm arbitrary levels; however, when it became apparent that certain stratigraphic layers were fairly distinct, materials were recorded with reference to the natural stratigraphy, either shell or non-shell deposits, within the 10 cm levels. Due to the complexity of overlapping features in Unit #3, levels 3 to 6 were removed at 5 cm intervals.

In addition to the excavation units, twenty-one column samples

Figure 4: Partridge Island (BgDr-48) Site Map

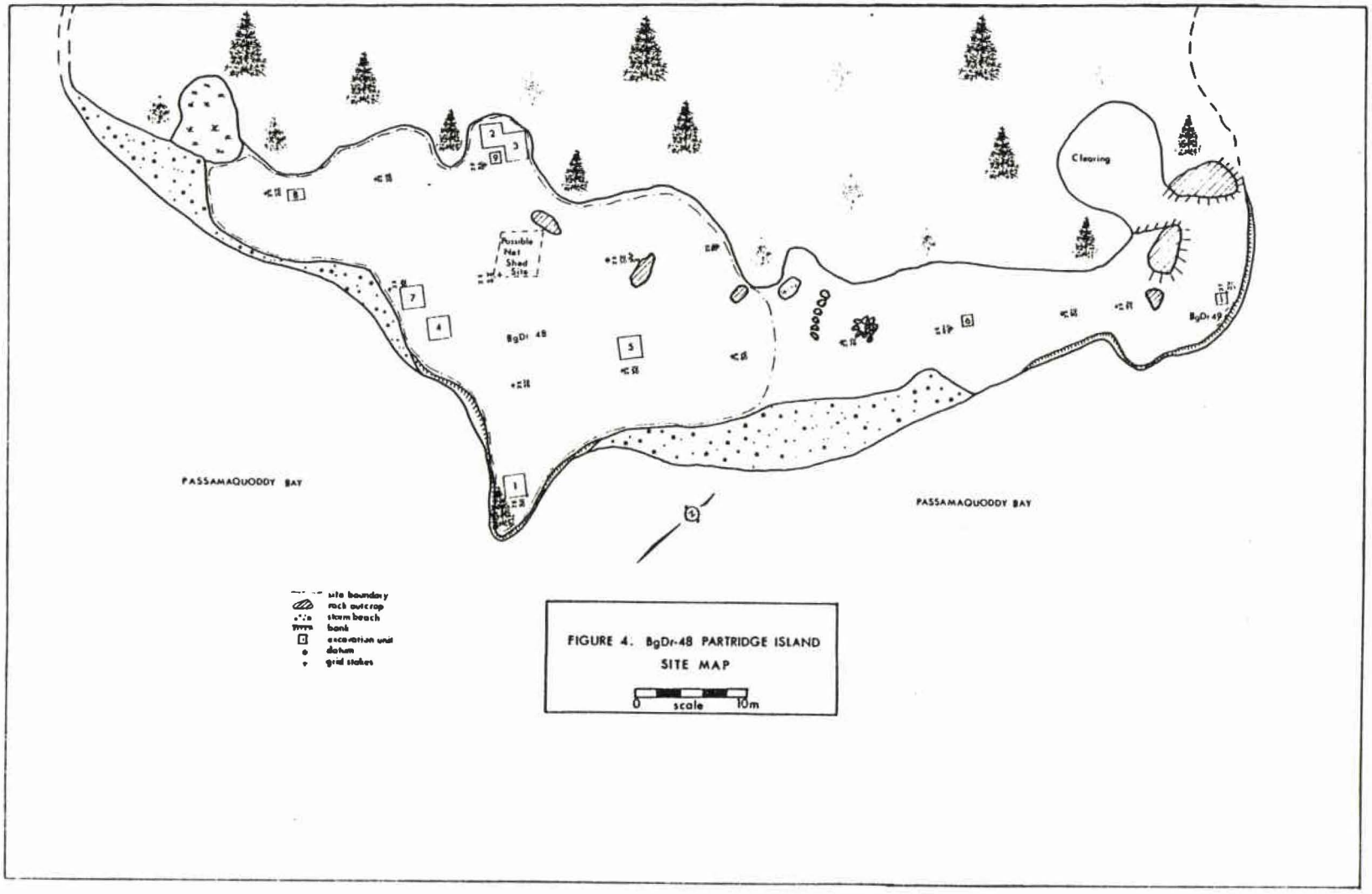


FIGURE 4. BgDr-48 PARTRIDGE ISLAND SITE MAP

0 scale 10m

were removed from "...areas where stratigraphy was judged to be interesting, and, to some extent, in areas where they would intersect the most stratigraphic units recorded on the profile diagrams." (Black 1981:7) Table 1 lists the provenience of all column samples. Detailed analysis of the samples is forthcoming in the form of a Master's thesis presently being written by David Black.

Except for the sod layer, which was removed with sod cutters and shovels, excavation of midden deposits was performed by trowel. All stratigraphic deposits were sifted through 1/4 inch wire screen to recover artifactual material overlooked during excavation.

Exact provenience of artifacts and features were recorded and features were mapped and photographed. Level floor plans and wall profiles were drawn and photographed in black and white and colour. Photographs, and xerox copies of all field records and drawings, are presently on file with the Department of Historical and Cultural Resources of the Province of New Brunswick.

5. Site Disturbance

Evidence was procured by excavation, and in conversation with Deer Island residents, to suggest that Partridge Island was utilized in historic times. Remains of a possible net shed were located within the boundaries of the shell midden; however, these remains did not penetrate to the depth of the prehistoric deposits. Unit #1 and #6 contained a few historic artifacts in their respective sod layers. Descriptions of the historic artifacts can be found in Appendix I.

The most destructive agent on the site appears to have been ants, who built large hills from shell and soil deposits associated with

TABLE 1: Column Sample Provenience*

Sample #		1	2	3	4	5	6
Unit #		1	2	2	1	1	1
Co-ordinates:	North	40.0-40.2	40.0-42.2	41.2-41.4	39.0-39.2	37.8-38.0	40.0-40.2
	West	41.3-41.5	41.2-41.4	43.5-43.7	12.0-12.2	10.3-10.5	10.8-11.0

Sample #		7	8	9	12	13	14
Unit #		5	5	5	6	9	3
Co-ordinates:	North	52.0-52.2	50.2-50.4	49.8-50.0	83.0-83.2	41.2-41.4	42.8-43.0
	West	21.6-21.8	23.0-23.2	21.2-21.4	19.3-19.5	39.8-40.0	39.8-40.0

Sample #		15	16	17	18	19	20
Unit #		3	3	8	4	4	4
Co-ordinates:	North	44.0-44.2	44.6-44.8	23.2-23.4	33.0-33.2	33.9-34.1	27.0-27.2
	West	42.2-42.4	42.5-42.7	40.0-40.2	27.0-27.2	26.8-27.0	34.3-34.5

Sample #		21	22	23
Unit #		7	7	7
Co-ordinates:	North	30.9-31.0	31.6-31.8	33.0-33.2
	West	28.7-28.8	30.0-30.2	29.3-29.5

* Sample #'s 10 and 11 were taken from BgDr-49 and were not included in this study.

the sod level of the site. Rodent activity on the island was extensive, but did not occur in the vicinity of shell deposits.

III

AN ANALYSIS OF PARTRIDGE ISLAND ARCHAEOLOGICAL DATA

1. Introduction

The objectives of analysis of non-artifactual and artifactual materials recovered from the Partridge Island site were three-fold. First, it was recognized that detailed studies of individual sites excavated in the Passamaquoddy Bay region were extremely limited. Therefore, a complete description of the Partridge Island site was deemed necessary, even where not directly applicable to the primary research objectives. Secondly, in order to meet the demands of comparison, analysis was closely modelled after that performed on other collections to provide a base for subsequent correlations. Finally, elements used in assessing the affinities between site collections had to be selected for both temporal and spatial sensitivity.

Stratigraphy was treated in general descriptive and classificatory terms important in understanding the nature of the site and the distribution of artifacts and features within the midden. Features were described with reference to particular characteristics of form and content, and grouped according to functional interpretations. All artifactual material was analyzed according to presence or absence of attributes selected with reference to the objectives stated above. In some cases categories of artifacts were also discussed in type format based on initial attribute analysis. Functional interpretations were also

suggested for various artifact groupings.

Two stratigraphic components, 20 features and 205 artifactual items, including 30 bone and antler implements, parts of 22 ceramic vessels, one copper fragment and 152 pieces representing both lithic implements and manufacturing debris were examined. Numerous carbon samples, four of which were submitted for assay, were also collected. Also recovered from the site were 3940 pieces and fragments of bone and antler, and the 21 column samples containing examples of the marine invertebrates comprising the midden matrix.

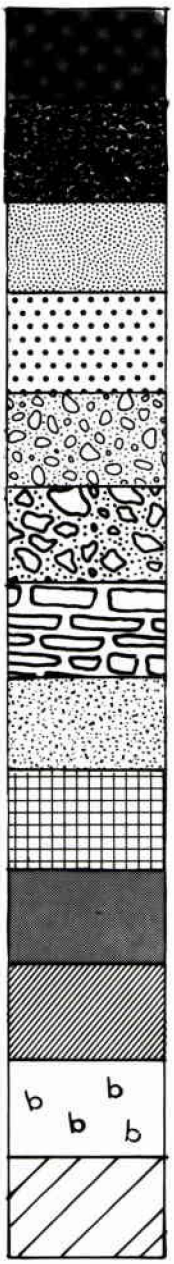
2. Stratigraphy

The natural stratigraphy of Partridge Island consisted of a humic sod layer covering assorted mottled brown (Munsell 10YR 5/8), gray (Munsell 10YR 7/5), and greenish (Munsell 2.5Y 6/2) soils overlying bedrock (Figure 5; Figure 6). The depth of the natural deposits varied from 3 or 4 cm up to 40 cm. Natural soil and culturally altered strata, within the boundaries of the site were far more complicated and ranged in depth from 40 cm near the back of the site to as much as 90 cm near the center. The range in depth of cultural deposits was 15 to 85 cm.

Within the site boundaries, each unit was capped by a 2 to 10 cm layer of dark coloured humic soil containing finely crushed shell and the roots of various grasses. Below this deposit, composition varied greatly. For example, Unit #8 (Figure 7) contained a deposit of crushed shell, gravel and soil, underlain by a gravel lens with some soil matrix set on orangy (Munsell 10YR 5/6) subsoil. In contrast,

Figure 5: Key to Figures 6,7,8,9,10,12 and 13

KEY TO FLOOR PLAN AND PROFILE DRAWINGS



SOD

BLACK, HUMIC SOILS

MOTTLED BROWN SOILS

RED/BROWN SOILS (SUBSOIL)

GRAVEL (DARK SOIL MATRIX)

SHELL AND GRAVEL

GRAVEL (LIGHT SOIL MATRIX)

WHOLE AND CRUSHED SHELL

ASH

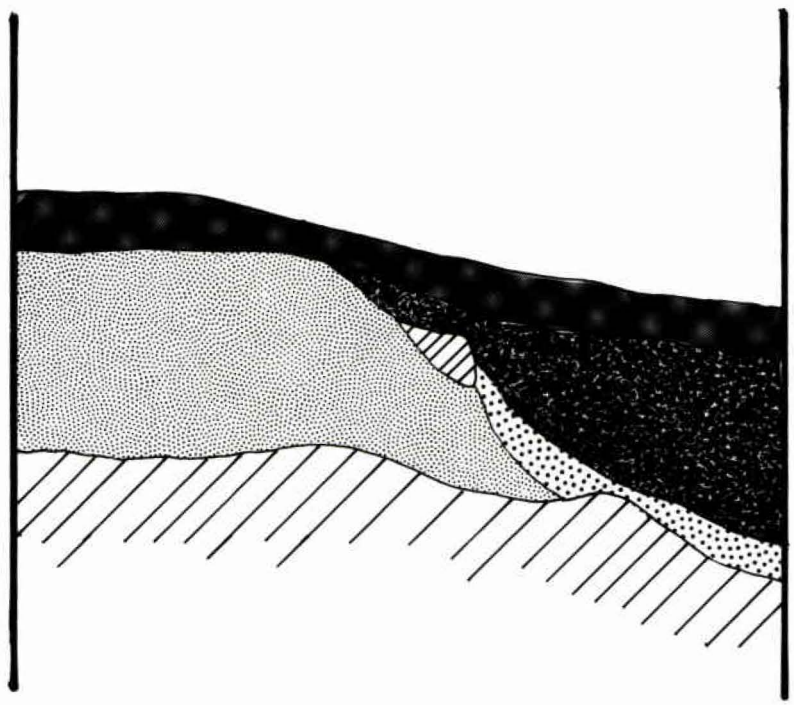
CHARCOAL

RED STAIN

BONES

ROCK

Figure 6: Unit #6, North Wall Stratigraphy

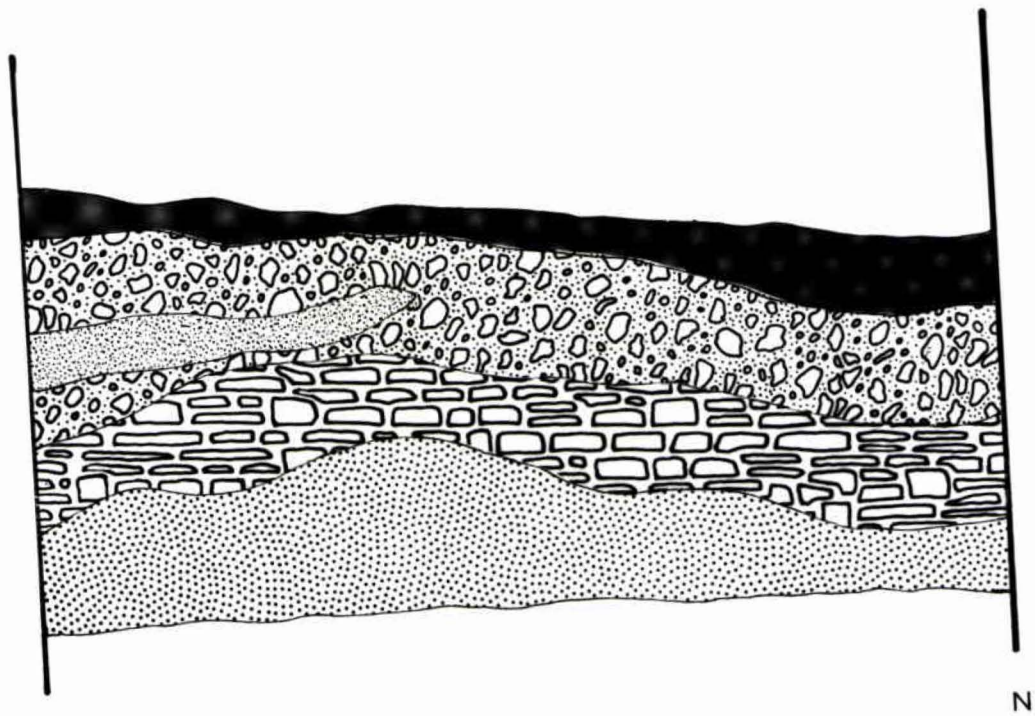


N 33
W 30

20 cm

N 33
W 28

Figure 7: Unit #8, East Wall Stratigraphy



N 24.5
W 39

20 cm

N 23.5
W 39

Unit #4 (Figure 8) consisted of two wedge-shaped deposits. A gravel-in-soil matrix deposit, which deepened towards the east end of the unit, overlay a whole and crushed shell deposit that was narrower at the eastern margin. The whole and crushed shell deposit capped a 2 to 6 cm layer of black, greasy soil, beneath which was subsoil.

Despite widespread variation in depositional sequences, midden composition could be divided into three broad categories: 1) deposits, containing shell as the primary constituent, 2) predominately gravel deposits, and 3) deposits having a soil base. These general types contained a number of subtypes, each quite distinctive.

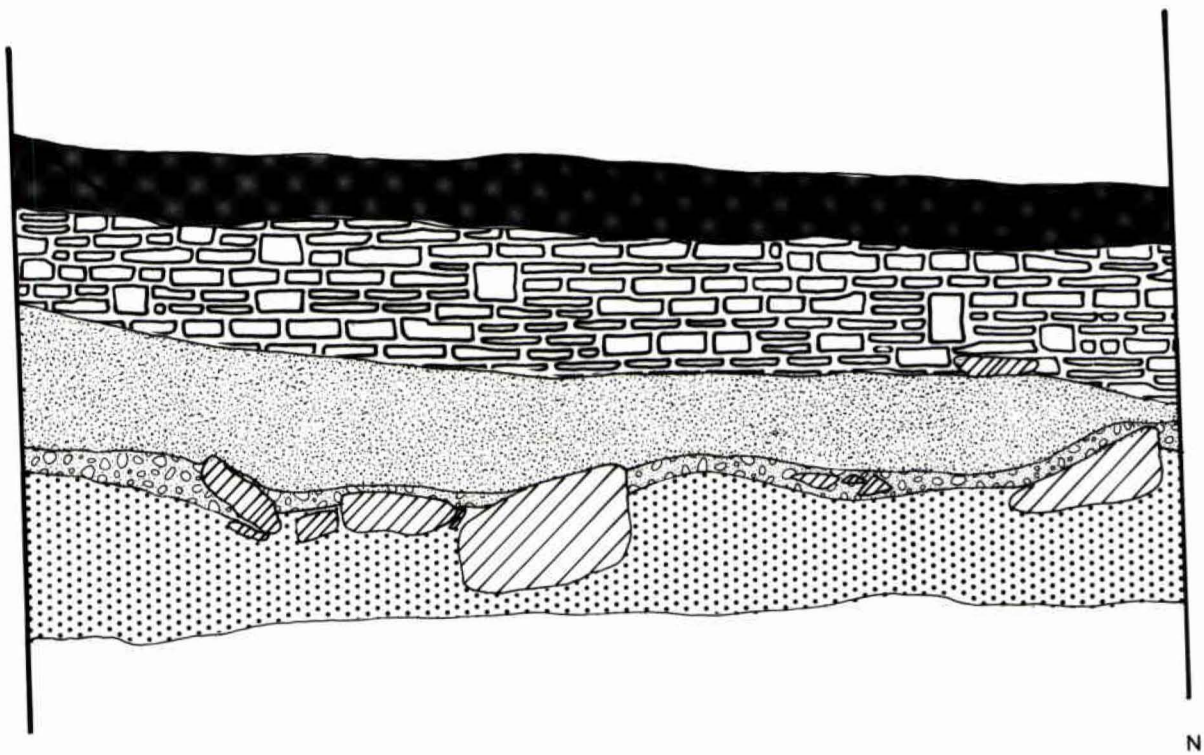
Table 2 contains a unit-by-unit sequential listing of the primary depositional categories based on the types discussed below. It should be noted that the table ignores feature disturbances and fine distinctions of stratigraphic discontinuities across any given unit and is thus purely representative.

Shell-based Deposits

There were three types of shell deposits recorded; the first type being crushed shell, gravel, and dark soil. Soft shelled clam (Mya arenaria), mussel (Modiolus modiolus), and sea urchin (Stronglyocentrotus droebachiensis) comprised the majority of shell remains. Bone, lithics, ceramics and quantities of charcoal were concentrated in deposits of this type.

The second type consisted of lenses of whole and/or crushed shell, again predominately soft shelled clam, mussel and isolated pockets of sea urchin. Very little or no soil matrix occurred in these

Figure 8: Unit #4, North Wall Stratigraphy



N 35
W 27

20 cm

N 35
W 25

TABLE 2: Depositional Sequences

Key to abbreviations:

M1 = shell, gravel, soil
M2 = shell
M3 = shell, soil

S1 = dark, silty, soil
S2 = black, greasy soil
S3 = heat-altered soil
S4 = subsoil

G1 = clean gravel
G2 = gravel and soil

BR = bedrock

Unit #	1	2	3	4	5	7	8	9
Deposit:	sod	sod	sod	sod	sod	sod	sod	sod
	G2	M1	M1	G1	M3	G2	M1	M1
	M1	M2	G1	G2	S1	M1	M2	M2
	M2	M1	G2	M1	M1	M2	G1	M3
	S3	S4	S3	S2	G1	M1	G2	S2
	S4	BR	S4	S4	G2	S3	S4	S4
	BR		BR	BR	S4	S2	BR	BR
					BR	S4		
						BR		

deposits. Cultural material was limited to occasional flecks of charcoal and the rare bone fragment.

Finally, a deposit comprised of whole shell valves, predominately soft shelled clam and occasionally mussel, scattered in a light coloured soil matrix was noted. Associated cultural material included charcoal and fragments of bone.

Gravel-based Deposits

Two types of gravel lenses were noted. Clean gravel lenses contained little or no soil. These deposits were usually green (Munsell 5Y 6/2) or brown (Munsell 5YR 5/2) in colour with well sorted particles of a uniform size. Cultural material was rare or absent in such deposits. Gravel also occurred in a soil matrix. Particles tended to be poorly sorted and flecks of shell were often incorporated in the stratigraphic unit. Charcoal, bone, and other cultural debris occurred frequently in lenses of this type.

Soil-based Deposits

Soil-based strata were of four forms. Certain deposits were of dark silty soil, containing no cultural material. These were always found sandwiched between cultural deposits. A second soil deposit was the black, greasy soil band that tended to be above the subsoil. In several instances, charcoal, numerous fish bones, and firecracked rock were recorded in direct association with this deposit. Other soil deposits, associated with hearth features, were typically red (Munsell 2.5YR 4/8), and gray (Munsell 20YR 7/1) coloured. The final soil stratum noted was the subsoil, lying above bedrock. It

was culturally sterile and varied from orange (Munsell 10YR 5/6) to green (Munsell 2.5Y 6/2) in tone. Quite frequently exfoliated bedrock was contained within this deposit type.

3. Site Components

The various types and arrangements of cultural deposits described indicated two prehistoric occupations of the site. The early component (#1) was represented by dark, greasy soil deposits and features lying beneath midden deposits. The later component (#2) contained gravel, shell and soil lenses that formed the upper strata of the site, as well as the majority of structural features and artifacts.

4. Features

A considerable portion of the Partridge Island site contained features. Although the diversity of size and form precluded easy classification, three broad categories, ie. floors, hearths, and pits, were identified.

Floors

Alternating soil and gravel deposits, occasionally containing small shell lenses, formed the matrix of floor features. Each deposit had some clearly defined spatial limit distinguishing it from surrounding shell, or mixed shell and gravel deposits. Floors were primarily distinguished by the cultural material associated with the soil deposit. One or more hearth features and bone or artifactual material lying within feature soils constituted significant attributes of the floor structure. Such attributes reflected the

assumed function of the feature type: that of an occupied surface dedicated to various day-to-day activities unrelated to refuse dumping.

Three floor features (Table 3; Table 4) were excavated at Partridge Island. Feature #8 (Figure 9), and #14 (Figure 10) were fairly extensive, distinguished by a greasy, black soil deposit with internal hearths and copious quantities of articulated and disarticulated fish bone. In addition the presence of a bone point and the only stemmed biface (knife or projectile point) in Feature #8 suggested this floor may have been a task specific area, possibly representing a processing station for cleaning, filleting and/or smoking fish. The third floor, Feature #1 contained two hearths, as well as a pit feature, a single fragment of calcined bone, and numerous flakes, including two with ground dorsal surfaces. The absence of other types of material on this floor suggested that the primary activity was related to lithic industries.

Hearths

Areas characterized by concentrations of charcoal, heavily charcoal-stained soils, surrounded or partially composed of firecracked rock were often distinctly heat-altered, tinged an ashy gray and/or bright red colour. Eight hearths were identified (Table 5).

Most of the hearths were characterized by an oval or lenticular form with a basin shaped cross-section. They contained varying amounts of charcoal and firecracked rock. As well the accumulation of thin gravel and heavily charcoal stained deposits suggested that many hearths were used repeatedly, with gravel being used to extinguish one fire and/or to provide a base for a second or third. However,

TABLE 3: Key to Abbreviations; Tables 4, 5 and 6

Abbreviations:

F# = Feature number*
U# = Unit number
C# = Component number
C/S = Cross-section
% = Percentage excavated**
L = Length***
W = Width
T = Thickness
ind = Indeterminate

* Feature #6 has been omitted because it is no longer considered a feature.

** Percentages under 100% are approximations.

*** All measurements are maximum values recorded for portion excavated.

TABLE 4: Floor Features

F#	U#	C#	Outline*	C/S	%	L	W	T	Description	Content
1	1	2	ind	——	75	1.9 m	1.9 m	20 cm	-deposit of gravel, charcoal and ash stained soils	-flakes -firecracked rock -charcoal -calcined bone -groundstone
8	4	1	ind	~	85	2 m	2 m	12 cm	-black, greasy and ash-stained soils	-fish bone -bone point -charcoal -stemmed biface -firecracked rock
14	7	1	ind	- - -	50	1.5 m	1.5 m	2 cm	-black, greasy and ash-stained soils	-fish bone -firecracked rock -rock

* With partially excavated features, outline represents an approximation based on visible characteristics of two-dimensional appearance.

Figure 9: Floor Feature #8 (Hearth Feature #19) Unit 4 A/380
b = Articulated and Disarticulated Atlantic Cod Bones

N 33
W 25

N 33
W 27

N 35
W 25

20 cm

N 35
W 27

Figure 10: Floor Feature #14 (Hearth Feature #15) Unit 7 A/387

N 29
W 28

N 31
W 28

N 29
W 30

20 cm.

N 31
W 30

TABLE 5: Hearth Features

F#	U#	C#	Outline*	C/S	%	L	W	T	Description	Content
5	5	2			70	75 cm	70 cm	33 cm	-alternate bands of gravel, ash-like and charcoal stained soils -periphery of fire-cracked rock	-firecracked rock -charcoal -ceramics -bone
9	3	2			100	40 cm	20 cm	11 cm	-alternate bands of gray, red and charcoal stained soils and gravel	-firecracked rock -charcoal
11	3	1			100	55 cm	33 cm	10 cm	-bright red and charcoal stained soils	-firecracked rock -charcoal
12	2/3	1			100	90 cm	86 cm	20 cm	-charcoal and ash-stained soils -charcoal stained gravel	-charcoal -firecracked rock
15	7	1			100	70 cm	40 cm	4 cm	-charcoal and ash-stained soils surrounded by bright red soil	-charcoal -firecracked rock
19	4	1			100	80 cm	70 cm	20 cm	-rock structure	-firecracked rock -charcoal

TABLE 5: Continued

F#	U#	C#	Outline*	C/S	%	L	W	T	Description	Content
20	1	2			60	50 cm	40 cm	28 cm	-alternating layers of dark soil, charred shell and gravel -bounded by loosely arranged rock	-charcoal -firecracked rock
21	1	2			100	70 cm	10 cm	10 cm	-charcoal and ash-stained soils -gravel	-charcoal -firecracked rock -flakes

* With partially excavated features, outline represents an approximation based on visible characteristics of two-dimensional appearance.

the relatively shallow nature of most hearths indicated repeated use over extremely restricted periods of time, days or weeks.

Of the recorded hearths, three were unusual. Feature #5 (Figure 11) and #20 were unique in that the hearth boundaries were marked by a loosely arranged ring of firecracked rock. Feature #19, located on Feature #8, a floor (see Figure 9), was unlike all other hearth features, being composed entirely of a compact rock structure and concentrated amounts of charcoal.

Pits

The pit category was a grouping which included any configuration with sloping sides and a flat or concave base, excavated into surrounding deposits. Nine deposits having this form were identified (Table 6).

The function of pit features was difficult to ascertain because no cultural debris was found in direct association with the majority of them. However, a few possibilities can be suggested. The smaller pits, such as #3, #4, and #17 may have served as storage receptacles for collections of organic material, perhaps vegetable foods or in the case of Feature #17 (Figure 12), which contained numerous bone fragments, for meat. The fact that no cultural debris was found in either Feature #3 or #4 suggests either that the pits were never used after construction or the material kept in them was highly perishable. It would also be possible that at the termination of use, such structures were cleaned out and filled with either shell or soil material.

The larger basin-shaped configurations, such as Features #2

Figure 11: Hearth Feature #5 Unit 5 A/321 25 cm scale

TABLE 6: Pit Features

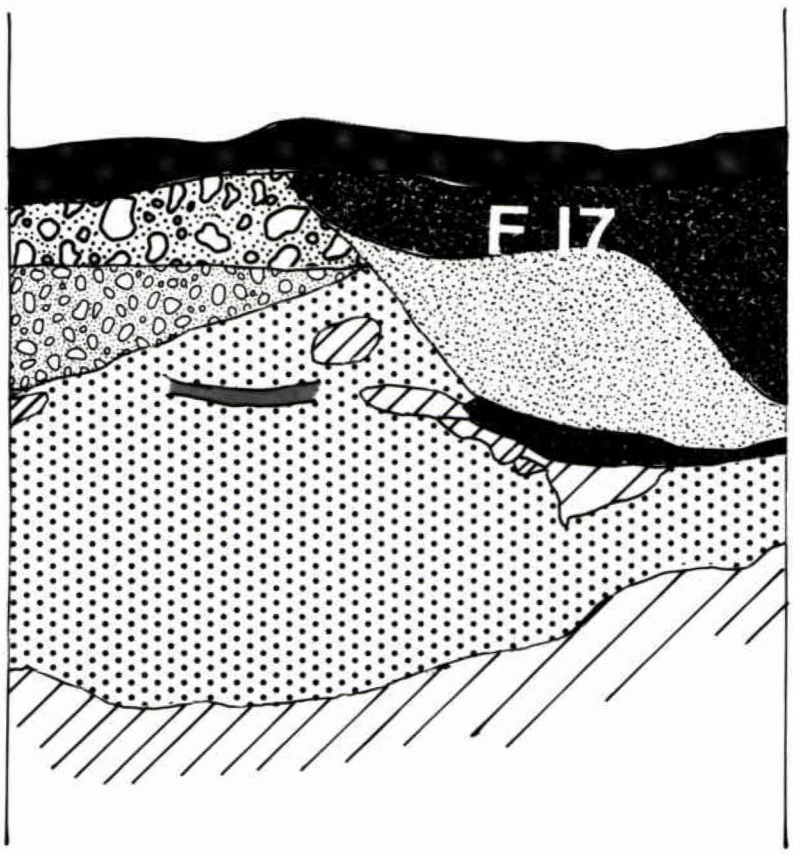
F#	U#	C#	Outline*	C/S	%	L	W	T	Description	Content
2	2/3	2			75	3 m	2.5 m	35 cm	-deposit of black soil and gravel capping gray soil -small inclusions of shell -excavated into shell and soil deposits	-flecks of charcoal -partial peripheral rock ring -groundstone tools -mammal bones
3	2	2			50	25 cm	30 cm	17 cm	-loosely lined with rock -gray silt at base -pit fill of mixed shell and gravel	-bone fragment
4	1	2			60	80 cm	60 cm	10 cm	-gravel, black soil and shell -excavated into rocky, light coloured soil	-scattered charcoal -firecracked rock
7	5	2			60	70 cm	70 cm	33 cm	-alternating deposits of brown and black soils and gravel	-flakes -bone
10	3	2			25	1.1 m	25 cm	15 cm	-alternating lenses of gravel, gravel-in-soil matrices -excavated into shell and subsoil deposits	-bone -ceramics -flake

TABLE 6: Continued

F#	U#	C#	Outline*	C/S	%	L	W	T	Description	Content
13	7	2			50	1.2 m	30 cm	40 cm	-black/brown gravelly soil -excavated into shell deposits	-ceramics -flake -firecracked rock -charcoal
16	5	2			60	1.5 m	1.5 m	37 cm	-trench filled with loosely consolidated black soil -excavated into deposit of rocky soil, shell and gravel	-charcoal flecks -bone fragment
17	3	2			40	50 cm	30 cm	36 cm	-fill of dark coloured soils in a gravel matrix -excavated into deposit of whole and crushed shell	-charcoal flecks -bone pieces
18	4	2			50	40 cm	10 cm	12 cm	-fill of dark soil -excavated into whole shell deposit	

* With partially excavated features, outline represents an approximation based on visible characteristics of two-dimensional appearance.

Figure 12: Feature #17 (Pit) Unit #3 West wall profile



N 44

W 42.5

20 cm

N 45

W 42.5

(Figure 13), #7 (Figure 14) and # 10, may be representatives of the 'semi-subterranean' house pit forms recorded in other Passamaquoddy Bay shell middens (Davis 1978; Lavoie 1972). Characteristics of such structures in other Passamaquoddy Bay shell middens were the presence of hearth features, artifacts and bone material within the feature boundaries (Sanger 1979:107). With the exception of Feature #10, very few of these criteria, if any, were met at Partridge Island. Despite this, it seems more likely that such large structures represent the base of some form of shelter rather than areas of food storage.

Two highly unusual pit features, #13 (Figure 15) and #18 had broad, basin-shaped mouths and straight, narrow sides, resembling in some ways the form of goblets. The presence of a charcoal concentration beside a badly firecracked rock in Feature #13 indicated that possibly the pit was utilized in some form of cooking. Essentially, however, these structures remain unexplained.

Feature #16 was not assigned even a speculative function. The trench-like form and lack of cultural debris within the uniform soil fill remain enigmatic.

5. Feature Distribution

Two floors, Features #8 and #14, as well as four hearths, Features #11, #12, #15 and #19, were associated with Component #1 deposits on the site. These features tended to cluster near the center of the site with only two, Features #11 and #12, located in basal levels at the back of the site (Figure 16).

Figure 13: Feature #2 (Pit) Units #2 and #3 A/250

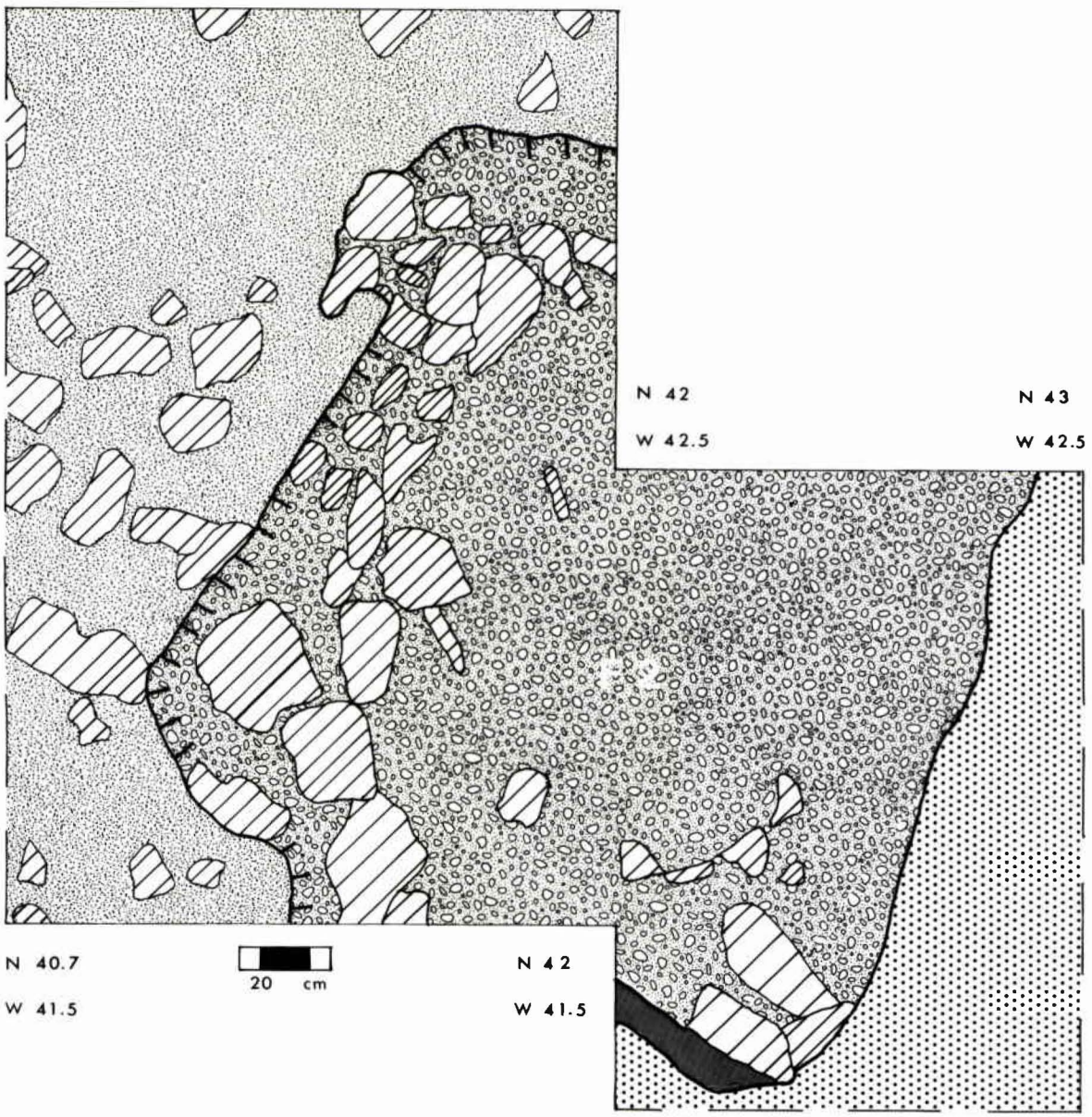

N 42
W 42.5
N 43
W 42.5
N 40.7
W 41.5
20 cm
N 42
W 41.5

Figure 14: Feature #7 (Pit) Unit #5 West wall profile 25 cm scale

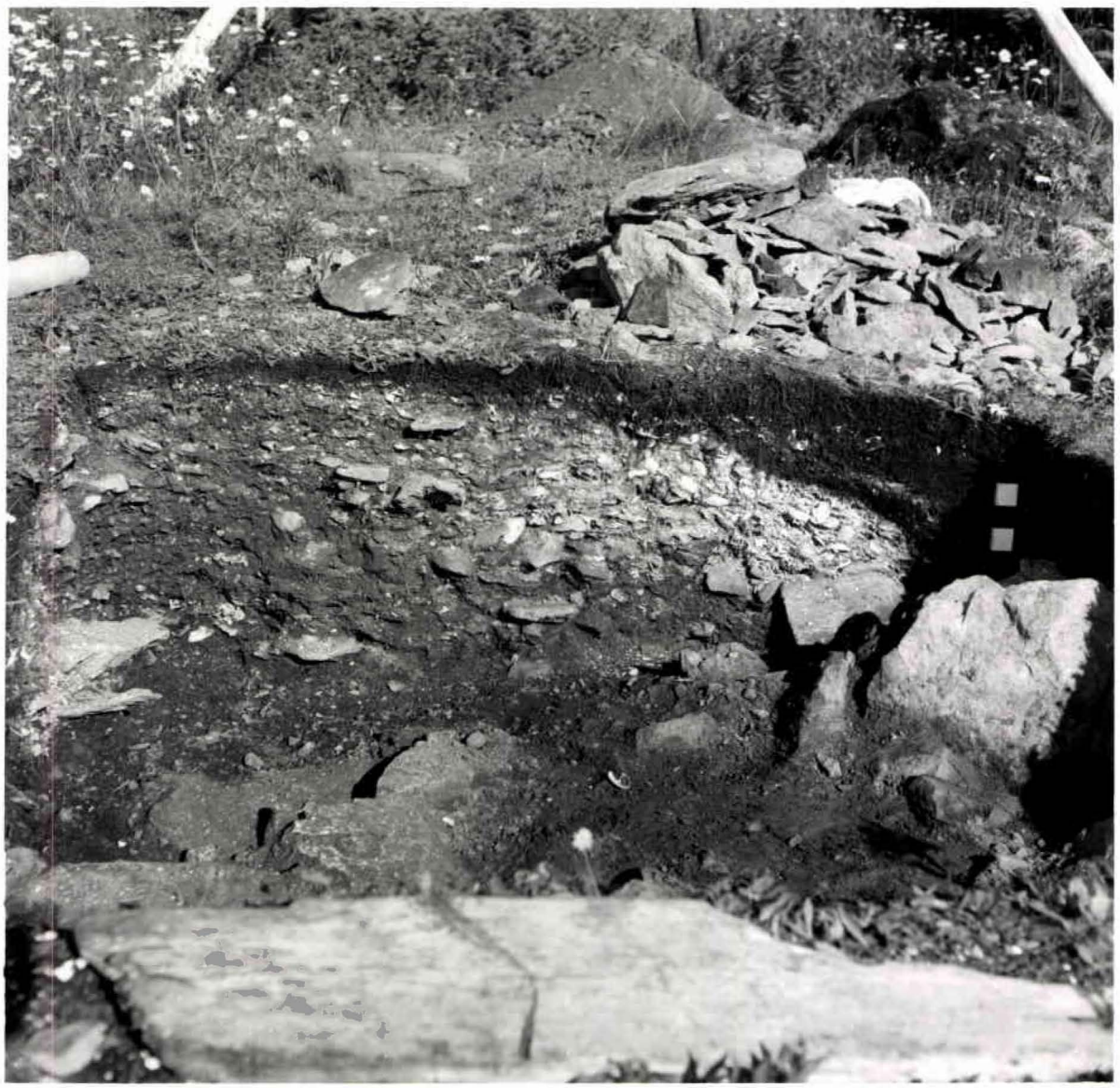


Figure 15: Feature #13 (Pit) Unit #7 West wall profile 1m scale

Figure 16: Feature Distribution Component #1

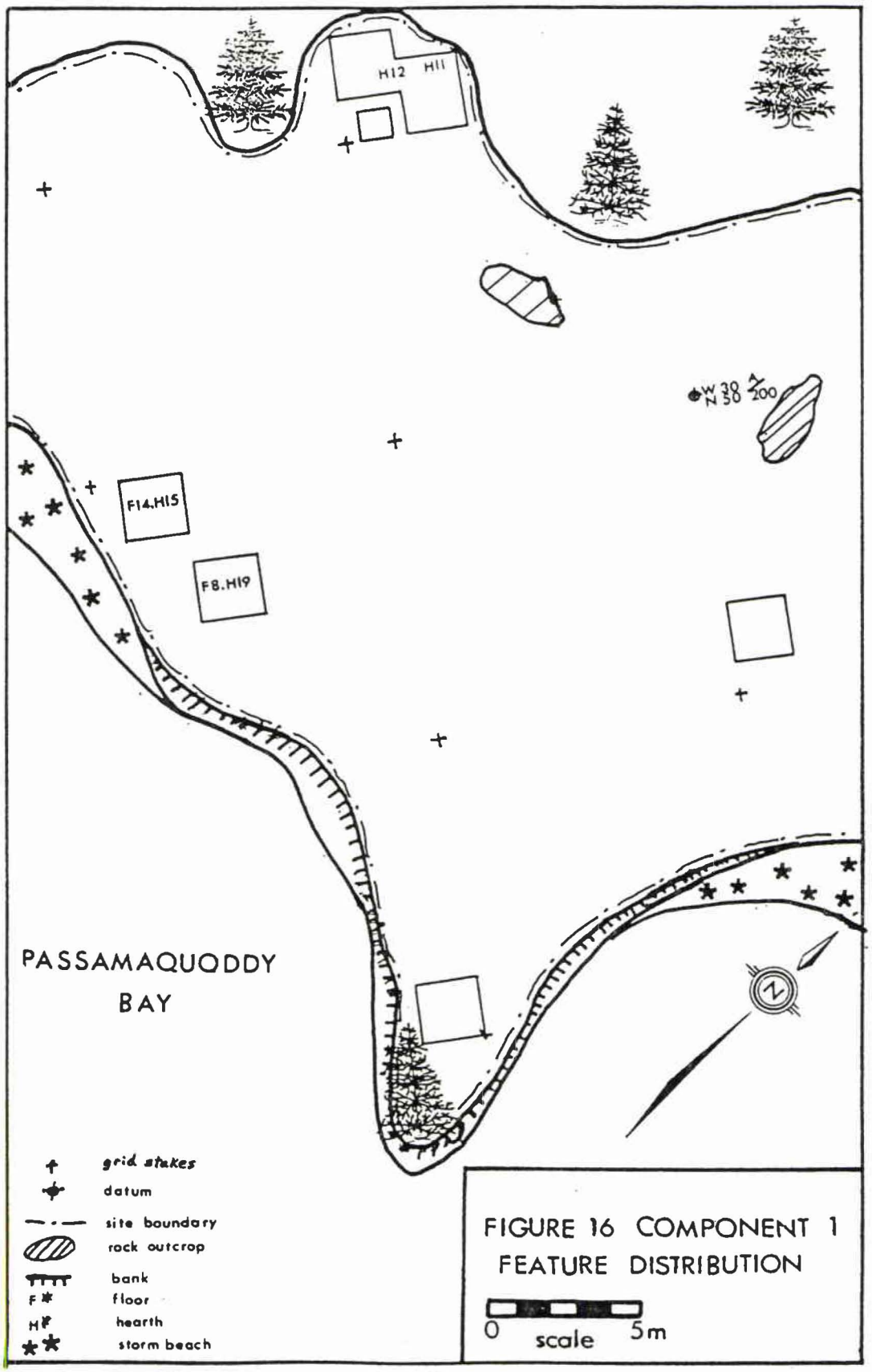


FIGURE 16 COMPONENT 1
FEATURE DISTRIBUTION

Component #2 features, including all nine pits, one floor (#1), and four hearths (#5, #9, #20 and #21) were distributed somewhat differently across the site (Figure 17). The larger structures tended to be found in peripheral regions of the site, at the back or western margin, and to the north of the deepest midden deposits. Smaller pit and hearth features, however, occurred in most units, irrespective of positioning on the site.

6. Bone and Antler Artifacts

All fragments of bone or antler that bore evidence of deliberate human modification, apart from butchering, were classified as artifacts. Faunal artifacts comprised 40% of the total artifact assemblage, excluding lithic debitage. Eight tools were categorized as points. Sixteen modified beaver incisors were also treated as a group. Additionally, six miscellaneous items were noted. A discussion of attribute terminology utilized in analyzing organic artifacts and individual artifact descriptions are presented in Appendix II.

Points

Implements with a distal or distal and proximal convergence were assigned to this grouping. Six of the eight specimens could be functionally termed 'awls'(Figure 18). They are long, tapering and cylindrical, often with highly polished tips bearing longitudinal striations suggesting a puncturing or piercing usage. The 17th century aboriginal inhabitants of the Maritime provinces utilized tools "...pointed as awls by dint of sharpening them".(Denys 1908:406), to pierce and sew together pieces of birch bark used in dwelling

Figure 17: Feature Distribution Component #2

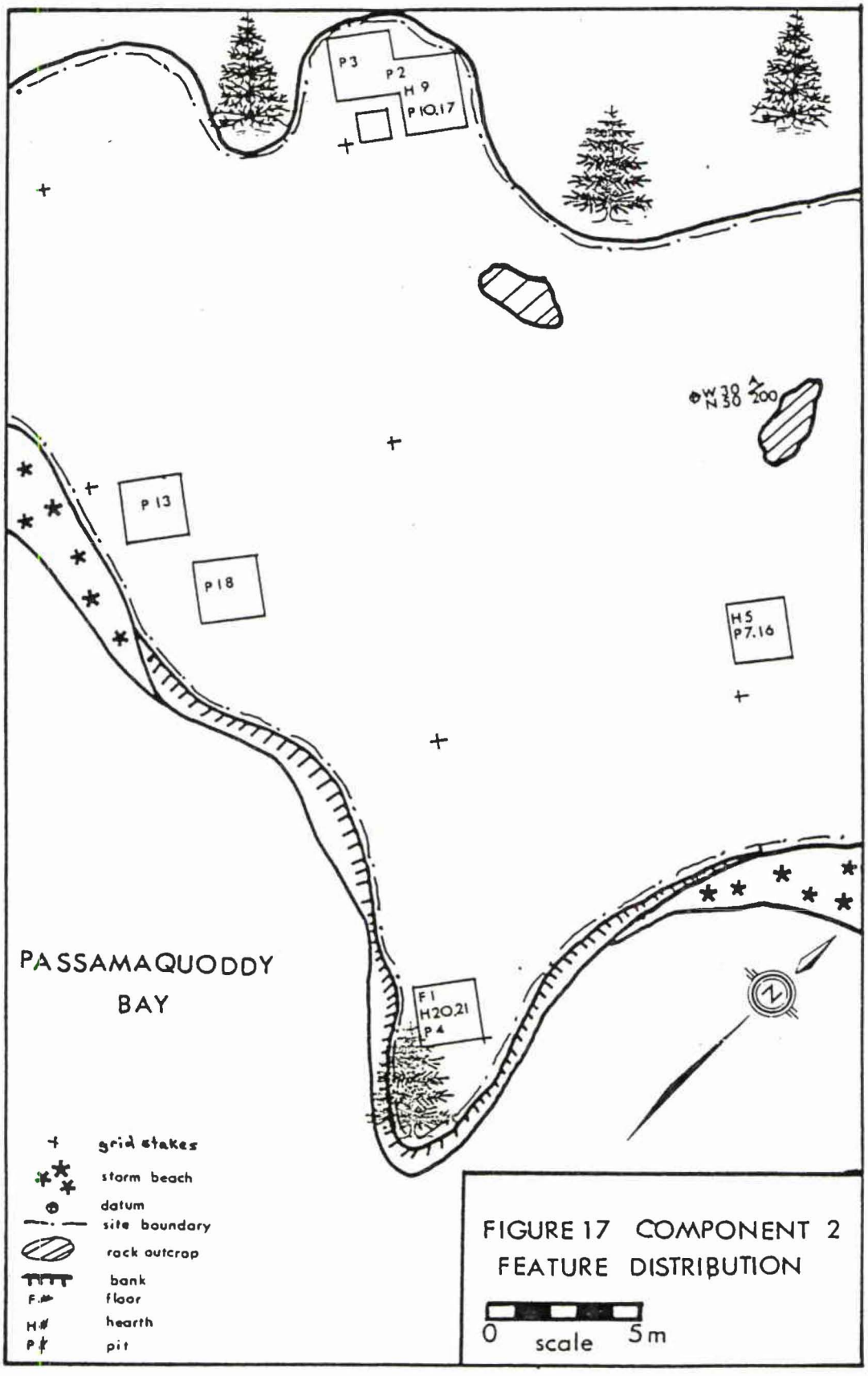


FIGURE 17 COMPONENT 2
FEATURE DISTRIBUTION

Figure 18: Bone Points:
Specimen # Left to Right: 40, 203, 143, 27, 135, 37, 351


5 cm
6yDr48:40

construction. It is conceivable that the 'awls' from Partridge Island were used for a similar purpose, although the two smaller bone points would not have been sturdy enough for sewing heavy material such as birch bark. It is possible that these small points may have been part of compound tools such as leisters, but similar fine points have been referred to in the archaeological literature as needles or pins (Ritchie 1980:257 Plate 87, Fig. 8 and 9).

Beaver Incisors

Archaeological sites with good bone preservation frequently yield quantities of modified beaver incisors assumed to have functioned "...as cutting and slotting tools for working wood and softened bone and antler." (Sanger 1979:111) Many are known to have been antler hafted (Ritchie 1980:205), or used while still in the mandible (Davis 1978:26). Specific tasks for which the incisor tool may have been used are unknown, however.

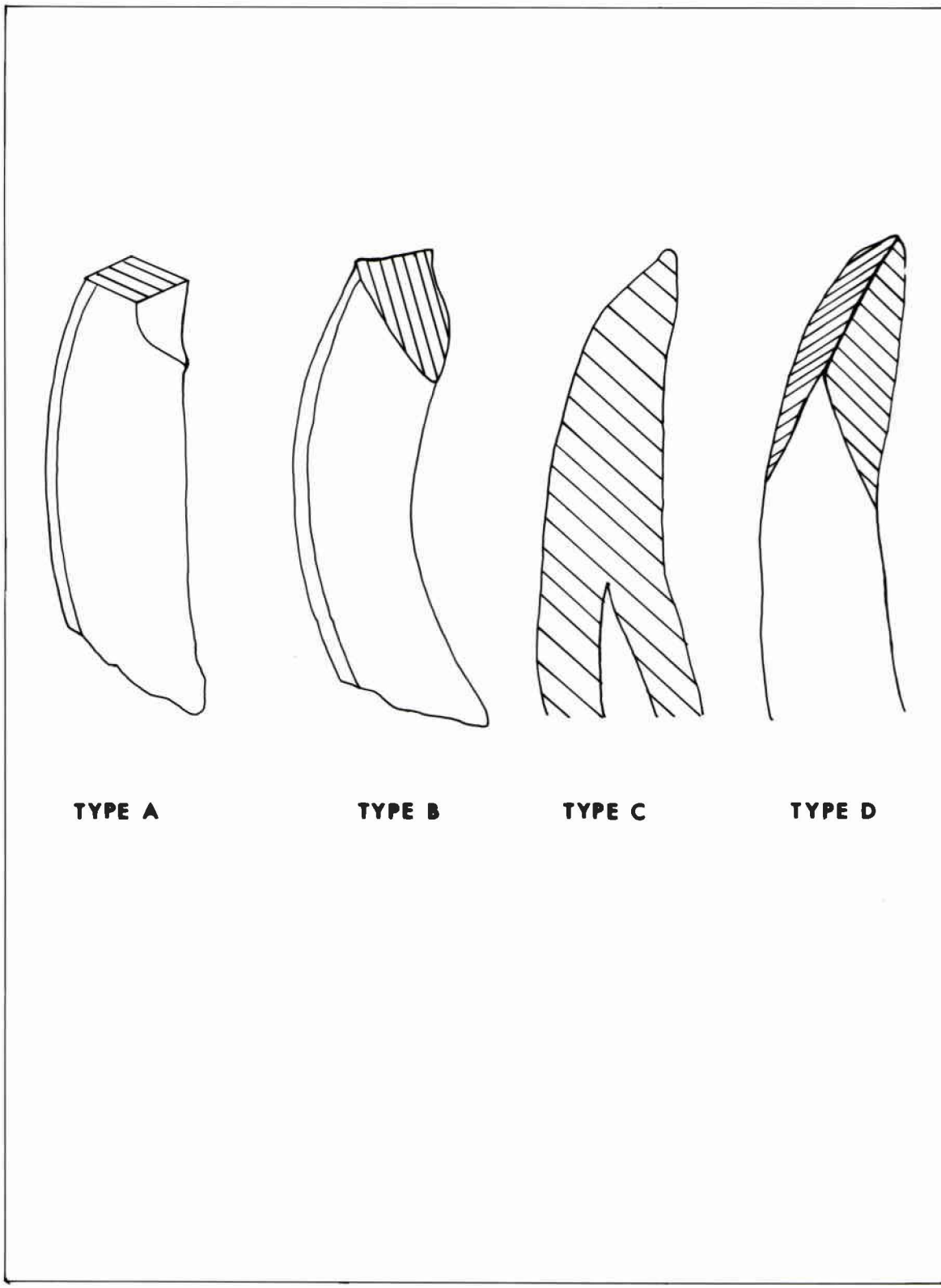
Examination of the Partridge Island collection revealed four different and distinctive wear patterns (Figure 19), quite likely related to highly specific but unknown manners of use. Recognition of the variability in incisor forms has led to description in terms of four general types (Figure 20). Summary attribute listings for each artifact are provided in Appendix II. Only one incisor, specimen #130, was not typed; modification consisted of a single whittle mark on the lingual surface, and it is doubtful if this tooth was ever utilized.

Type A incisors are characterized by alteration of the natural contours of the occlusal tooth surface. Distal tooth regions are worn

Figure 19: Beaver Incisors
Specimen # Top Left to Right 115, 119, 91 (Type B),
228, 274, 124 (Type A)
Bottom Left to Right 132 (Type C),
138 (Type D)


5 cm

Figure 20: Beaver Incisor Modification Types


TYPE A
TYPE B
TYPE C
TYPE D

flat and square. Striations on the polished surface are at right angles to the tooth shaft running from the enamel to the lingual margin. The shaft may or may not be proximally altered. Six incisors belong in this group.

Type B modification of the occlusal surface follows the natural contours of the tooth tip. Wear is diagonal with striations angled towards the labial surface. The tooth shaft may or may not be basally sawn. Seven incisors comprise this group.

Type C incisors bear a single wear plane which completely alters distal tooth contours. Essentially the remaining tooth is a longitudinal half on which the lingual surface and one edge surface have been worn flat. Striations are angled from edge to edge with the enameled edge chipped. A single incisor bearing this form of alteration was recovered.

Type D modification completely alters the distal region of the tooth. Two planes of wear exist. One is angled downward from the lingual surface to medial edge. This surface is highly polished with light striations angled from medial to lingual surfaces. The second plane is angled towards the tooth facet, and bears strong lateral striations. One incisor represents this type.

Miscellaneous Bone and Antler Artifacts

Six artifacts fall under this category. One (#90) is a mammal scapula, modified by grinding and bearing linear designs on the anterior surface (Figure 21). The edge opposing the spine is highly polished with right angle striations visible on both anterior and

Figure 21: Mammal Scapula Implement


5 cm

and posterior surfaces. It is possible that this item served a scraping function.

Two specimens are splinter portions of mammal bone bearing a deliberate cut or saw mark (Figure 22). Specimen #230 bears several whittling marks in addition to striations parallelling the cut. Specimen #137 is unmodified except for the basal cut. The roughly triangular shape of this artifact suggests it may have been a blank for a point.

A seal canine and two antler tines comprise the remainder of the miscellaneous bone artifacts (Figure 23). The canine (#657) bears a circular indentation, on both medial and lateral root surfaces, and probably represents an unfinished pendant. Both antler tines (#30 and #386) have slightly blunt and pitted tips with basal cuts. Possibly these were utilized as flaking tools, however, the tool life must have been very short or considerably more distal alteration would have occurred.

7. Ceramic Artifacts

Ceramic vessels are known, archaeologically, to have been in use among aboriginal populations in Passamaquoddy Bay at least as long ago as 2,000 B.P. (Sanger 1971:16). Lescarbot comments briefly on the historic utilization of ceramics, and the abandonment of pottery manufacture among Maritime populations;

> ...the men make earthen pots, in the shape of a nightcap, in which they seethe their meats, flesh, fish, beans, corn, squashes, &c. Our Souriquois formerly did the same, and tilled the ground; but since the French bring them kettles, beans, peas, biscuits, and other food, they are become slothful, and make no more account of those exercises (1914:194-195)

Figure 22: Cut Mammal Bone
Specimen # Top 230
Bottom 137

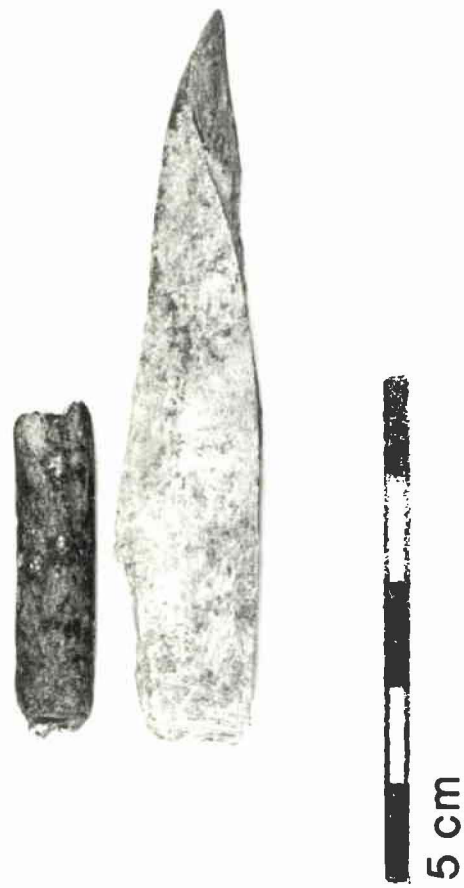

5 cm

Figure 23: Miscellaneous Bone and Antler Artifacts
Specimen # Top 657 (seal canine)
Middle 386 (antler tine)
Bottom 30 and 113 (antler tine)


5 cm

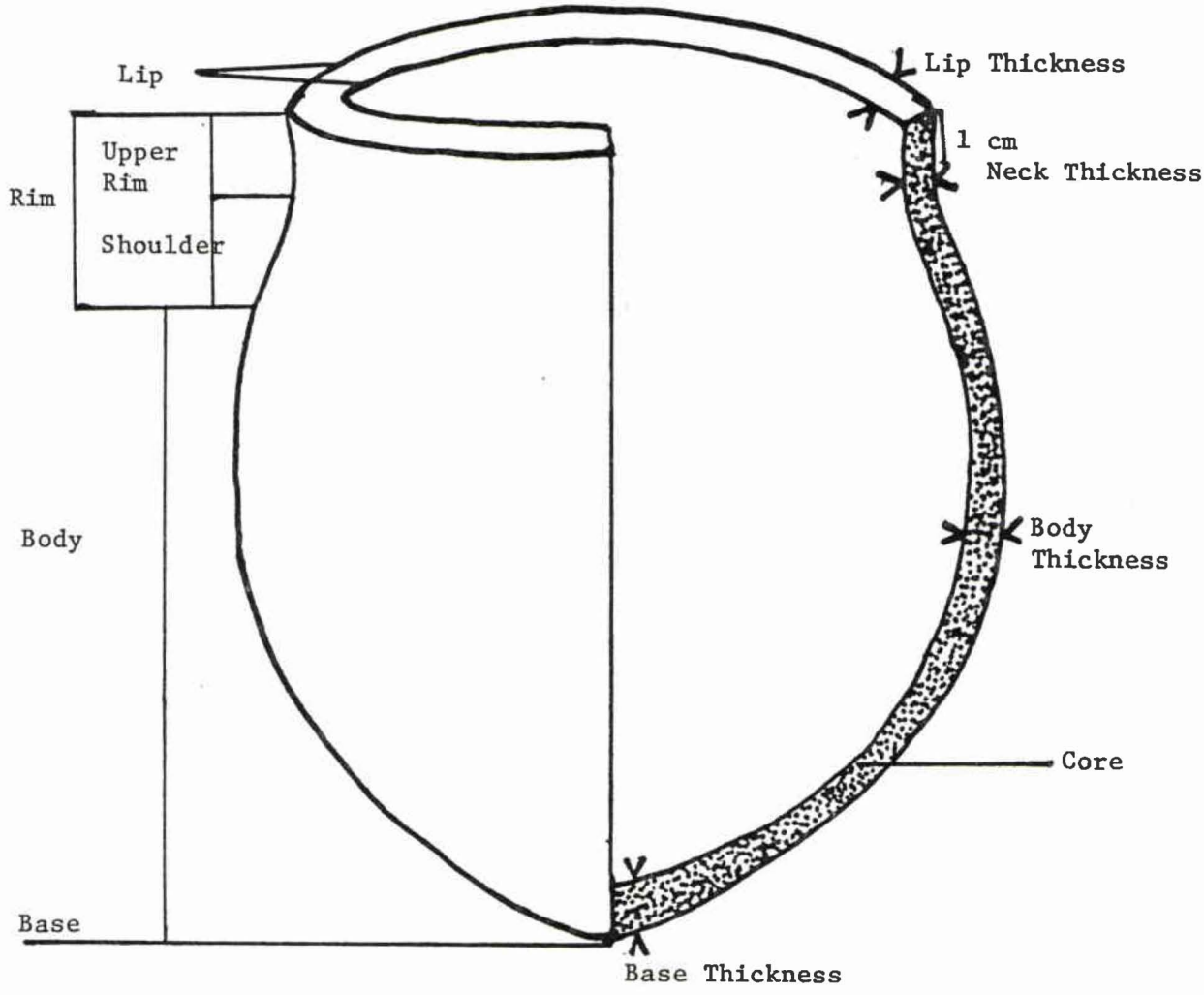
The function of ceramic vessels is usually considered to have been related to cooking and storage. Charred matter noted on interior vessel surfaces at the Oxbow site (Allen 1980:68) and at Partridge Island lend support to the notion that pots were used as cooking containers.

The collection of Partridge Island ceramics consists of 470 analyzable sherds. An analyzable sherd is defined as larger than 10 by 10 mm, containing an internal or external finished surface. Twenty-four of the sherds are whole or portions of the upper rim region of a ceramic vessel (Figure 24). Basal and shoulder portions are probably also represented but, due to the fragmentary nature of most sherds, all non-rim sherds are classified as body elements.

Sherds having identical temper, design elements and metric attributes were considered to have originally come from the same vessel. Based on these criteria, finds from within levels and from adjacent levels were grouped in lots and treated throughout subsequent analysis as a single artifact. Attributes of vessel decoration (design and techniques of design application), shape (metric attributes and form analysis of rim regions) and construction (temper type and method of construction) were considered during analysis. Detailed discussion of terminology and summary attribute lists for each vessel can be found in Appendix III.

Twenty-two vessels, representing 29.3% of the artifact collection, were identified and are schematically illustrated in (Figure 25). Eleven of these vessel lots contain rim sherds (Figure 26). These vessels can best be discussed in groups based on

Figure 24: Vessel Regions (After Emerson 1968:2; Finlayson 1977:672; Keenlyside 1978:334)



Vessel Regions

Figure 25: Ceramic Vessels Schematic Representation*
*Rim profile exterior walls are to the right on the diagram.

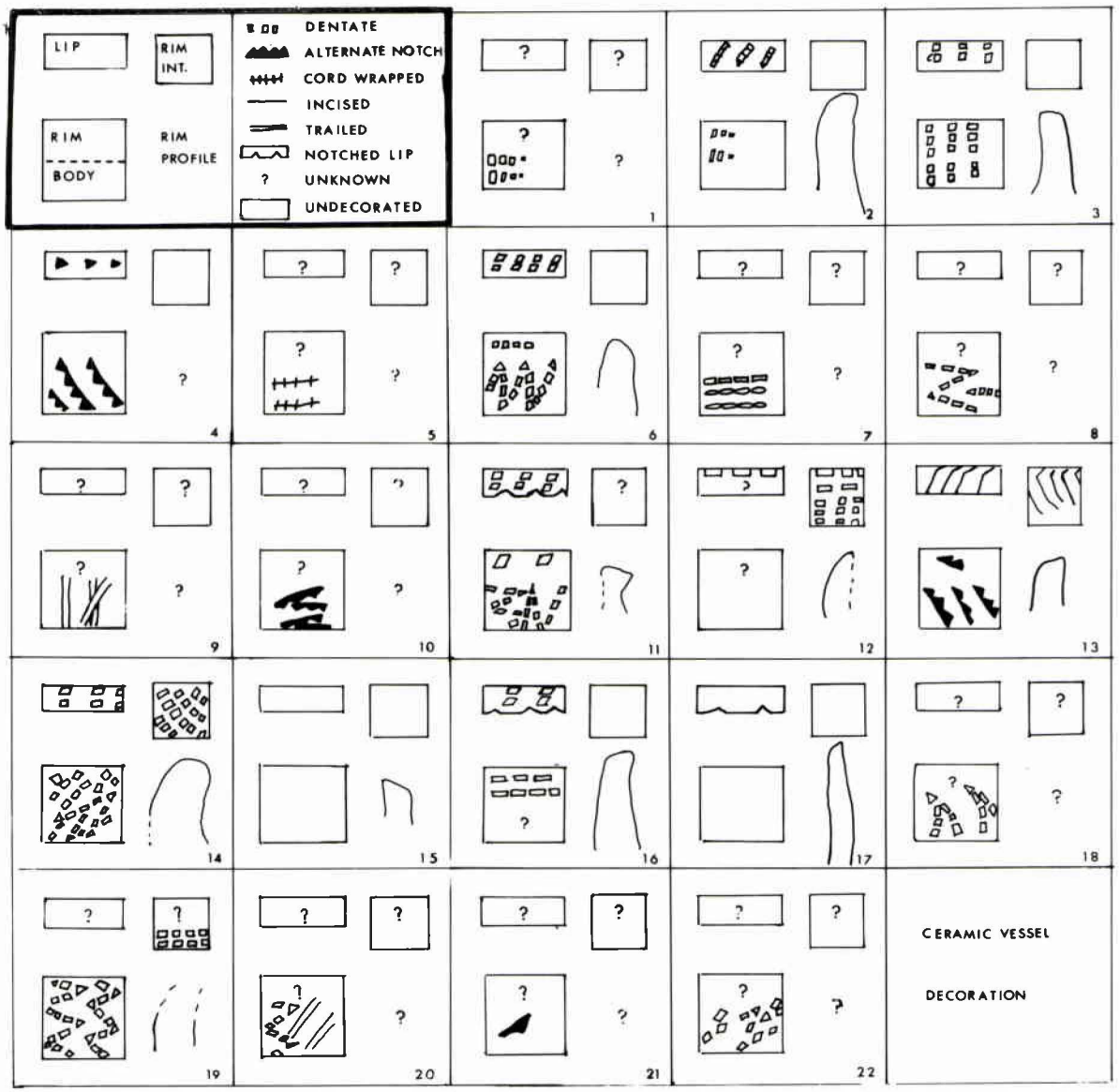

LIP
RIM INT.
RIM
BODY
RIM PROFILE
DENTATE
ALTERNATE NOTCH
CORD WRAPPED
INCISED
TRAILED
NOTCHED LIP
UNKNOWN
UNDECORATED
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
CERAMIC VESSEL
DECORATION

Figure 26: Selected Rim Vessels
Top Left to Right: Vessel 2 (dentate plain stamp)
Vessel 3 (dentate plain stamp)
Vessel 6 (dentate rocker stamp)
Bottom Left to Right: Vessel 11 (dentate rocker stamp)
Vessel 14 (dentate rocker stamp)
Vessel 17 (undecorated)


5 cm

primary external body or rim surface decoration, with general comments on attributes of construction found in the total collection. Vessels were either dentate decorated (63.5%), alternate notch (pseudo-scallop shell) decorated (18.1%), plain (linear trailed or incised) decorated (4.5%), cordwrapped stick decorated (4.5%), or undecorated (9.1%).

Dentate Decorated Vessels

Dentate decorated vessels were characterized by designs which consisted of a series of roughly rectangular imprints ranging in width from 1 to 2.5 mm, with between 3.5 and 8 imprints per centimeter. In three cases the maximum length of the tool face could be determined. Measurements of 38, 27 and 21 mm were recorded. The dentate decoration either appeared as individual linear imprints reflecting a plain stamping technique or as rows of connected 'zig-zag' lines reflecting a rocker stamping technique (Figure 27). Rocker stamped vessels were slightly more prevalent (57.1%) than plain stamped. Vessel #20 also had a secondary plain design trailed across the primary rocker dentate stamped surface (Figure 28). The orientation of decorative lines relative to the longitudinal plane of the vessel was quite varied. Horizontal and combinations of horizontal/vertical and horizontal/oblique were recorded for dentate vessels.

All vessels with sherds containing the lip region were decorated with a plain stamp dentate impression. Lip shape (the contour of the lip surface) was recorded for seven vessels; five were round and two flat. Of the eight vessels containing

Figure 27: Rocker Stamped Dentate Vessels (Body Sherds)
Left to Right Vessel 19, Vessel 11

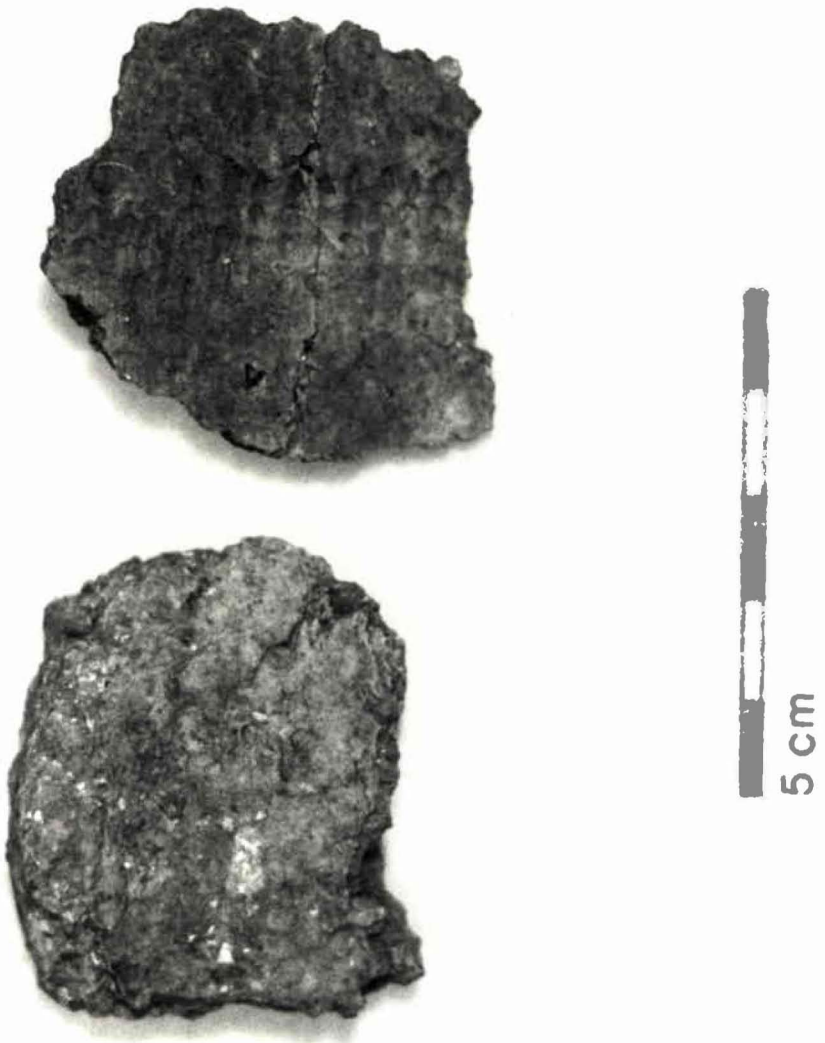
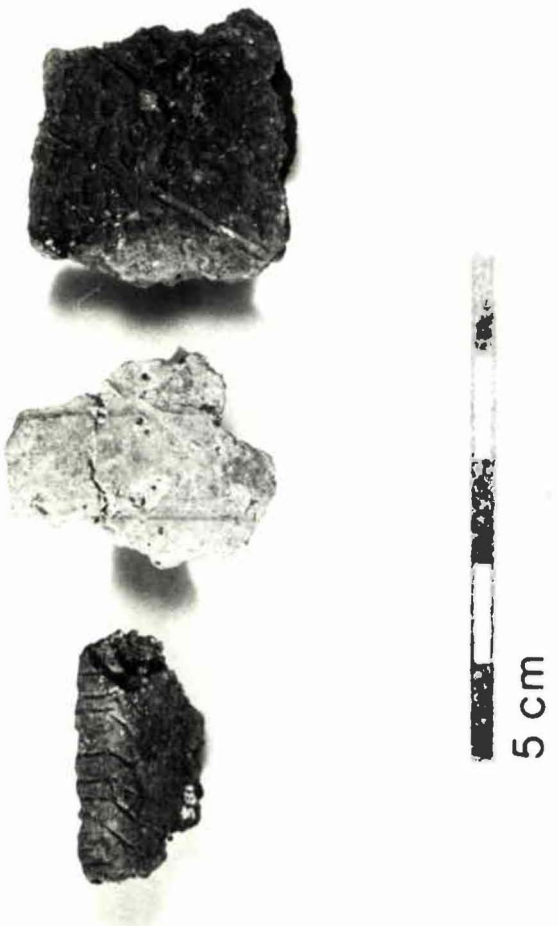

5 cm

Figure 28: Plain Decorated Vessels
Left to Right Vessel #13 (incised lip and rim exterior)
Vessel #9 (trailed body)
Vessel #20 (dentate rocker stamped with secondary trailed design)


5 cm

examples of the interior rim wall, six were decorated with the same design and technique utilized on body surfaces (two rocker stamped dentate and four plain stamped dentate). The remaining two vessels had undecorated interior rim surfaces.

Rim form, the orientation of the region above the shoulder to the remainder of the vessel, was identifiable on six vessels. Five were recorded as outflaring (everted) and one as inflaring (inverted). The rim shape, relative thickness of the rim region as it approaches the vessel lip, was recorded as contracting for the five vessels on which the attribute could be determined. The metric attributes of vessel shape displayed a range of 4.5 to 10 mm for lip thickness, 6 to 13.5 mm for neck thickness and 7 to 13.5 mm for body thickness. The modal values for lip and body thickness were 5 and 7 mm respectively. The average neck thickness was 8.7 mm. Other information regarding body and base shapes was not available from the Partridge Island data; however, it is assumed that most vessels (including non-dentate decorated examples) are representatives of a form common to Passamaquoddy Bay, having a fairly wide mouth, slight constriction at the neck, expanding to rounded shoulders then contracting to a conical base (Sanger 1979:111).

Alternate Notch Decorated Vessels

Alternate notch decorated vessels were characterized by designs composed of linear impressions with one straight edge and one toothed edge. The width of these impressions varied from 1 to 2 mm and there were 4 to 8 'teeth' per centimeter. None of the sherds contained a single complete line of decoration, therefore no length measurement was

available. One of the four alternate notch vessels exhibited the rocker stamping technique. Two vessels were decorated with a plain stamping technique. The fourth vessel was too fragmentary to enable determination of technique. Where observable, the orientation of decorative lines was oblique.

Two alternate notch vessels (#13 and #14) included rim sherds. Vessel #13 had a round shaped lip decorated with a plain design applied by a drawing technique known as incising (See Figure 28). The interior of the rim was also decorated with the plain, incised lines. Rim form on this vessel was recorded as outflaring and rim shape as contracting. The lip thickness was 4 mm and the neck thickness 6 mm. Body thickness measurements on Vessel #13 sherds were an average of 8 mm. The single rim sherd from Vessel #4 included only the lip surface and a few millimeters of the lower interior and exterior rim. The lip was rounded, 5 mm thick, and decorated by single triangular imprints of an alternate notch tool. Due to the nature of the sherds no other attributes of shape could be extrapolated including a rim profile (See Figure 25). Body sherds from the same vessel lot, however, yielded an average body thickness of 6 mm.

Plain Decorated (Linear Trailed) Vessels

Only one vessel, #9, was decorated with a smooth implement, leaving a plain indentation on the vessel body (See Figure 28). In this case the tool was trailed across the vessel surface. The impressions were 1.6 mm wide and of unknown maximum length. Obliquely oriented lines were superimposed on parallel, vertically oriented lines. Due to the fragmentary nature of the sherds in this

vessel lot and the absence of rim sherds, no further description of vessel attributes was possible.

Cordwrapped Stick Decorated Vessels

One vessel , #5, was decorated with a cordwrapped stick. The impression left was a series of small rectangular imprints, 2 mm wide and spaced 6 imprints per centimeter. The shallow depression of the stick joined each of the imprints. Plain stamping appeared to be the technique used to apply the design. No rim sherds were associated with the vessel lot; however, body sherds yielded a body thickness measurement of 6 mm.

Undecorated Vessels

Two vessel lots (#15 and #17) did not have any body surface decoration. Vessel #15 had a 5 mm thick lip with a flat surface shape. The rim form was inflaring and the rim shape parallel. Neck and body thicknesses could not be calculated. Vessel #17 (See Figure 26) had small notches on the lip edge. The round shaped lip was 1 mm thick and the vessel neck 4 mm thick. Rim form was vertical and rim shape contracting. Body sherds were too fragmentary for thickness measurements.

Attributes Of Ceramic Vessel Construction

The Partridge Island collection was extremely homogeneous regarding attributes of vessel construction. The coil method of construction was observable, in the form of coil breaks on sherds, in 77% of the collection. Fractures were otherwise irregular and

and no other recognizable attributes referable to methods of construction were observed. For this reason, non-coil constructed vessels were recorded as being of an unknown method of construction. All but one of the 22 vessels were grit tempered. The single shell tempered vessel was #5, the cordwrapped stick example. Quartz dominated grit temper was observed in 20 vessels while one, Vessel #18, exhibited a mica-based temper. Incomplete oxidization of the ceramic wares during firing due to low temperature, poor draft, or a short firing time (Shepard 1968:104) was suggested by the predominance of gray core regions, (76% of observable cases). External colours ranged through buff to gray, to brown, to red. Most surfaces (82%) were buff or brown. The colour designations for external surfaces, although listed in Appendix III, were not considered particularly diagnostic due to variation often observed on single vessel as a result of firing, use, and post-depositional alteration.

8. Lithic Artifacts

In terms of numbers of individual pieces, the lithic portion of the collection was second in size only to the ceramic portion. Excluding debitage (Figure 29), which accounted for 85.7% of the lithic specimens, lithic tools account for 29.3% of the artifactual material. Bifacial flaking patterns were evident on five or 22.7% of the 22 tool specimens (Figure 30), and unifacial flaking existed on five artifacts (Figure 31). Crushing, as opposed to deliberate flaking, was evident on two or 9.1% of the tool inventory while six (27.3%) of the specimens were examples of ground and/or pecked

Figure 29: Examples of Debitage


5 cm

Figure 30: Bifacially Worked Implements
Specimen # Top 147 (projectile point)
Bottom 116 (medial portion not illustrated)
4

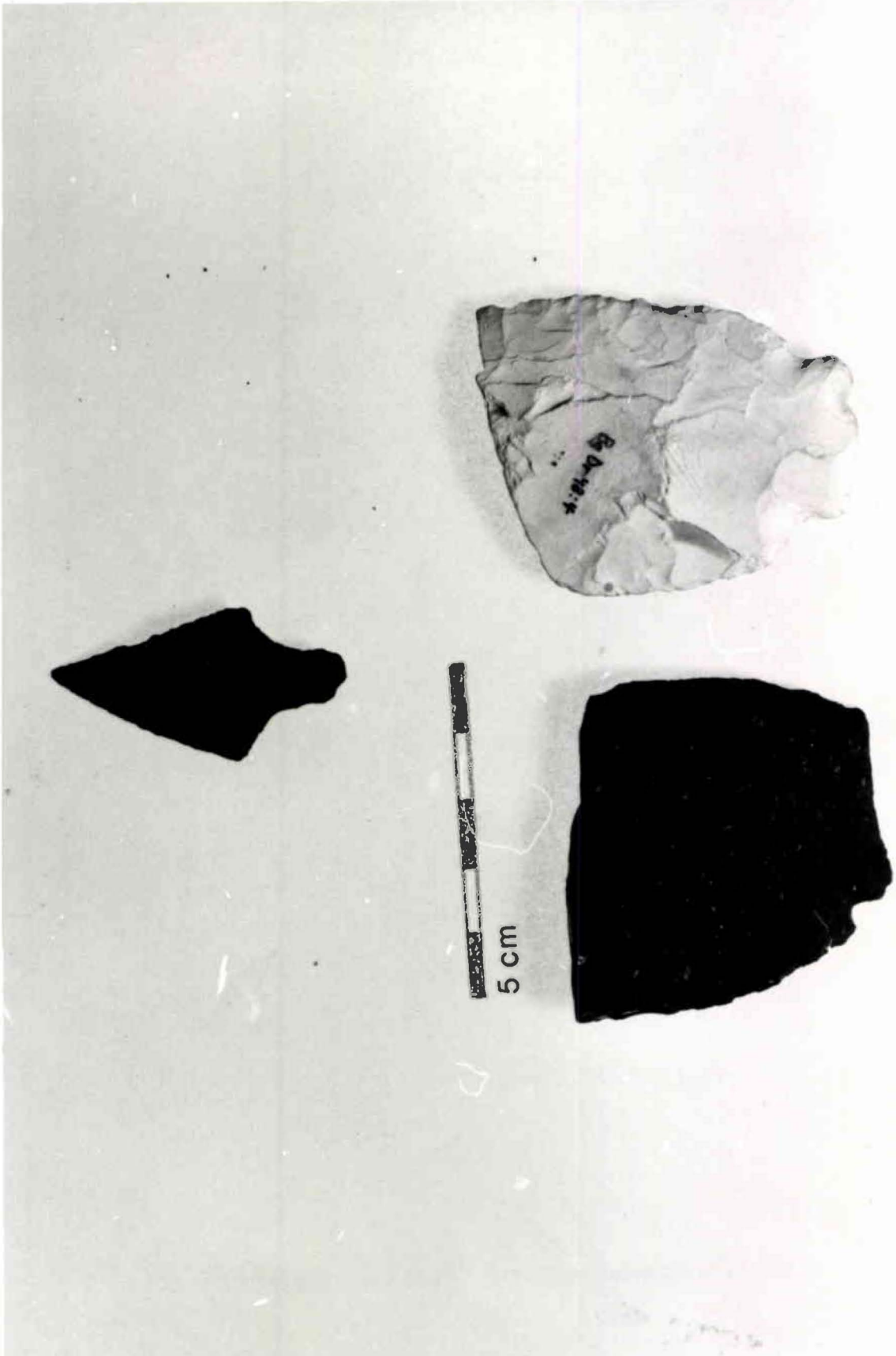
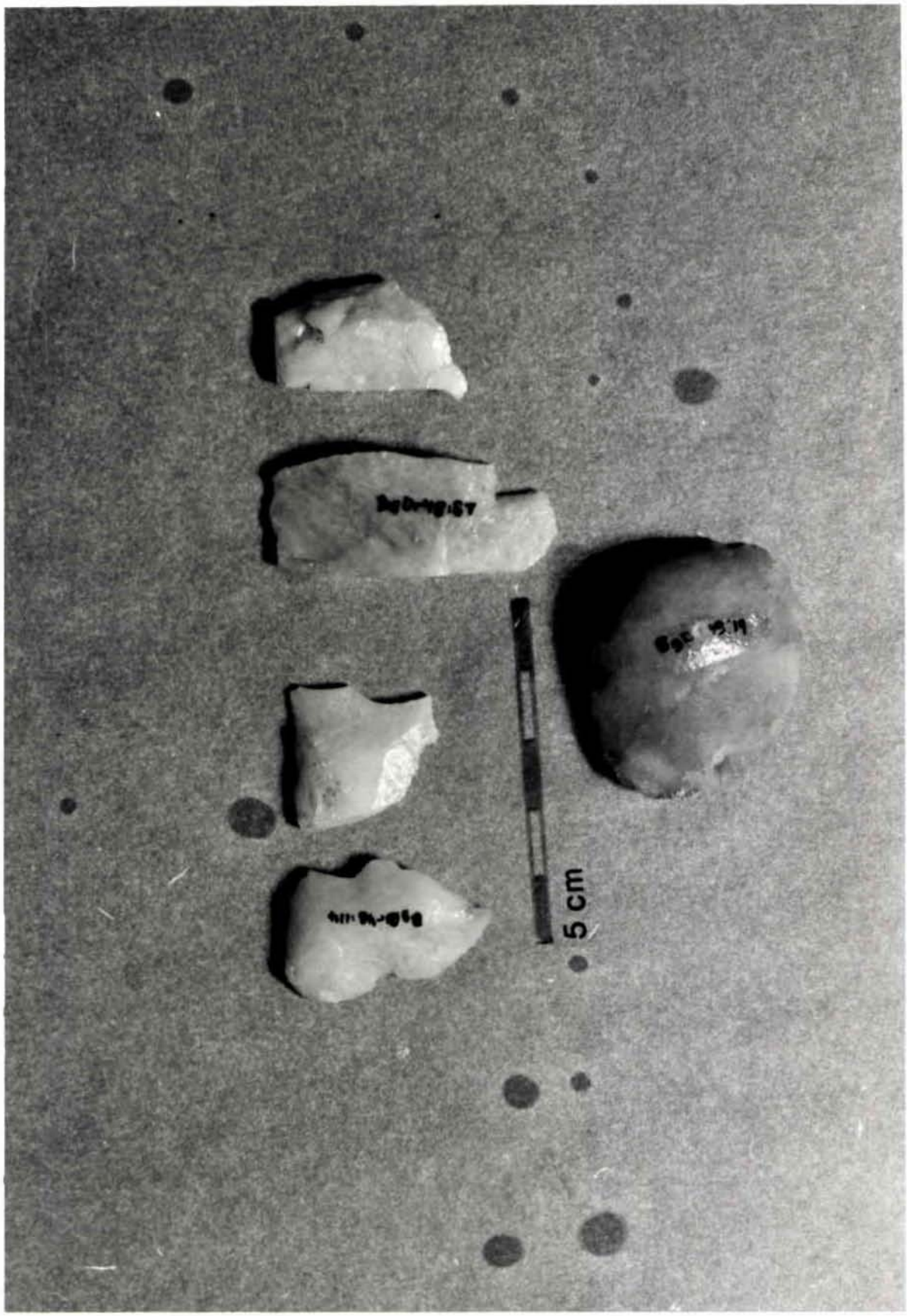

5 cm

Figure 31: Unifacially Worked Implements and Bipolar Flakes
Specimen # Left to Right Top 114, 122,
87a (bipolar flake),
87b (bipolar flake)
Bottom 19


5 cm

stone (Figure 32). Four items were classed under a miscellaneous heading and represented a possible hammerstone and three possible abrasive stones. Individual artifact descriptions and definitions of terminology are included in Appendix IV.

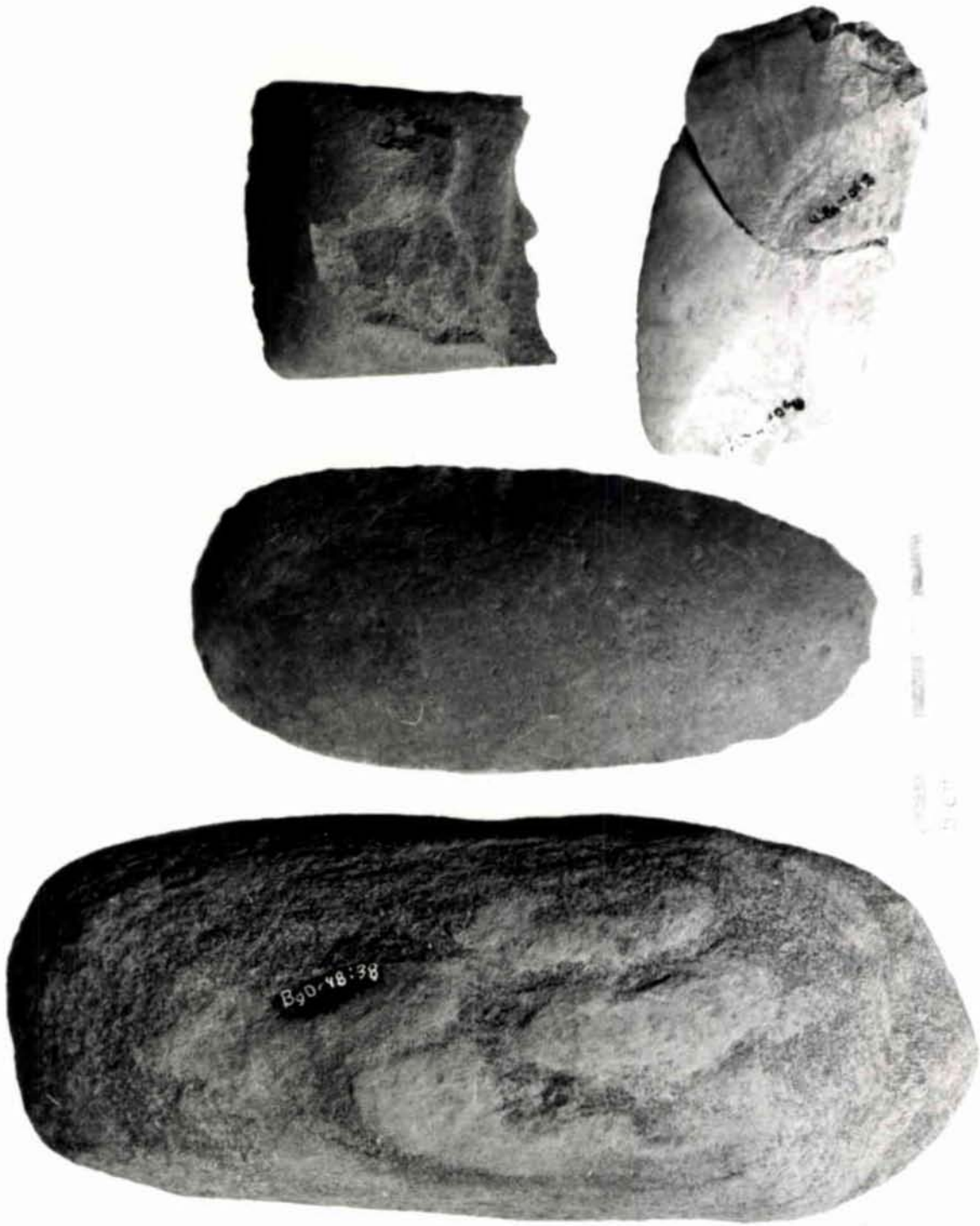
Debitage

The flakes, cores, and few pieces of shatter found at Partridge Island bore no marginal retouch and were not considered to have been employed as tools. The 130 flakes and two core fragments were analyzed with reference to elementary morphological and technological traits discussed in Appendix IV.

Nine different raw materials were represented among the flaking debris. Chert accounted for 41.6%, rhyolite 25.4%, andesite 12.3%, quartz 12.3%, basalt 3.8%, shale 1.5%, gabbro 1.5%, chalcedony .8%, and feldspar .8% of the collection. All of these materials could conceivably have been found on Deer Island or within the confines of Passamaquoddy Bay, which is characterized by "...various areas of silicic volcanic and intrusives, andesitic and basaltic flows, cherts, and clastic and carbonate sediments " (Wilson 1982).

Little primary lithic reduction occurred at Partridge Island.. One quartz and one rhyolite core fragment bearing negative flake scars, plus four flakes having cortex-covered dorsal surfaces were the only indicators of primary decortication. Twenty-six flakes had some dorsal surface cortex indicating secondary decortication procedures (White 1963:5). The remaining chipping debris were no doubt remains of various retouching activities, either on blanks

Figure 32: Ground and Pecked Stone
Specimen # Top Left to Right 38, 22, 113
Bottom 11 and 13


B90-48:38

brought to the site or from rejuvenating worn implements.

With regard to preparation for flaking, 93% of observable cases had ground and/or flaked striking platforms. This preparation, plus the presence of pronounced lipping on 80% of the 85 flakes still bearing a striking platform, suggests that soft hammer percussion or pressure flaking (Crabtree 1972:74) was the primary technique employed in manufacturing chipped stone tools.

Bifaces

This category of artifacts consisted of five implements bearing flake scars on both dorsal and ventral surfaces. Two types of bifaces were recognized: stemmed and non-stemmed.

Stemmed bifaces accounted for three specimens. The complete specimen from this group had a triangular tip and medial section with assymmetric edges, wide angled shoulders, a contracting stem and a blunt, convex base. The tool was fairly small, having a length of 43 mm, width of 22 mm, and a thickness of 7 mm. This tool was assumed to have served as a projectile point or knife.

The other two specimens from this group, although not complete, were considerably larger than the projectile point. Both contained the basal portion of the tool and had transverse fractures (Crabtree 1972:60) through the medial section. In one case the base was slightly concave and thinned with a single, narrow corner notch on the left margin. The remaining specimen had a straight stem with wide angled shoulders and a straight base. Some basal thinning was evident. These two implements were assumed to have been large knives or spear tips.

The non-stemmed bifacial tools at Partridge Island were pebble tools bearing a single bifacially modified edge with little additional surface modification. On one specimen a few random flakes had been removed from the ventral surface of the margin opposing the bifacially worked edge. The other specimen had a smooth proximal surface that may have been the result of grinding and polishing. The two pebble tools may have been scraping, chopping or knife-like implements.

Unifacially Retouched Flakes

Two types of implements, retouched only on the ventral surface, were found at Partridge Island. The first group was characterized by the presence of a deliberately formed edge on the distal margin of the flakes. The second group consisted of three flakes bearing retouch, but lacking any signs of deliberate shaping or forming.

The two formed unifaces were both triangular fragments of quartz flakes with steep retouch along the distal margin of the flakes. The edge angle of one specimen was 56^{o} and for the other, it was 60^{o}. These unifaces represent a tool type commonly referred to as a scraper, although possible uses include cutting, incising, and slotting of various materials.

The non-formed unifaces contained edge retouch which usually followed the natural contours of the flake margins. Two of the three specimens were incomplete, one being the mid-section of a large blade with right lateral retouch, and the other having continuous retouch along the sinuous, distal margin. The complete specimen was

a round, quartz flake with non-continuous retouch on both lateral and distal margins.

Bipolar Implements

Two rectangular fragments of quartz flakes were found, bearing heavy crushing on right and left margins. Such specimens have been referred to as pièce esquillées or wedges and may be the result of a bipolar flaking technique. Functionally, these tools were assumed to have been used for "...gouging, chiseling, cutting and graving in a wood-bone working industry " (Burley 1974:45).

Ground and Pecked Stone

Included in this category were three complete and three fragmentary stone implements deliberately formed or modified by grinding, polishing and/or pecking. Often tools were formed by using a combination of preliminary flaking, followed by pecking, and completed by grinding and/or polishing.

Four of the six ground and pecked stone tools had clearly defined bit ends exhibiting a high degree of polish, some battering from wear, and striations related to both grinding and wear. One of the complete specimens (#48) also had two slight depressions on the lateral margins near the poll end of the tool, suggesting an area of hafting. Another artifact (#22) was originally a large flake. The edges were then pecked and the ventral surface near the bit was ground.

The type of ground and pecked stone tools recorded above are frequently referred to as axes (implements with a symmetrical bevel),

adzes (implements with an asymmetric bevel), or collectively as celts. The function of such tools is assumed to rest primarily with the heavier aspects of wood working. Denys records historic Micmac as utilizing "...stone axes, well sharpened, and set into the end of a forked stick..." (1908:402) in constructing canoes as well as in killing beaver (1908:432). The Partridge Island artifacts may have been used in a similar fashion.

Two specimens lacking clear definition in terms of form were labelled simply as celt-like implements. One (#11) consisted of two flakes which fit together and had highly polished dorsal surfaces, with strong longitudinal striations visible on the ground regions of the flakes. Quite likely this specimen represented a reworking of a celt tool. Specimen #256 was a granitic rock with one naturally bevelled edge. That surface had been slightly ground; however, no evidence of use was apparent.

Miscellaneous Lithic Material

Four artifacts of dubious nature were recovered from the site. Some observable features of the specimens and their cultural associations suggested that they may have been altered by man.

Two of the specimens were roughly oblong in shape. One, #72, was slightly pitted at the proximal end and may have been used as a hammerstone. The other specimen, #394, contained several areas of visible abrasion, possibly cultural.

The remaining two specimens were large granitic rocks found within features. Both contained areas on the dorsal surface

having parallel striations indicating possible use as abraders. One, #593, was found in association with floor feature #14 and several glacially deposited boulders and was a more suspect artifact than #359, which was the only large boulder found within the vicinity of Feature #11, a hearth.

9. Metal

A small, oval copper fragment was located within the midden. The specimen was 27 mm long, 22 mm wide, 2.2 mm thick and weighed 3.2 gm. Although not deliberately formed, the specimen had been beaten.

10. Artifact Distribution And Relationships to Site Components

Most of the artifacts at Partridge Island were located in the more recent deposits of mixed shell, gravel or dark soils, with only the odd flake, ceramic fragment, bone point and biface found deeper than 50 cm below the surface (Table 7). A majority of artifacts were also found in centrally located units containing few or small Component #2 features and massive midden deposits. Unit #4, for example, contained more artifacts than any other unit, had the deepest deposits, and only one feature (#18) was related to Component #2.

Table 8 illustrates the frequency of each general artifact category, not including debitage, found within excavation units. The proportion of artifact categories varied from unit to unit which suggested possible patterning of artifact dispersal. Interpretation was hindered, however, by the limited area of the site excavated, and subsequent inability to sort significant clusterings of artifacts

TABLE 7: Artifact Distributions

Key to Abbreviations:

Organic Artifacts
F1 = Bone points
F2 = Modified incisors
F3 = Miscellaneous bone and antler tools

Ceramic Artifacts
V# = Vessel number (as recorded on schematic diagram, not number of vessels)

Lithic Artifacts
L1 = Debitage
L2 = Bifacial tools
L3 = Unifacial tools (including bipolar flakes)
L4 = Ground and pecked stone
L5 = Miscellaneous lithic artifacts

Metal Artifacts
M = Metal

Component#	Unit #1	F1	F2	F3	V#	L1	L2	L3	L4	L5	M
2	sod-A/378	-	-	-	-	-	-	-	-	-	-
2	A/378-A/388	-	-	-	-	-	-	-	-	-	-
2	A/388-A/398	-	-	-	-	5	-	-	-	-	-
2	A/398-A/408	-	-	-	-	12	-	1	1	-	-
2	A/408-A/418	-	-	-	-	36	-	-	-	-	-
	Unit #2										
2	sod-A/230	-	-	-	-	-	-	-	-	-	-
2	A/230-A/240	-	-	-	-	-	1	-	-	-	-
2	A/240-A/250	-	-	-	-	-	1	-	1	-	-
2	A/250-A/260	-	-	-	-	-	-	-	-	-	-
2/1?	A/260-A/270	-	-	-	-	-	-	-	-	-	-
1?	A/270-A/280	-	-	-	-	-	-	-	-	-	-
	Unit #3										
2	sod-A/220	-	-	-	-	-	-	-	-	-	-
2	A/220-A/230	-	2	-	-	-	-	-	-	-	-
2	A/230-A/240	-	1	1	1	-	-	-	-	-	-
2	A/240-A/245	-	-	-	21	-	-	-	-	-	-
2	A/245-A/250	-	-	-	2	1	-	-	1	1	-
2	A/250-A/255	-	-	-	-	1	-	-	-	-	-
2/1?	A/255-A/260	-	-	-	-	1	-	-	-	-	-
1?	A/260-A/270	-	-	-	-	-	-	-	-	-	-
1?	A/270-A/280	-	-	-	-	-	-	-	-	-	-
	Unit #4										
2	sod-A/320	-	-	-	4	3	-	-	-	-	-
2	A/320-A/330	-	1	-	4	-	-	-	1	-	-
2	A/330-A/340	1	9	2	3,4,5	30	1	6	1	-	1
2	A/340-A/350	1	2	-	7	3	-	-	-	-	-
2	A/350-A/360	1	-	-	8,6	-	-	-	-	-	-
2	A/360-A/370	-	-	-	-	-	-	-	-	-	-
2/1	A/370-A/380	-	-	-	9	-	1	-	-	-	-
1	A/380-A/390	1	-	-	-	-	-	-	-	-	-
1	A/390-A/400	-	-	-	-	-	-	-	-	-	-

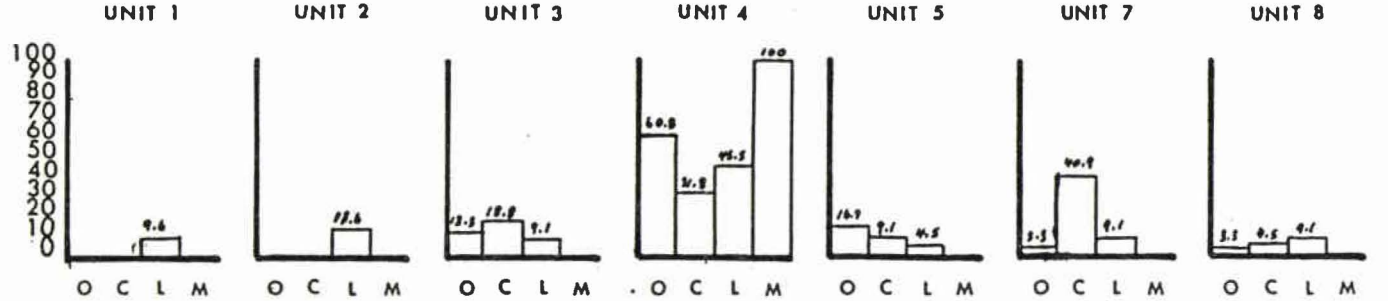
Component#	Unit #5	F1	F2	F3	V#	L1	L2	L3	L4	L5	M
2	sod-A/301	1	-	-	10	7	-	-	-	1	-
2	A/301-A/311	3	1	-	-	5	-	-	-	-	-
2	A/311-A/321	-	-	-	11	13	-	-	-	-	-
2	A/321-A/331	-	-	-	-	-	-	-	-	-	-
2	A/331-A/341	-	-	1	-	-	-	-	-	-	-
	Unit #7										
2	sod-A/327	-	-	-	-	-	-	-	-	-	-
2	A/327-A/337	-	-	-	-	-	-	-	-	-	-
2	A/337-A/347	-	-	-	13,14,22	1	-	-	-	-	-
2	A/347-A/357	-	-	-	13,14,15,22	-	-	-	-	-	-
2	A/357-A/367	-	-	1	16	1	-	-	-	-	-
2	A/367-A/377	-	-	-	17,18,19,20	-	-	-	-	1	-
1	A/377-A/387	-	-	-	-	-	-	-	-	-	-
1	A/387-A/397	-	-	-	-	-	-	-	-	1	-
	Unit #8										
2	sod-A/330	-	-	-	-	-	-	-	-	-	-
2	A/330-A/340	-	-	-	-	-	-	-	-	-	-
2	A/340-A/350	-	-	-	12	-	-	-	-	-	-
2	A/350-A/360	-	-	1	-	-	-	-	-	-	-
2	A/360-A/370	-	-	-	-	3	-	-	1	-	-
2	A/370-A/380	-	-	-	-	5	-	-	-	-	-
	Surface Finds	-	-	-	-	3	1	-	-	-	-
	Totals	8	16	6	22	130	5	7	6	4	1

TABLE 8: PERCENTAGES OF ARTIFACTS

CATEGORIES: O = ORGANIC C = CERAMIC L = LITHIC *excluding debitage M = METAL

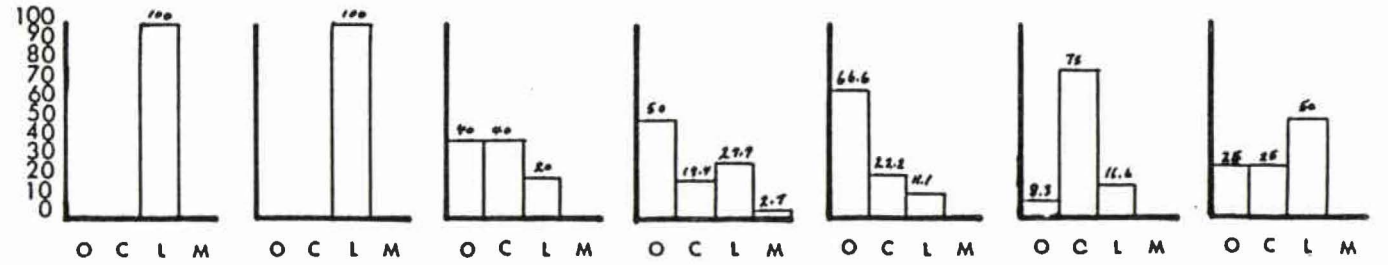
% OF TOTAL

ARTIFACT CATEGORY



% OF ARTIFACT

CATEGORY PER UNIT



from variable but insignificant groupings.

Most units contained some examples of all artifact categories. The predominance of lithic material in Unit #1 has already been attributed to lithic manufacturing in association with Feature #1, a floor. In Unit #2 where lithic material was also the only category represented, the artifacts uncovered were found lying among unmodified rocks surrounding Feature #2, a large pit. Unit #7 was the only other unit which contained greatly disproportionate numbers of particular artifact categories. The high incidence of ceramic vessels and low frequency of organic and lithic artifacts suggests the area may have been associated with a pottery manufacturing locus, although no pits or evidence of raw material were found in the area excavated. More likely this represents a dump of debris from a floor area used nearly exclusively for cooking purposes.

11. Non-artifactual Faunal Remains

Preliminary analysis of faunal remains from the Partridge Island site was performed by David Black. This discussion represents only a summary of Black's findings and interpretations to date. The bone assemblage, including the artifacts, contained 3940 bones and bone fragments greater than 5 mm in their largest dimensions.

> Of these, 1147 pieces (28% of the assemblage) are identifiable as fish bone, 417 (11%) as bird bone, and 2333 (59%) as mammal bone. Of the mammal bone, about 199 fragments (9%) have been identified as sea mammal. About 1% of the bone fragments are unidentifiable as to class (Black 1982).

Black (1983:personal communication) reported that most of the large fish bone at the site was identifiable as Gados morhua,

Atlantic cod. Smaller bones representing herring (Clupea harengus) were also found. Bird bones were, at this writing, unidentified as to species. Examination of teeth and maxilla/mandible fragments led to the identification of the following mammals: beaver (Castor canadensis), marten (Martes americana), dog or wolf (Canis, spp), deer (Odocoileus virginianus), and seal (Phoca spp). Beaver and deer were recorded as the most numerous vertebrate elements present (Black 1982).

Marine shell was also examined as part of the faunal assemblage. One chiton, five gastropod, eight pelecypod, at least one crustacean, and one echinoderm species were identified. Of these 16 species, the soft shell clam (Mya arenaria), horse mussel (Modiolus modiolus), blue mussel (Mytilus edulis), dogwinkle (Nucella lapillus) and sea urchin (Stronglyocentrotus droebachiensis) account for 99% of the shell remains (Black 1982).

Distribution of Faunal Remains

Black's analysis also addressed distribution of faunal remains across the site. Bone remains were not randomly dispersed but concentrated in superimposed lenses of shell and gravel particularly those associated with ceramic and lithic debris. Mammal bones occurred with high frequency in the general bone and artifact concentrations while fish bone frequency correlated with the lowest stratigraphic levels. Most of the fish remains, and particularly the Atlantic cod specimens, were associated with Component #1 deposits (Table 9). Shellfish remains were, with the exception of the five most common species which were present in all samples, distributed at various levels in all shell deposits (Black 1982).

TABLE 9: Distribution of Faunal Remains by Class* (Selected Units)

Component #	Unit #4	%Fish	%Bird	%Mammal	%Unknown	Totals
2	sod-A/320	0.0	16.0	84.0	0.0	100.0
2	A/320-A/330	96.0	0.0	4.0	0.0	100.0
2	A/330-A/340	4.5	27.0	68.0	0.5	100.0
2	A/340-A/350	.5	6.5	93.0	0.0	100.0
2	A/350-A/360	35.0	21.0	44.0	0.0	100.0
2	A/360-A/370	39.0	7.0	51.0	3.0	100.0
2/1	A/370-A/380	96.0	1.3	2.6	0.0	99.9
1	A/380-A/390	96.0	0.0	4.0	0.0	100.0
1	A/390-A/400	93.0	7.0	0.0	0.0	100.0
	Unit #7					
2	sod-A/327	17.0	17.0	67.0	0.0	101.0
2	A/327-A/337	25.0	26.0	47.0	2.0	100.0
2	A/337-A/347	21.0	12.0	67.0	0.0	100.0
2	A/347-A/357	10.0	5.0	83.0	2.0	100.0
2	A/357-A/367	4.0	13.0	83.0	0.0	100.0
2	A/367-A/377	7.0	6.0	86.0	1.0	100.0
1	A/377-A/387	73.0	2.0	25.0	0.0	100.0
1	A/387-A/397	90.0	0.0	0.0	10.0	100.0
1	A/397-A/407	0.0	0.0	0.0	100.0	100.0
	Unit #5					
2	sod-A/301	0.0	6.0	94.0	0.0	100.0
2	A/301-A/311	2.0	2.0	94.0	2.0	100.0
2	A/311-A/321	6.0	21.0	69.0	4.0	100.0
2	A/321-A/331	0.0	100.0	0.0	0.0	100.0
2	A/331-A/341	0.0	0.0	100.0	0.0	100.0

* (After Black 1982)

Seasonality

Preliminary analysis suggested probable summer/fall seasonal visits to the site during the Component #1 occupation (Black 1982: personal communication). Large fish such as cod could only be caught by line fishing from a boat, offshore during open water seasons (Sanger 1982).

Black (1982:personal communication; 1983:personal communication) reports the faunal assemblage associated with Component #2 is not so different from assemblages found at other Passamaquoddy Bay shell midden sites. Indications are strongest for fall, winter, and spring visits (McCormick 1980). Small fish which tend to run through spring and summer months would most easily be caught in brush weirs located near the shores (Sanger 1982). The presence of herring at Partridge Island indicates summer visitations cannot be discounted.

The shellfish also may indicate seasonality (Black 1982:personal communication). Sea urchin provide maximum edible material during the fall (MacKay, 1976), although they would be more easily gathered during the spring when extreme low tides make the subtidal region more accessible. The mussel, another subtidal inhabitant is, however, no more accessible during extreme low tides than during average drops and could have been harvested year round (Black 1982:personal communication). The soft shell clam is also potentially available all year from intertidal mud flats.

All sources indicate a certain ambivalence in setting a single season for utilization of the site. Even the presence of various pit features on the site suggest the possibility of storage and subsequent

year round occupation.

12. Radiocarbon Dates

Four wood charcoal samples were submitted for radiocarbon assay. Three of these dates pertain to Component #2 deposits and the fourth dates Component #1.

The most recent date returned was associated with Feature #1, a floor, and #20, a hearth. The sample (BgDr-48:7), collected a few centimeters below the top of cultural deposits in Unit #1, was submitted in order to ascertain the termination point of the prehistoric utilization of Partridge Island. A date of 1550 $\pm$ 50 B.P. (Beta-3968) based on a half-life of 5568 years was returned and considered acceptable. The corrected date (after Ralph, Michael and Han 1974) was 430 $\pm$ 60 A.D. (1520 $\pm$ 60 B.P.).

A date of 1650 $\pm$ 80 B.P. (I-12,381), also based on the 5568 year half-life, and corrected to 320 $\pm$ 90 A.D. (1630-1660 $\pm$ 90 B.P.) was returned on a sample (BgDr-48:392) associated with Feature #13, a pit. Vessels #13 and #14 were found within this pit. Vessel #13 was decorated with an alternate notch design, incising on the lip and on interior rim surfaces, while #14 was a relatively thick, rocker stamped dentate, interior rim decorated vessel.

The third date of 1880 $\pm$ 80 B.P. (I-12,382), corrected to 90 $\pm$ 90 A.D. (1860 $\pm$ 90 B.P.), was returned on a sample located about 10 cm above Feature #8. Vessel #8, a rocker dentate stamped pot, was found in the level above the carbon sample and Vessel #9, bearing a plain, linear trailed decoration, was found below the carbon sample. The

only complete, contracting stemmed biface was also found in deposits pre-dating this carbon sample.

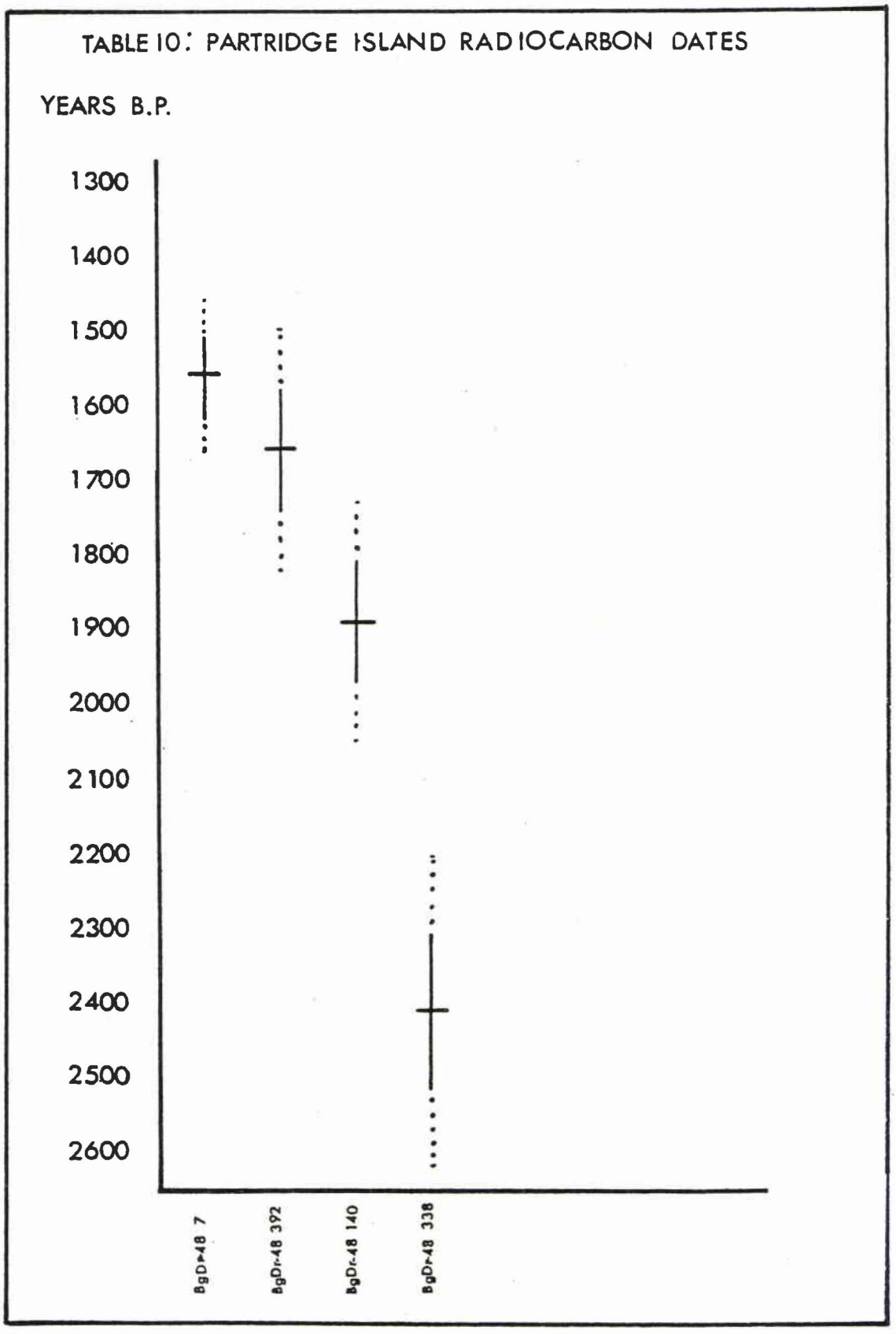
The final sample (BgDr-48:338) was taken from the interface of Feature #8, a Component #1 feature, and Component #2 midden deposits. It was expected that this sample would provide a date on the initial occupation of the site. The date returned was 2400 $\pm$ 105 B.P. (S-2215). Corrected this date was 500-640 $\pm$ 115 B.C. (2450-2590 $\pm$ 115 B.P.). Feature #8 and the contracting stemmed biface and Vessel #9 were assumed to be associated with this date.

Radiocarbon dates (Table 10) confirmed the two component nature of the Partridge Island site, also demonstrated by the stratigraphic and feature analysis. The temporal gap between Component #1 and Component #2, according to the radiocarbon dates was a maximum of about 350 years (at Sigma 1), while the Component #2 dates clustered around an 80 year span where no overlap existed.

13. Summary

Stratigraphic analysis has indicated two distinct components at the Partridge Island site. Component #1, radiocarbon dated at 2400 $\pm$ 105 B.P. was represented primarily by two distinct floor features, Feature #8 and #14. Features #19 and #15, hearths, were also definitely from Component #1, while #11 and #12 were included because they lay in areas of subsoil below Component #2 deposits. The stratigraphic layers in which the two floor features and hearths (Features #19 and #15) were found yielded roughly 81% of the total fish bone found on the site

TABLE 10: PARTRIDGE ISLAND RADIOCARBON DATES



(Black 1982). Feature #8 also contained the diagnostic artifacts associated with Component #1; the contracting stemmed projectile point, and plain, linear trailed decorated Vessel #9. A bone point (#351) was also associated with Feature #8. No diagnostic artifacts were found in any other Component #1 deposits.

The few artifacts, restricted number of features, and preponderance of fish bone suggests Partridge Island was used as a temporary campsite during Component #1 times. A small number of people probably visited the site occasionally or perhaps only once. The primary importance of the island seems to have been as a fish processing station. Occupation would probably have been restricted to the summer and fall months when cod could easily be obtained by offshore line fishing.

Component #2, radiocarbon dated at 1880 $\pm$ 80 B.P., 1650 $\pm$ 80 B.P., and 1550 $\pm$ 50 B.P., was stratigraphically represented by extensive shell and gravel deposits. These contained all of the pit features excavated at Partridge Island as well as Feature #1, a floor, and Features 5, #9, #20 and #21, all hearths. Most of the artifactual remains which included bone points modified beaver incisors dentate, alternate notch and cordwrapped stick decorated ceramic vessels as well as bifacial, unifacial and ground tools, were located in Component #2 deposits. The faunal remains from these deposits were predominately mammalian with examples of beaver, marten, deer and seal represented. Small fish and birds were also present. Shellfish, particularly the soft shell clam, horse mussel, blue mussel, dogwinkle and sea urchin were also exploited.

The numerous and varied features, the concentrations of artifacts and varied faunal remains suggest a diversification in site utilization between Component #1 and Component #2. Visits to the site would appear to have been frequent, if not of some duration. Primary activities at the site appeared to have been related to food procurement; shellfish gathering, hunting (probably on nearby larger islands or the mainland), and limited fishing. The preferred season for occupation of the site during Component #2 times is uncertain and it would appear that the site could have been used year round.

IV

PARTRIDGE ISLAND AND PASSAMAQUODDY BAY CHRONOLOGY

1. Passamaquoddy Bay Prehistory

Archaeological reconstruction of the prehistory of the Passamaquoddy Bay region begins during the Late Archaic or Transitional periods, prior to the introduction of ceramic wares to the region. Very little is known about the time period prior to 2,500 B.P.. It is generally believed that rising sea levels obliterated most, if not all, the coastal sites of Archaic tradition peoples. Sanger remarks "...site survey to date has not been oriented towards locating their living areas due to the emphasis on the location of shell midden sites" (1971:15). At present, the only examples of the Archaic Tradition period in Passamaquoddy Bay are a cache of five grooved groundstone axes found eroding from Rouen Island, a non-shell midden coastal site that might prove aceramic (Davis and Ferguson 1980), and the presence of large, straight stemmed points, in the collections of local residents, which are possibly related to the Susquehanna tradition.

This extreme paucity of data means that nothing is known of the lifeways of the earliest prehistoric peoples of Passamaquoddy Bay. For the present, one can only assume that patterns such as those uncovered at the Turner Farm site (Bourque 1975), and the Hirundo site (Sanger and McKay 1973), as well as those derived from Maritime Archaic Tradition sites such as Cow Point (Sanger 1973) and Port aux Choix (Tuck 1971), were

duplicated in Passamaquoddy Bay. Evidence from Late Archaic (5,000-3,000 B.P.) sites suggests "...a broadly-based adaptation, which included large marine species such as swordfish and seals, large terrestrial animals such as deer and possibly moose, in addition to fish, birds and shellfish" (Sanger 1975:62). The tool kit associated with the period following 4,000 B.P. consisted of stemmed points, partially grooved shallow gouges, long slim slate points, numerous plummets, harpoons, fish hooks and a rich bone and antler industry (Sanger 1975:62).

The period generally referred to in the Northeast as "Transitional" and/or "Early Woodland" (3,000-2,000 B.P.) (Ritchie 1980) is only slightly better understood than the Archaic proper. The earliest radiocarbon date for a Passamaquoddy Bay site (excluding the Partridge Island site) is 2370 $\pm$ 80 B.P. returned from the Minister's Island site (Wilmeth 1978:151). Contracting and straight stemmed projectiles are generally thought to be the primary diagnostics associated with the 2,000-3,000 B.P. period, and were found in uncertain context at Minister's Island as well as the basal layers of other shell midden sites (Davis 1978). Large, unifacial scraping tools are the only other artifacts attributed to this period (Davis 1978).

In central and northern coastal Maine, this period of time is also poorly understood. Sanger (1980:27-28) reports that assorted parallel and contracting stemmed biface specimens were found at Fernald Point. These were assumed to be "...early in the Ceramic Period or late Archaic in age" (Sanger 1980:28). Bourque and Cox, reporting on their work at the non-shell midden, coastal Goddard site, state:

> We were fortunate in 1979 to uncover a pit in Area 1 containing a broadly notched biface ... associated with a small sample of charcoal dated to 2840 ± 105 BP (SI-4256). No other features and no faunal remains can be definitely associated with this period (1981:12).

Bourque and Cox also discuss other diagnostics associated with the 3,000-2,000 B.P. period.

> The earliest ceramics known from Maine are a Vinette 1-like ware estimated to date within the later half of the third millenium BP in Maine. ...a number of lithic artifacts possibly dating within this period have been identified. These include small stemmed points similar to Moorehead specimens.... Additionally, a pit containing two small chipped and extensively ground celts excavated by Mellgren produced a radiocarbon date on charcoal of 2300 ± 120 BP (RL-369) (Bourque and Cox 1981:12)

Recent excavations and analysis of materials found at deeply stratified sites elsewhere in New Brunswick add greatly to coastal Maine-Maritime sequences. At the Oxbow site (CfD1-1) in northern New Brunswick, Allen dated straight stemmed points at approximately 2,800 B.P.; lobate base, stemmed points between 2,600 and 2,800 B.P.; small, expanding stemmed or wide notched points at about 2,600 B.P. and contracting or bipointed stemmed points at about 2,000 B.P. (1980:111-112). Allen also noted that unifacial scraping tools were far more common during the middle period (circa 2,200-1,200 B.P.) than in earlier and later times. A similar sequence was recorded for the Fulton Island site in central New Brunswick (Foulkes 1981). Though not necessarily recognized in precisely their proper chronological position, all these artifact types can be identified in various Passamaquoddy Bay collections. For instance, Davis (1978:55,Plate v) groups as a single unit a variety of straight, bipointed, and contracting stemmed points that correspond to forms variously dated between

2,600 and 1,700 B.P. at the Oxbow site. However, these artifacts were all assigned to an aceramic component at Teacher's Cove which was assumed to predate 2,000 B.P. (Davis 1978:29-31).

Prior to the analysis of the Fulton Island and Oxbow sites the introduction of ceramic wares to the Maritime region was thought to have occurred about 2,000 B.P.. We now know that ceramics were used in northeastern New Brunswick at roughly the same time as stemmed points dated at circa 2,600 B.P. (Allen 1980:140). However, the ceramic tradition in Passamaquoddy Bay has not been documented as appearing much earlier than about 2,000 B.P. (Sanger 1971).

The phenomenon of the shell midden is believed to have been introduced from more southerly coastal regions (Braun 1974; Ritchie 1969; Sanger 1971), and is best documented in Passamaquoddy Bay from the 2,000 B.P. date to pre-contact (400 B.P.). The Passamaquoddy Bay ceramic sequence begins with thin, well-fired, grit-tempered dentate stamp decorated vessels (Sanger 1979:113). Psuedo-scallop shell motifs are also found in the early part of the sequence (Sanger 1971:2). These ceramics bear considerable stylistic resemblance to other Middle Woodland period ceramics found throughout the Northeast, particularly those of the Point Peninsula dentate rocker stamped and St Lawrence pseudo scallop shell types (Ritchie and MacNeish 1949).

After 1,000 B.P., Passamaquoddy Bay ceramic vessels are thicker with coarser grit and large dentates or they are cordwrapped stick decorated and shell tempered (Sanger 1979). Ceramics also begin to decline after 1,000 B.P. and are not used at the time of contact. There is an increase in narrow side and corner notched projectile point forms, while scrapers become small and more frequent in number

(Sanger 1979).

The sequence established for the Central Maine Coast (Bourque 1971) is very similar to that known for Passamaquoddy Bay. Bourque identified three types of ceramic ware for the Central Maine region (1971:193-204). Wiesenthal ware, the earliest type, was the thinnest and hardest pottery. About 90% of decoration on these sherds was dentate, plain or rocker stamped; however, linear incisions and psuedo-scallop shell impressions were also noted (Bourque 1971:194). Bourque indirectly dated the Wiesenthal ware between about 50 A.D. and 300 A.D. (1971:196). Eaton ware was seen as a direct development from Wiesenthal ware (Bourque 1971:196). Eaton ware was decorated primarily with dentate stamping. Punctations, collars and castellations were also associated with this type (Bourque 1971:196-200). Eaton ware was chronologically positioned between about 200 A.D. and 1,200 A.D. (Bourque 1971:196). The third ceramic ware type, Grindle ware, appeared at some point between 860 A.D. and 1,130 A.D. (Bourque 1971:201-204). This type was characterized by coil manufactured, shell or grit tempered pottery decorated with a cordwrapped stick design (Bourque 1971:201-204).

The ceramic sequence known for Great Diamond Island, Casco Bay in southern Maine (Hamilton and Yesner 1981), is slightly different from that postulated by Bourque. First, the Great Diamond Island series contains Vinette 1-like ceramics (Hamilton and Yesner 1981:no page reference). Stratigraphically, these occur early in the sequence and are firmly dated at 2315 ± 130 B.P. (GX-7018) (Hamilton and Yesner 1981:no page reference). A radiocarbon date of 1835 ± 135 B.P. (GX-681) "...certainly dates the Early Middle Woodland Dentate assemblages at

Great Diamond Island" (Hamilton and Yesner 1981:no page reference). This ceramic assemblage is characterized, like the central Maine and New Brunswick examples, by linear (plain stamped) dentate and rocker dentate vessels. A cordwrapped stick ceramic assemblage is reported to be later than the dentate series (Hamilton and Yesner 1981).

Bourque was unable to state much in terms of a chronological sequence from his observations of projectile points; however, he was able to identify two types, the Eaton corner notched and Wiesenthal side notched point types (1971:170). Bourque observed that the side notched point was the dominant point form in all ceramic period (Woodland) collections (1971:173). Bourque also noted that Levanna-like points were found south of Penobscot Bay (1971:176; 1981:Plate II, g and h), and probably correspond to the Martha's Vineyard temporal sequence where this point type appears about 700 A.D. and persists into the historic period (1971:175; Ritchie 1969:231). The central Maine data also suggested that end scrapers become more numerous in later times (Bourque 1971:176).

The settlement pattern data for the entire later period of Passamaquoddy Bay prehistory illustrates a preference for locating sites near fresh water sources on low lying southerly or easterly exposures near the shore. Rock hearths and pits of various forms are numerous and oval house structures about 3 m long and 2.5 m wide are widespread (Davis 1978; Lavoie 1972; Matthew 1884; Sanger 1971). This is also generally the case for coastal Maine (Bourque 1971:101-165, Sanger 1981:41) and indicates a certain cultural homogeneity

through the region from about 2,000 B.P. to the time of contact.

Data from faunal remains suggests possible year round occupation of most sites with strongest indications of late fall to spring residence (Bourque 1971:229-232; McCormick 1980; Sanger 1979:109). A broad range of land and sea mammals, fish and shore birds are represented at all sites (Sanger 1979:108; 1981:41). White tailed deer and beaver are the most numerous of the terrestrial animals, with seal the predominate sea mammal, and sculpin the most commonly reported fish (McCormick 1980; Sanger 1979:108). In Passamaquoddy Bay, shellfish remains are predominately soft shell clam; however, mussel, other shellfish and sea urchin are also present. Other coastal areas such as those in Maine and Nova Scotia boast shell middens in which quahog (Mercenaria mercenaria) and oyster (Crassotrea virginica) may also be present or predominate (Dow 1971:6; Hadlock 1941:23; Sanger 1979:108; Smith and Wintemberg 1929:95,113).

2. Partridge Island and Passamaquoddy Bay Prehistory

The Partridge Island data clarifies certain aspects of the broader chronological picture presented above. Component #1 deposits are, at present, the best documented 'Transitional' and/or 'Early Woodland' period manifestations in the Passamaquoddy Bay region. Clearly defined features (#8, #14, #15 and #19) and a distinctive faunal assemblage (predominately Atlantic cod fish) have been located in direct association with diagnostic cultural remains such as the contracting stemmed projectile point. This point is not a common type in the Passamaquoddy Bay collections; however, it occurs frequently in collections from Prince Edward Island and northeastern New Brunswick (Keenlyside 1982). In these areas, the point is

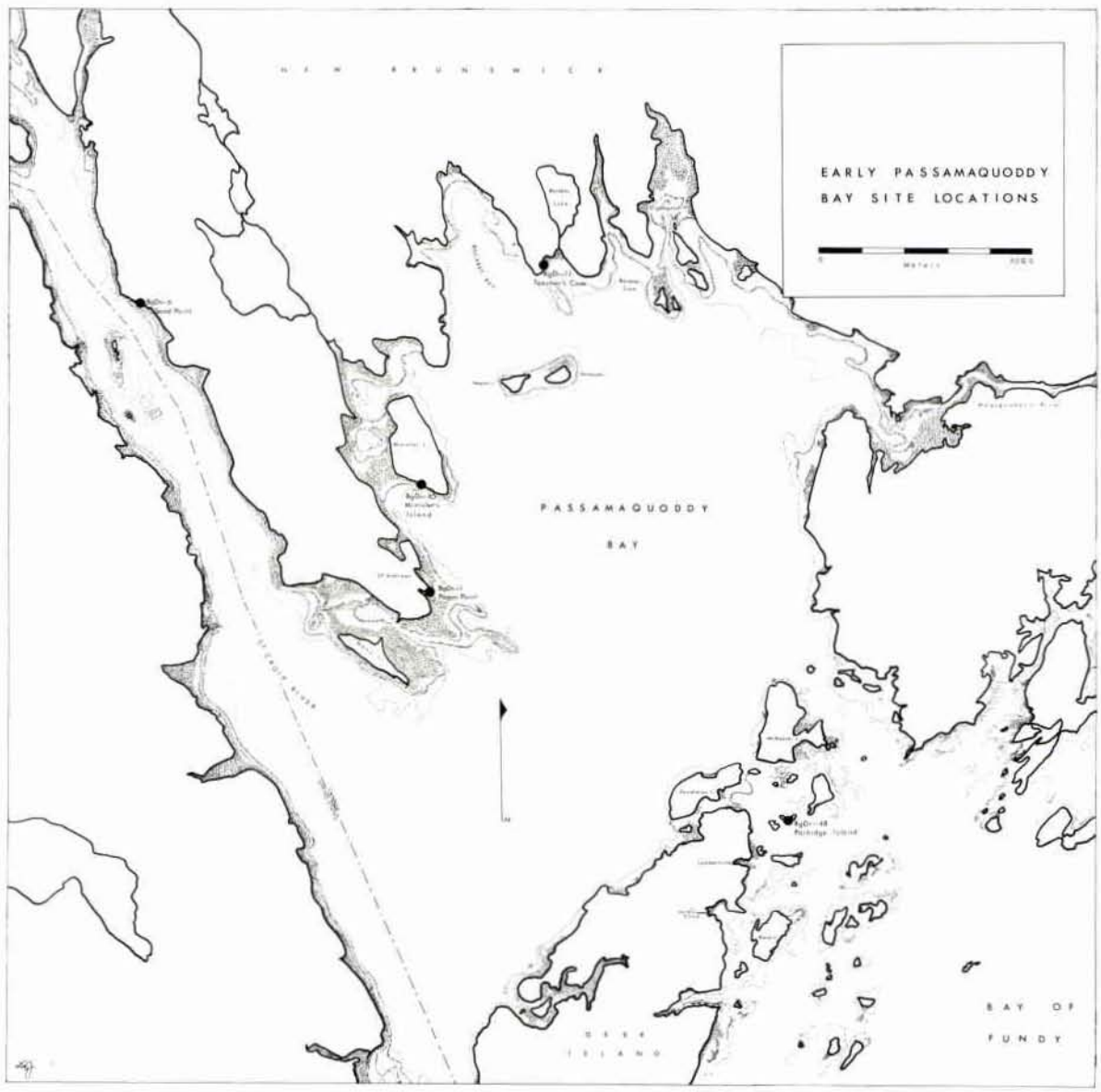
found in contexts dating prior to 2,000 B.P. up to late prehistoric times. Visually, these point reflect Bourque's and Cox's description of the small stemmed points, similar to Moorehead (Archaic) points, which appear to date between 3,000 and 2,000 B.P. in Maine (1981:12). Typologically, these points and the Partridge Island example correspond to the Rossville and/or Lagoon types (Ritchie 1961:46; 1969:245) that are predominant during the Early Woodland period in the Martha's Vineyard sequence (Ritchie 1969:231).

The piece of plain, linear trailed ceramics (Vessel #9) located at the interface of Feature #8 and Component #2 midden deposits may represent a pre-2,000 B.P. (Early Woodland) ceramic presence in the Bay, particularly as it was sandwiched stratigraphically between deposits dating to 1880 and 2400 B.P.. Hamilton and Yesner (1981), who appear to define incising as any non-toothed design, indicate that, although not a predominate decoration, plain linear designs do occur in stratigraphic association with Vinette 1-like ceramics in Casco Bay.[1]

As well a theory, not mentioned in the summary description, postulated by Sanger (1971) and adopted by Lavoie (1971) is proven incorrect by Partridge Island data. Until 1981, it was thought that the earliest dated shell midden sites of Passamaquoddy Bay were located around the St. Croix River (Figure 33). It was felt that rising sea levels altered the intertidal morphology making the St. Croix River area less conducive to shellfish gathering than shoreline areas to the southeast. A movement of people and settlements southeast towards the Bay mouth was suggested.

Partridge Island sits in a chain of islands at the southeasterly

Figure 33: Early Passamaquoddy Bay Shell Midden Sites
BgDs-6 Sandy Point (Sand Point)
BgDs-10 Minister's Island
BgDr-11 Teacher's Cove
BgDr-48 Partridge Island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mouth of Passamaquoddy Bay. Its two components, one possibly pre-dating most of the St. Croix area sites and the other contemporaneous with those locales, suggests the entire Bay region was well known by prehistoric people and widely exploited at all times during the known prehistoric sequence. This has also been the case in Maine multi-component sites, such as the Turner Farm (Bourque 1975).

With regard to ceramics, Partridge Island data conforms to the general chronology discussed above for the Middle Woodland-related period. The ceramics dated at about 2,000 B.P. are nearly exclusively tightly spaced, dentate stamped with a few examples of a trailed linear design, probably equivalent to Bourque's Wiesenthal and Eaton wares (1971:194,196). By about 1,600 B.P. alternate notching is more important and dentate vessels are becoming thicker walled with less tightly spaced elements. The single cordwrapped stick specimen, probably an example of Bourque's Grindle ware (1971:202), was located in the upper levels of Unit #4 and may indicate the transitional period between about 1,200 and 1,000 B.P. when cordwrapped stick ceramics with shell tempering come into use. However, this vessel is different from cordwrapped stick ceramics viewed in collections from later dating shell midden sites such as the Carson site. The Partridge Island vessel has very fine cord imprints on a thin walled vessel. The preservation of this vessel in particular was poor, with the pieces broken up in numerous tiny, exfoliated sherds. The more typical later dating vessels have very thick walls, usually a less fine and more widely spaced cord imprint and tend to be recovered in a better state of preservation. Shell temper seems to be the primary similarity of

the vessels.

Partridge Island data does not permit refinement of the post-2,000 B.P. lithic sequence. Although most general categories were represented, none were large enough or sufficiently representative of the major diagnostic groupings to be used as sensitive temporal indicators. A similar situation was encountered with the organic artifacts.

The settlement, subsistence and seasonality data obtained from Partridge Island for the post-2,000 B.P. period also corresponds with the information obtained from other Passamaquoddy Bay and coastal Maine sites. The site contained numerous and varied feature forms and displayed exploitation of a wide variety of species during fall, throughout the spring, and possibly into the summer months.

V

VARIABILITY IN EARLY AND MIDDLE WOODLAND-RELATED ASSEMBLAGES

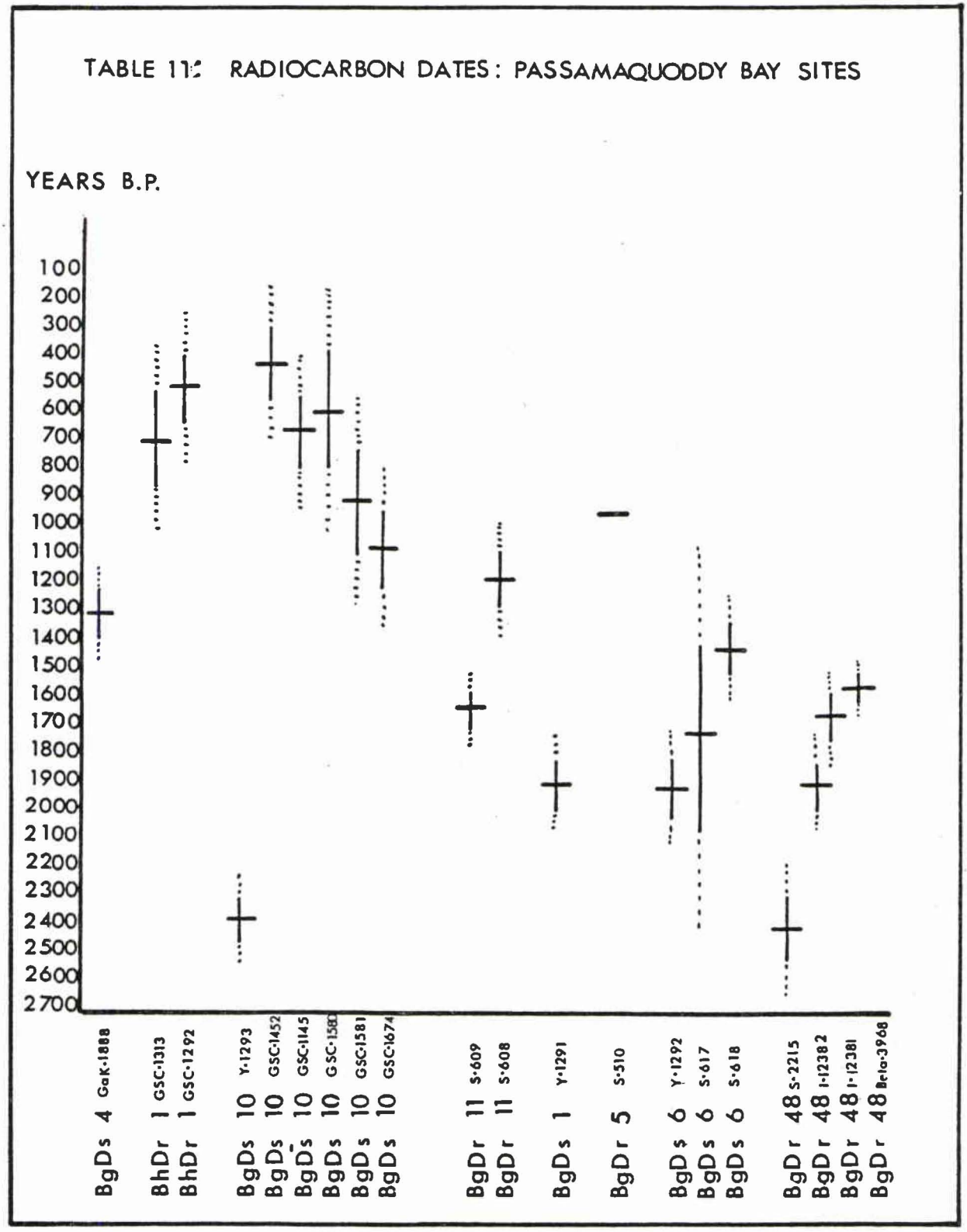
1. Introduction

Though the general chronological picture of Passamaquoddy Bay prehistory has been known for some time, the relationship between contemporaneous sites and site components has never been studied except in terms of faunal remains (McCormick 1980; Stewart 1974). Originally this study was designed to examine the variability between assemblages found at island and mainland sites. Some striking dissimilarities that could be accounted for by differing orientations to the marine and/or terrestrial environment were expected. It quickly became evident during analysis that, although certain variation appeared in the comparative record, the overall state of analysis and documentation was not precise enough to permit more than some speculation on assemblage variation or lack therof. It was also recognized that a comparative study, even if non-quantitative, was sorely needed as a base from which future research could progress.

2. The Comparative Sample

In choosing sites to compare with Partridge Island it was first necessary to determine which sites were roughly contemporaneous with both Component #1 and Component #2 deposits. Radiocarbon dates from Passamaquoddy Bay midden sites illustrated the lengthy period during which shellfish exploitation was popular (Table 11). Overlap

TABLE 11: RADIOCARBON DATES: PASSAMAQUODDY BAY SITES



of the dates at the Sigma 1 level suggested only four of the eight dated sites were roughly contemporaneous with Partridge Island. These included BgDr-11 (Teacher's Cove), BgDs-1 (Pagan Point), BgDs-6 (Sandy Point) and an early component from BgDs-10 (Minister's Island) (see Figure 33). The Minister's Island site in all probability was located on a peninsula during the prehistoric period and is considered throughout this analysis to be equivalent to mainland coastal sites.

On the basis of certain sensitive chronological indicators, such as projectile point forms and ceramic decorative patterns, visual examination of undated site collections suggested that other sites, including BgDr-1 (Phil's Cove) and BgDs-2, may have had early components contemporaneous with Partridge Island. In the case of these sites, however, collections were too small to warrant meaningful comparisons.

Available data regarding the four sites chosen for comparative purposes was highly variable in quantity and quality. A site report (Davis 1978) and some faunal analysis (Burns 1971) existed for the Teacher's Cove site. The method of presentation, however, made it extremely difficult to isolate chronological positioning of most artifact groups and features. Pagan Point has never been formally analyzed and information was drawn from a few field notes, visual inspection of the collection, and references made by Pearson (1970) in a short article on Passamaquoddy Bay research. Partial faunal analysis was also performed for this site (Churcher 1963).

Sandy Point was formally analyzed by Lavoie (1972) with faunal analysis by Burns (1970_b). It was also difficult to determine from this report the chronological placement of the artifact groups and features discussed. Additionally, the mixture of North American and

European classification systems tended to complicate correlation of artifact groups between sites. Finally, the Minister's Island collection has not yet been completely analyzed, although reference to it occurs in the works of Pearson (1970) and Sanger (1971; 1976; 1979; 1982). Information on faunal remains was found in the works of Churcher (1963), Burns (1970a), Bonnichsen and Sanger (1977) and McCormick (1980).

As a result of the difficulties mentioned above, specific and quantified comparisons were impossible to produce. It was necessary first to translate all available data into comparable terminology, a process which quickly eliminated considerable detail. The relative chronological placement of various artifact categories was performed first by organization around provenience and radiocarbon data where available. Secondly, comparisons were made to the generally accepted cultural historical sequences noted earlier in the text, ie. Oxbow and Fulton Island. Tables 12 and 13 list general artifact classes and attributes of these classes for the five sites used in the comparative study, based on the suggested two component structure of Partridge Island.

3. Pre-2,000 B.P. Assemblage Variability

Mainland Sites

Documented material dating between about 2,500 and 2,000 B.P. was extremely scarce among the mainland sites. Little variability in the small assemblages was noted. Straight stemmed projectile points were found in both the Teacher's Cove and Minister's Island collections, with contracting stemmed points found at all four sites. Both

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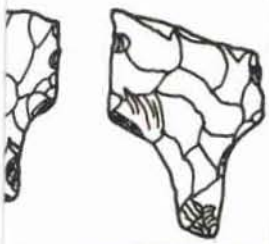

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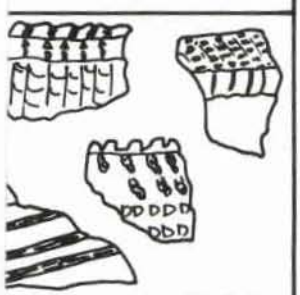

-1500 B.P.

Lavoie (1972) and Davis (1978) list large unifacial scraping tools as early markers at the Sandy Point and Teacher's Cove sites. This period was also thought to be aceramic (Davis 1978:29). Features or stratigraphic zones associated with the mainland sites were nearly non-existent. A profile drawing from Pagan Point illustrated a black, greasy deposit between the subsoil and shell midden proper (Pearson 1960). A similar deposit was noted in Sandy Point profiles and photographs (Sanger 1970). These may represent organic deposits associated with pre-2,000 B.P. site occupations, such as the Feature #8 and # 14 deposits found at Partridge Island. No faunal remains were reported from the mainland sites that might be associated with these deposits.

The minimal variation between the assemblages, ie. the absence of straight stemmed points, scrapers and features from certain sites, can be explained in the following manner: 1. the straight stemmed points, as noted in the general cultural historical sequence, may belong to an even earlier assemblage pre-dating 2,500 B.P. not represented at Pagan Point or at Sandy Point; 2. large scrapers were found in Minister's Island and Pagan Point collections but stratigraphic relationships were too poorly known to warrant inclusion with the early assemblage; 3. the absence of associated features and other artifact classes may reflect very poor preservation, short visits and/or highly specific activities carried out at the sites during this time period.

Partridge Island

The Partridge Island assemblage was in only one respect identical to those of the mainland sites. The presence of the contracting

stemmed projectile was consistent and quite likely reflects a material expression of an undefined cultural group exploiting the Passamaquoddy Bay region. The absence of the large scraping tool category and presence of ceramics, features and faunal remains cannot, however, be used as evidence of assemblage variation. The small sample may not have included large unifacial tools. The other Component #1 elements probably reflect a number of factors, 'lucky' finds, perhaps better preservation at the island, less historic disturbance of the site, or they may simply reflect more careful attention to vertical provenience of artifacts and depositional units during excavation. Until more early assemblages are uncovered on both island and mainland sites, however, it is impossible to confirm the presence of components pre-dating 2,000 B.P. or to assess the extent of inter-site variability.

4. 2,000-1,500 B.P. Assemblage Variation

Mainland Sites

After 2,000 B.P. the archaeological record at all mainland sites is extremely rich and it was originally hoped that a finer temporal unit than a 500 year period could be used to group assemblages. Owing to documentary problems mentioned earlier, this did not prove possible.

Nearly identical lithic artifact categories were represented at all sites. These included a wide range of bifacially altered materials; notched projectile points, and unnotched bifaces with convex or straight bases and marked basal thinning. Numerous unifacial artifacts, both scrapers and retouched flakes as well as large groundstone tools and

crudely chipped chopping tools were also noted. Raw materials both of finished artifacts and debitage were consistently of local origin.

Faunal artifacts were also generally similar. Bone points, both simple (awls) and barbed (harpoons) were present. At Teacher's Cove and Sandy Point basally notched points, similar to lithic projectile points, were also found. Beaver incisors, modified in the manner described for Partridge Island were also found at all sites; however, the Teacher's Cove and Minister's Island collections contained additional modification types. Drilled canines, phalanges, decorated and etched bone were also found in some form or another at all sites.

The ceramic collections from Pagan Point and Sandy Point were nearly identical, except for the presence of alternate notched designs on some Sandy Point sherds. The Teacher's Cove and Minister's Island collections were more variable than Sandy Point and Pagan Point, although they did contain the ubiquitous dentate stamp element with examples of alternate notch, incised and trailed, as well as cordwrapped stick decorated vessels. Castellations, drilled perforations at the shoulder, and lip and interior rim decoration were noticeable attributes also present on non-cordwrapped stick vessels.

Feature elements were also consistently similar among the three sites for which some documentation existed. At Teacher's Cove, Sandy Point, and Minister's Island, structures referred to as 'semi-subterranean' house pits were recovered. These have been described as "...oval to round pits averaging three meters on the long axis by about 2.5 meters across" (Sanger 1971:3). Concentrations

of artifacts were also noted as occurring within these structures (Davis 1978; Lavoie 1972). Various other features, including hearths, rock-lined pits, and assorted shapes and sizes of pits with no assigned function were also found. One assumes features were uncovered at Pagan Point, but only a single reference to 'ashy deposits' suggests the presence of a hearth (Pearson 1970:187).

Identified faunal remains from the mainland sites were also quite similar when viewed from a presence/absence perspective. Tables 14, 15 and 16 list the identified specimens from the mainland and Partridge Island sites. Table 17 presents the percentage of dominant mammal species for three of the mainland sites. This table suggests some differences in resource exploitation between Sandy Point, Minister's Island and Teacher's Cove. Sandy Point appears to have a less diversified collection than Teacher's Cove and Minister's Island with a heavier representation of beaver and deer. Minister's Island had a higher seal and moose count than Sandy Point and Teacher's Cove.

The degree of homogeneity in artifactual and faunal remains found at mainland sites seems to indicate that members of the same Middle Woodland-related cultural group in Passamaquoddy Bay visited each of the sites in question. The differences in percentages of mammal species suggests only that slight variations in resource exploitation occurred between sites. This variation was not reflected in the artifactual remains.

Numerous problems affect the interpretation given above. The categories of artifacts discussed may not belong solely to the period 2,000-1,500 B.P.. Cultural mixing of artifacts, as a result of

TABLE 14: Faunal Remains: Mammal

Mammals	Partridge Island BgDr-48	Teacher's Cove BgDr-11	Minister's Island BgDs-10	Pagan Point BgDs-1	Sandy Point BgDs-6
Beaver	x	x	x	x	x
Deer	x	x	x	x	x
Caribou		x	x	x	x
Moose		x	x	x	x
Seal	x	x	x	x	x
Bobcat					x
Lynx			x		x
Mink					x
Walrus				x	
Whale			x	x	x
Chipmunk		x			x
Mole		x			
Vole					x
Muskrat		x	x	x	x
Porcupine		x	x	x	x
Dog	x	x	x	x	x
Wolf	x			x	
Fox		x	x	x	x
Bear		x	x	x	x
Racoon		x	x		x
Weasel		x			
Marten	x	x			
Otter		x	x	x	x
Hare				x	
	Black 1982	Burns 1971	McCormick 1980	Churcher 1963	Burns 1970b

TABLE 15? Faunal Remains: Shell

Shell	Partridge Island BgDr-48	Teacher's Cove BgDr-11	Minister's Island BgDs-10	Pagan Point BgDs-1	Sandy Point BgDs-6
Soft shell clam	x	x	x	x	x
Common mussel	x	x		x	x
Horse mussel	x	x		x	x
Waved whelk	x	x		x	x
Atlantic dogwinkle	x				x
Sea urchin	x			x	x
Surf clam				x	
	Black 1982	Burns 1971	Sanger 1979	Pearson 1970	Burns 1970b

TABLE 16: Faunal Remains: Fish and Avian

Fish	Partridge Island BgDr-48	Teacher's Cove BgDr-11	Minister's Island BgDs-10	Pagan Point BgDs-1	Sandy Point BgDs-6
Herring	x			?	?
Sculpin		x		?	?
Avian	Present			?	
Common loon	x	x	x		x
Red throated loon		x	x		x
Cormorant		x	x		
Canada goose		x	x		
Oldsquaw		x	x		x
Spruce grouse		x	x		
Great auk		x	x		
Common murre		x	x		
Horned grebe		x			
Black duck		x			
European widgeon		x			
Barrows golden eye		x			
Bufflehead		x			
Common eider		x			
King eider		x			
White wing scoter		x			
Surf scoter		x			
Common merganser		x			
Bald eagle		x			
Herring gull		x			
	Black 1982; 1983: personal communication	Burns 1971; Stewart 1973	Stewart 1973		Stewart 1973

TABLE 17: Percentage of Identified Mammal Remains

	Sandy Point BgDs-6	Minister's Island BgDs-10	Teacher's Cove BgDr-11
Beaver	54.3%	33.4%	36.9%
Deer	20.1%	11.8%	36.1%
Seal	5.9%	13.5%	5.0%
Moose	2.9%	14.2%	6.8%
Dog	1.7%	7.1%	7.9%
Caribou		6.3%	

(From Burns 1970a)

ploughing at Teacher's Cove and Minister's Island, as well as unknown provenience of artifacts from both documented and unanalyzed sites, means that all artifact categories may be mixtures of early and late materials.

The problem of provenience extends to the faunal material as well. For the most part, faunal remains from a single site covering one to two thousand years of prehistory are treated as a single unit. This type of analysis ignores temporal change in subsistence and seasonality. Interpretation of the faunal material is also obscured by the heavy emphasis on identifying mammal remains to the exclusion of other classes of fauna (McCormick 1980).

Partridge Island

An attempt to compare actual numbers and percentages of artifacts from Partridge Island and mainland sites proved extraordinarily frustrating and of little comparative value. Teacher's Cove, Sandy Point and Partridge Island were the only sites for which any figures at all were available. No counts of lithic debitage were provided for Teacher's Cove and the ceramic category was originally calculated as numbers of individual pieces (Davis 1978). It was possible to recalculate Teacher's Cove data based on the 19 vessels discussed earlier in the text (Davis 1978:26). Sandy Point percentages were calculated including debitage and also as numbers of individual ceramic fragments; however, no additional manipulation was possible (Lavoie 1972). In this case, 20% of the artifacts are also unaccounted for.

As a result, Partridge Island could be compared to Teacher's Cove on the basis of both vessel counts and numbers of sherds.

Partridge Island could be compared with Sandy Point using complete counts of lithic material and ceramic sherds. Since no vessel lots were determined for Sandy Point and it proved impossible to locate or otherwise determine percentages of lithic material excluding debitage, it was impossible to compare Sandy Point and Teacher's Cove. The fact that all percentage figures include both pre-2,000 B.P. and post-1,500 B.P. artifacts adds to the confusion. Table 18 lists the various computed figures.

For the reasons listed above, it was not considered feasible to attempt to interpret the substantial variation that appeared in the assemblages. As a result, visual and, to some extent, intuitive examination of the collections was the only practical, though far from satisfactory, way of comparing specimens dating to the period 1,500-2,000 B.P..

Visually, Partridge Island reflects the cultural homogeneity of the mainland sites, except in a few areas. Lithic tool categories were generally identical to those found particularly at Sandy Point and Pagan Point; however, the Partridge Island collection was marked by relatively few numbers of small unifacial scraping tools, and the absence of notched projectile points. The organic artifacts at Partridge Island were noteworthy by the absence of barbed or basally notched bone points which are usually present, though not numerically prolific, even in small site collections. Also organic artifacts appeared to comprise an unusually large percentage of the artifact classes at Partridge Island.

There were more individual pieces of pottery collected from

TABLE 18: Percentages of Organic, Lithic and Ceramic Artifact Groups

	Teacher's Cove[1]	Partridge Island	
Lithic	46.0%	4.2%	-lithic % excluding debitage
Ceramic	31.0%	90.0%	-ceramic % based on total number of sherds
Organic	22.3%	5.7%	
Total	99.3%	99.9%	

	Teacher's Cove[2]	Partridge Island	
Lithic	64.9%	34.9%	-lithic % excluding debitage
Ceramic	3.5%	17.5%	-ceramic % based on number of vessels with rims
Organic	31.6%	47.6%	
Total	100.0%	100.0%	

	Sandy Point	Partridge Island	
Lithic	30.0%	23.3%	-lithic % including debitage
Ceramic	25.0%	72.1%	-ceramic % based on total number of sherds
Organic	25.0%	4.6%	
Total	80.0%	100.0%	

(From Davis 1978:43; Lavoie 1972:13,121,138)

Partridge Island than from mainland sites; however, vessel numbers seemed roughly equivalent to estimates of other site collections. Based on surface area excavated, this indicated a slightly higher representation of ceramic pots at Partridge Island. Decoratively, ceramics from Partridge Island were nearly identical to the Pagan Point and Sandy Point examples, lacking only the presence of drilled holes at the shoulder, collars and castellations.

Like other sites, Partridge Island had a variety of pit, hearth and floor features, generally similar to those described for mainland sites. Feature #3, the large oval pit at the back of the Partridge Island site, was very close to house pits described by Sanger (1971; 1979;1981), Davis (1978) and Lavoie (1972), except for the absence of a clearly defined hearth and the near absence of artifacts located within the structure.

Faunal remains, though as yet incompletely analyzed, were also similar to those found elsewhere. Black (1982) noted the numeric importance of beaver and deer elements, a situation similar to Sandy Point and Teacher's Cove. Mammal remains were, however, proportionately less at Partridge Island with a very high percentage of fish bone reported. This is a direct reflection of the Component #1 representation in the sample. As well, Black noted the mussel species M. modiolus to be as common as the soft shell clam (M. arenaria) in some parts of the deposit (1982:personal communication). It has long been thought of the mainland sites that soft shell clam was the primary midden constituent to the near exclusion of other species (Burns 1970b; Sanger 1971).

Viewed collectively, these instances of variation do not suggest Partridge Island was used for any specific additional purposes, except possibly for more diversified shellfish gathering. It appears that the same groups or temporally related groups of people, sharing a similar cultural tradition, visited not only mainland locales but Partridge Island as well.

This picture of island life may be quite biased. First, we know that the Partridge Island sample is fairly small (not statistically valid) and that notched projectile points, numerous quantities of scrapers or barbed bone points may not have been found because of limited sampling. Also, scarcity of adequate provenience data for comparative collections makes any assessment of real variability nearly impossible.

Evidence from the faunal remains indicates that there is internal variation in subsistence and seasonality at Partridge Island. Vertical provenience of faunal remains suggested a decrease in the quantity of fish remains during the period 2,000-1,500 B.P.. Also, future analysis of the distribution of bone material in the midden may suggest further horizontal and vertical differences in species representation (Black 1982). At the present time, we cannot discount the possibility that variation in artifacts may correspond to differing exploitation patterns. The Partridge Island data that might illustrate such a situation is restricted by sample size, while comparative material suffers from lack of analysis and minimal available provenience data for most sites.

5. Summary and Conclusions

The original hypothesis with which this study began was that island locales differ from contemporaneous mainland sites in terms of the degree of maritime specialization. The third implication of this hypothesis (emphasized in this text) was stated as follows: variation in artifact and feature forms related to the differences in site utilization patterns will be found. Neither the primary hypothesis nor the implication can be defended based on the study presented here. Only the Component #1 deposits from Partridge Island indicate a stronger orientation to maritime resources than might be found on mainland sites; however, nothing comparable has yet been firmly documented on the mainland. Component #2 at Partridge Island does not appear to be significantly different from any of the contemporaneous mainland sites, although certain artifact classes are slightly under or over-represented at Partridge Island.

The tentatively identified Component #1, characterized by floor and hearth features, by large fish remains, a contracting stemmed projectile point, a bone point tip and, possibly by ceramics, is dated at 2,400 ± 105 B.P. (S-2215). The Partridge Island data indicates single or multiple seasonal visits to the site apparently to fish for cod and similar fish. It is possible that mainland sites were utilized for different purposes; however, no features, bone tools, faunal remains or ceramics have been found in pre-2,000 B.P. deposits on mainland shell midden sites. The lithic artifacts commonly assigned to this period include a variety of straight and contracting stemmed points and large unifacial scraping tools which, by themselves,

give little indication of site utilization. It may be that coastal mainland sites of the pre-2,000 B.P. vintage were not located in the same places as later shell middens. The scarcity of data from this time may also reflect the loss of sites through coastal submergence or the absence of a significant population in Passamaquoddy Bay before 2,000 B.P..

Despite the numbers of shell midden sites excavated that contained a component or components dating between 2,000 and 1,500 B.P., variability between mainland and the Partridge Island sites was impossible to assess. The variability in artifacts, features and faunal remains noted did not appear to reflect any differences in the degree of maritime specialization.

Mainland sites from the time period 2,000 to 1,000 B.P. all contained a range of artifacts, features and faunal remains that were generally similar. These included side and corner notched projectile points, un-notched bifaces, unifacial scrapers, retouched flakes, simple and barbed bone points, and modified beaver incisors, as well as dentate, alternate notch, incised and cordwrapped stick decorated vessels. Hearths, assorted pits of unknown function and oval house-pit structures were common to most sites. Faunal remains were also generally similar with a broad array of land and sea mammals, birds, some fish and certain shellfish species exploited. Although the presence or absence of certain migratory birds in some collections has led to inferences of spring, fall and/or winter occupations, precise seasonal site utilization cannot be demonstrated.

The Partridge Island data varies in several ways from that

of the mainland sites. There were few unifacial scraping tools and no notched projectile points found at Partridge Island. Additionally, no barbed bone points were uncovered, although most other categories were represented and the percentage of bone artifacts as a whole seemed fairly high. Partridge Island also yielded a relatively high number of ceramic sherds compared to mainland sites. However, in decorative terms, the collection was nearly identical to dentate and alternate notch dominated ceramic assemblages found on the mainland. The primary difference in feature forms noted was the absence of clearly defined house-pit features at Partridge Island. More species of shellfish were identified at Partridge Island than at mainland sites, and mussel was found to be as common as the soft shell clam in parts of the deposit.

Viewed collectively these instances of variation do not suggest Partridge Island was used in any specifically different manner than the other coastal sites of the same time period in Passamaquoddy Bay. The differences in artifacts and features represented probably reflects the small Partridge Island sample size and poorly documented provenience data from comparative sites rather than variations in site utilization. The diverse nature of shellfish remains with the noted significance of the mussel may indicate the primary importance of Partridge Island as a base for access to varied shellfish resources; however, the shellfish remains at Partridge Island were more carefully scrutinized than at mainland sites.

Though differences in maritime specialization as reflected in variation in the artifact and feature forms between the island site, BgDr-48, and four contemporaneous mainland sites cannot be demonstrated,

the problems with comparative data and sample size do not allow ruling out the possibility that coastal island sites differ from those on mainland shores. Based on the Partridge Island data, all that can be suggested is relative homogeneity of assemblages in Passamaquoddy Bay and consistently similar utilization of coastal sites regardless of where they are located. Despite the somewhat disappointing conclusions, the material presented does represent the first attempt to compare archaeological data collected from Passamaquoddy Bay shell midden sites, a project which has amply demonstrated numerous areas which will need future refinement if research is to progress.

VI

CONCLUSIONS

1. Summary

Excavations at Partridge Island (BgDr-48) demonstrated two periods of site utilization. One period occurring before 2,000 B.P., is possibly represented by a tool kit containing a single contracting stemmed point and ceramics. Settlement at the site seems to have been short-term and seasonally restricted. Later prehistoric visitors to the site during the period 2,000 to 1,500 B.P. had a lithic tool kit composed of large notched bifaces, unifacial flake tools, and groundstone celts. Ceramics were dominated by dentate stamped designs with lesser percentages of alternate notched, linear trailed and cordwrapped stick motifs. Bone tools included modified beaver incisors, simple bone points, modified antler remains and examples of decorative bone and teeth. Faunal remains were quite diversified indicating both terrestrial and marine hunting of mammals, fishing, shellfish collecting and the taking of birds. Seasonality could not be directly inferred and year round utilization seems probable.

Analysis of the cultural remains from BgDr-48 has shown that Partridge Island fits well within the chronological and cultural sequence previously posited for the region. Some variation in assemblages, both pre-dating and post-dating 2,000 B.P., were demonstrated between Partridge Island and mainland sites. These included the presence of

features, a bone point tip and a contracting stemmed point possibly dating to 2,400 B.P. at Partridge Island with no truly comparable data existing for similarly early assemblages at mainland sites. After 2,000 B.P., assemblages were quite comparable except for the absence of notched projectile points, and relatively higher percentage of organic and ceramic artifacts at Partridge Island.

It was impossible to demonstrate that the existing variation was related to differences in site utilization. In fact no differences of a significant nature were recorded. This could be interpreted as meaning that islands were not special bases used only for activities related to exploiting a marine environment.

To speak of overall homogeneity between sites may not necessarily reflect the true prehistoric picture, however, because of inadequate documentation, poorly known stratigraphic provenience both of artifact and faunal remains from comparative sites, and a small sample from the Partridge Island site.

2. Directions for Future Research

As indicated above, this study demonstrates certain critically weak areas in Passamaquoddy Bay research. Documentation of a century's research in the region has repeatedly been shown to be inconsistent with and inadequate for the types of questions currently posed by archaeologists. The documentation problem is further complicated by excavation methods that do not make the most of the depositional history locked in the shell midden. This problem means that cultural historical sequences

can never be much more precisely controlled than at present, unless future studies attempt to apply or experiment with more rigorous recording of provenience and stratigraphy, such as attempting to deal with artifacts and midden deposits in terms of natural stratigraphic units.

Obviously, many basic archaeological questions related to chronology, variability of site assemblages, subsistence, settlement and seasonality remain unanswered for the Passamaquoddy Bay region. The Partridge Island material adds to the small collection of documented excavations. It also reflects an attempt to more precisely control stratigraphic units through excavating the site in both arbitrary and natural levels. If more innovative methods of excavation, analysis and comparison are used in the future, Passamaquoddy researchers may be better able to more precisely define chronological sequences and spatial relationships between site assemblages, and may be better able to reconstruct the lifeways of the prehistoric populations that inhabited the region.

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APPENDIX I

HISTORIC ARTIFACTS FROM PARTRIDGE ISLAND

Historic Artifacts

Unit #1 of the Partridge Island site contained two fragments of historic ceramics. Specimen #63 was a portion of a coarse earthenware vessel referred to as Maritime ware, probably manufactured locally between 1800 and 1900 A.D. (Lavoie 1982:personal communication). Specimen #62 was the rim of a white refined earthenware with a pale blue and white glaze. This ware was manufactured during the period from the late 1700's to the early 19th-century (Miller 1980).

The sod level of Unit #6 also yielded one fragment, Specimen #446, of white refined earthenware. A white glaze was visible on this sherd. Additionally, a portion of a 19th-century clay tobacco pipe bowl and a fragment of brick were found. Eleven square headed, machine cut nails dated between 1815 and 1875 (APT 1980:251) and one bolt, of 19th or 20th-century manufacture were also recovered (APT 1980:960).

APPENDIX II

ORGANIC ARTIFACTS: ATTRIBUTE TERMINOLOGY AND ARTIFACT DESCRIPTIONS

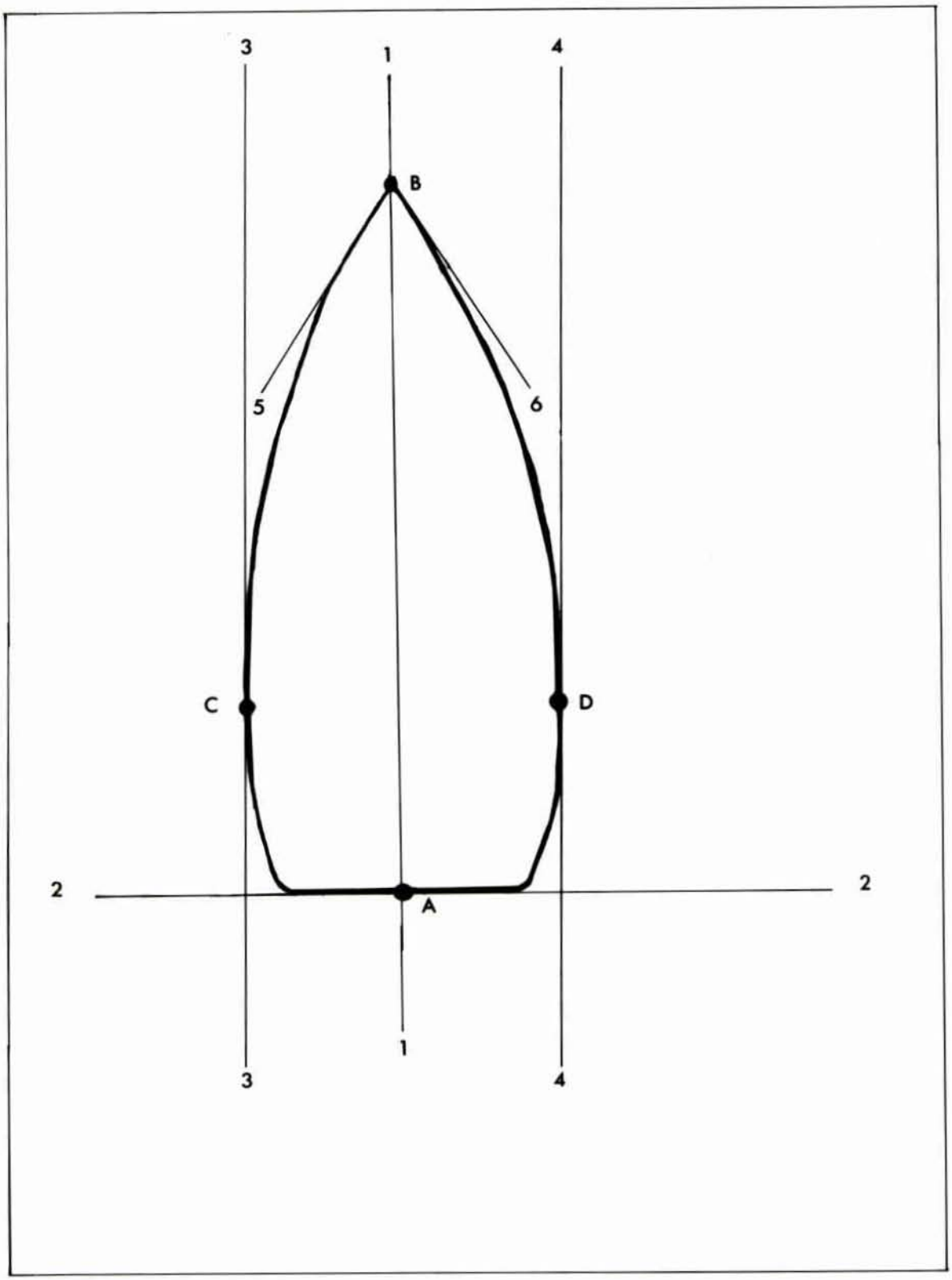
Attribute Terminology

Where possible all modified faunal remains were identified according to skeletal element. The modification of small portions of bone often made such identification impossible. Where anatomical relationships could not be determined the surface of the implement assumed to have been the primary use region was referred to as the distal or tip portion. Proximal or basal regions oppose the distal end. Dorsal surfaces, in anatomically unidentified specimens, were equated with the cortex surface of the bone. The opposing surface, or that showing cancellous bone, was termed ventral. Directional references, ie. right of left, referred to the ventral surface view of an artifact unless otherwise stated. Attributes of form, eg. plano/convex, were given with the ventral outline stated first

Members of the point category were assessed following a modified version of the point and line technique suggested by Bonnichsen and Will (1980) (Figure 34). Maximum length was the distance between point A (base) and point B (tip), along line 1. Maximum width was the distance between points C and D where lines 3 and 4 intersect line 2. The tip angle was the angle formed at the intersection of line 5 and 6 at point B. In cases where a tool was incomplete a general idea of the size was given by referring to pieces larger than 30 mm as portions, and pieces equal to or less than 30 mm as fragments (Stewart 1974:14).

In the case of the incisor category, certain other attributes were recorded. Tooth condition: fragmentary, whole or deliberately truncated was noted. In addition, modification of specific areas of

Figure 34: Organic Artifacts, Point and Line Diagram


3
1
4
B
5
6
C
D
2
2
A
1
3
4

each tooth were recorded as being diagonal, concave, square, scooped or sawn (Figure 35). Diagonal modification referred to wear that was obliquely angled relative to a right angle plane sectioning the tooth shaft. Concave modification referred to a 'u' shaped occlusal wear area. Square modification referred to alteration of the tooth facet to create a flat surface parallel to the arbitrary plane. A sawn condition referred to deliberate truncation of a tooth by making a right angle cut on the shaft. Striations on a sawn surface paralleled the direction of the cut. Scooped modification referred to gouging of the lingual tooth surface.

Artifact Descriptions

Points (Figure 18)

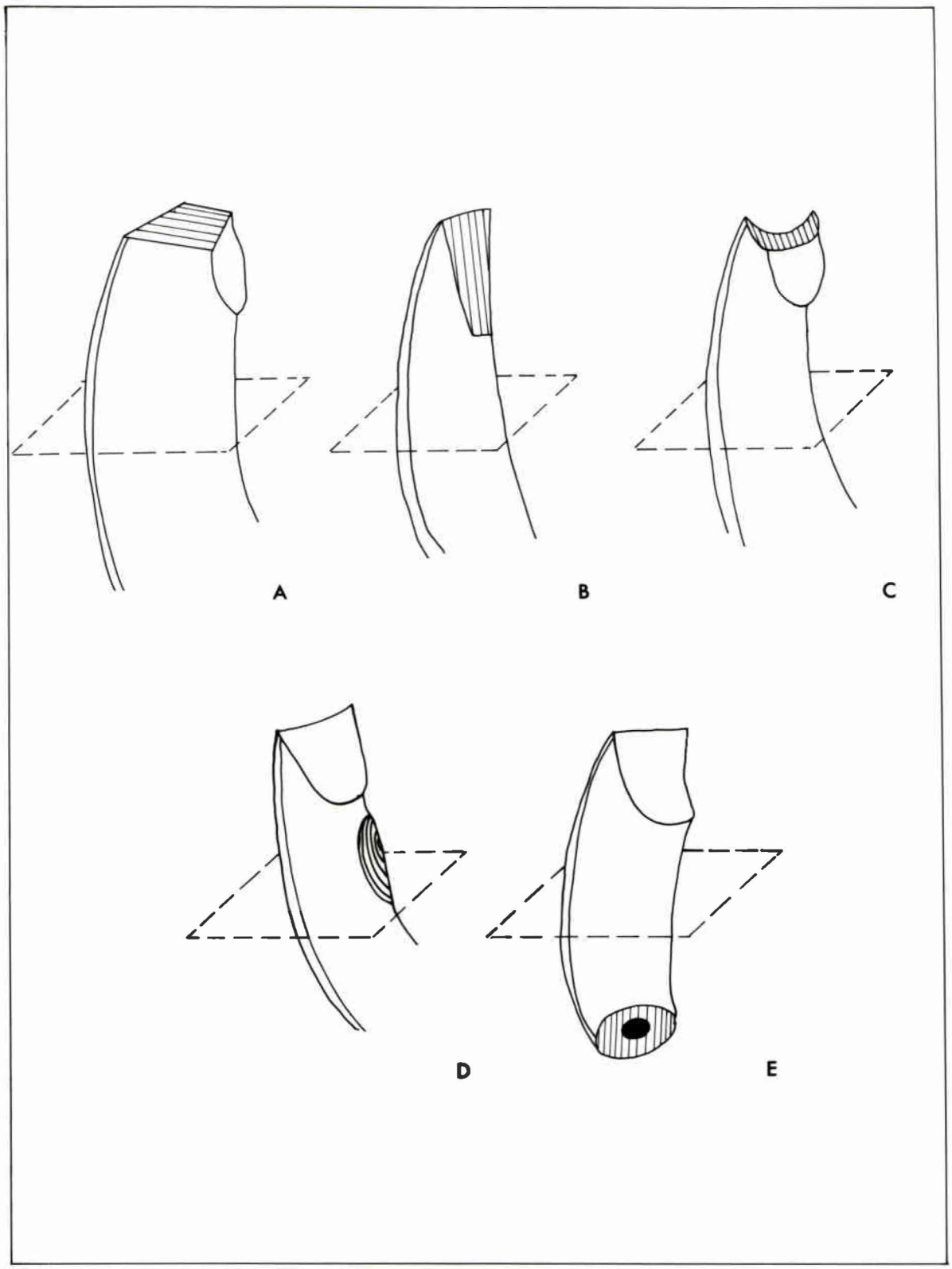
BgDr-48:40

This specimen is an incomplete portion of mammal bone. Margins of the dorsal surface bear evidence of whittling. Striations follow whittling cuts and run longitudinally, converging at the distal end. The implement narrows towards the distal tip. In addition to the tip, broken during excavation, two-thirds of the right lateral margin is fractured. At the base of this implement an incomplete cut, 1 mm wide and 2 mm deep, had been sawn. In cross-section, the tool is concave/convex with a plano/convex longitudinal section.

BgDr-48:27

Specimen #27 is the tip and body portion of a mammal bone implement. The base and part of the right margin on the ventral surface bear the jagged and sharp edges characteristic of a broken or fractured bone. The bone is worn smooth on all other surfaces.

Figure 35: Incisor Modifications:
A. square B. diagonal C. concave D. scooped
E. sawn


A
B
C
D
E

Striations large enough to be visible without magnification run longitudinally across the artifact converging at the tip. The tip is highly polished and blunted through use. The tip angle is 30°. Both cross and longitudinal sections of this implement are biconvex.
BgDr-48:143

This specimen is a splinter portion of a mammal bone, 62 mm long and 9 mm wide. The implement was whittled and ground to a point at the distal end. Longitudinal striations are visible with the unaided eye. The tip is slightly blunted and worn to produce a bevel directed from right to left. The tip area is also more highly polished than other surfaces. The tip angle is 20°. The tool is biconvex in cross-section and biplano in longitudinal section.
BgDr-48:135

This finely formed specimen is a portion of mammal bone. This tool was not constructed from a bone splinter. The lateral margins of the tool have been shaped to form a long tapering point, ground smooth and rounded on ventral and dorsal surfaces. Basal regions are absent. Central regions of the ventral and dorsal surfaces bear striation marks visible without magnification. Faint striations can also be detected under magnification and run longitudinally in the direction of the tip, covering most of the tool surface. Polish is more noticeable at the tip. The tip, with an angle of 20°, is blunted. In cross and longitudinal section the specimen appears to be biconvex.
BgDr-48:203

This specimen is a portion of a mammal bone. The tip is missing.

Striations, indicating cutting at the base of the tool, are evident. Whittling marks bearing longitudinal striations angled towards the distal region are also present. Some polish, particularly on lateral margins is also present. The tool is biconvex in both longitudinal section and cross-section

BgDr-48:268

This fragment of a mammal bone bears evidence of whittling and grinding on all surfaces. A fracture occurs at the medial section of the tool. The distal regions of the artifact are highly polished and the tip, having an angle of 20^{o}, is blunted. In cross and longitudinal section the specimen is plano-convex.

BgDr-48:37

This portion of a mammal bone is a splinter tool with a fracture through the basal regions of the body. A small portion of the finely pointed tip was damaged during excavation. Only an area about 5 mm long near the tip is modified. Whittling marks with fairly rough edges, faint longitudinal striations, and a minimum of polish characterize the distal tool end. In cross-section the tool is convex/plano with a biplano longitudinal section.

BgDr-48:351

Specimen 351 is a tip, or distal fragment of a mammal bone implement. Whittling and grinding marks are visible on all surfaces and the tip is blunted. The tip angle is 40^{o}. In cross and longitudinal section the specimen appears to be biconvex.

Beaver Incisors

Individual attributes for all specimens are summarized in Table 19. For illustrations, refer to Figure 19.

Miscellaneous Organic Artifacts

BgDr-48:137

This specimen is a splinter portion of mammal bone, 72 mm long and 9 mm wide. The only sign of deliberate modification, after the initial fracture, is a cut or saw mark extending across the base of the artifact. The 1 mm deep cut was made and the remainder of the base snapped off. Several striations running parallel to the actual cut are also visible. No wear is evident on the specimen though the distal end is convergent. The specimen is concave/convex in cross-section and biplano in longitudinal section (Figure 22).

BgDr-48:90

This specimen was partially reconstructed from eleven bone fragments. Nine of the pieces were combined to form a portion of a large mammal scapula. The remaining three pieces, by virtue of similar surface treatment, are assumed to belong to the same implement.

The anterior surface of the bone is ground and decorated with a corded design; rows of narrow, ovoid imprints. The motif has no discernable pattern; lines run parallel to each other, diagonally, and occasionally they intersect. The distal edge, opposing the whittled and ground spine, is ground in a blunt form. On the ground edge, striations are visible. These run at a right angle to the edge and are present on both anterior and posterior surfaces. Other regions

TABLE 19: Modified Beaver Incisors, Attribute Summary

Specimen #	124	43	28	171	274	288	127	119	91	205	120	133	115	132	138	130
Type	A	A	A	A	A	A	B	B	B	B	B	B	B	C	D	-
Tooth	lr	lr	?	ul	lr	ll	ll	ll	ul	?	ll	lr	lr	?	lr	ll
Age	im	im	ad	ad	ad	ad	im	ad	im	ad	ad	ad	ad	ad	ad	ad
Condition	tr	fr	fr	fr	fr	fr	fr	fr	fr	fr	fr	tr	tr	fr	fr	fr
Portion	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D	D/M	D/M	D/M	D/M	D/M
Areas Modified	D/B	D/L	D	D/L	D	D	L	D	D	D	D	D/B	D/B	L	L/M	L
Modification Form																
occlusal	sq	sq	sq	sq	sq	sq	ab	cc	di	di	di	di	cc	ab	ab	ab
basal	sw	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	sw	sw	ab	ab	ab
medial	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	di	ab
lateral	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab	ab
lingual	ab	ab	ab	sc	ab	ab	sc	ab	ab	ab	ab	ab	ab	di	di	di

Key to abbreviations:

Tooth: ll = lower left
lr = lower right
ul = upper left
ur = upper right

Age: ad = adult
im = immature

Condition: fr = fragmentary
tr = truncated

Portion/Areas Modified: B = basal
D = distal
M = medial
L = lingual

Modification Form: di = diagonal
sq = square
sw = sawn
sc = scoop
cc = concave
ab = absent

of the posterior surface are neither highly polished nor decorated.

The unassembled fragments are part of the edge region and are highly polished with incisions above and parallel to the blade. One fragment has a deliberately formed 'v'-shaped notch. (Figure 21).

BgDr-48:30 and 113

This specimen represents the distal and proximal portions of a complete antler tine. The tip is slightly blunt and pitted. At the tine base, several shallow cuts or incisions are visible. The antler tine is 133 mm long and has a maximum width of 15 mm. (Figure 23).

BgDr-48:230

This specimen is a splinter portion of a mammal bone. Longitudinal whittling is evident on both lateral margins and on the ventral surface. No particular convergence is apparent at either end of the artifact; however, at the basal extremity, a 1 mm wide saw mark is present. Numerous striations running parallel to the cut are also present. The specimen is 33 mm long and 8 mm wide (Figure 21).

BgDr-48:657

This specimen is a seal canine bearing 5 x 5 mm indentations approximately 4 mm from the root on both medial and lateral margins. These indentations and areas immediately surrounding have a distinctly whittled or gouged appearance with pronounced, parallel, longitudinal striations. (Figure 23).

BgDr-48:386

This specimen is a 62 mm long, 16 mm wide, portion of an antler tine. The tip is slightly blunted. The base of the tine portion bears several shallow cuts and appears to have been deliberately snapped (Figure 23).

APPENDIX III

CERAMIC ATTRIBUTE TERMINOLOGY AND VESSEL ATTRIBUTE LISTS

Ceramic Attributes and Definitions

Vessel Form

Six attributes of vessel form are examined (Allen 1980:65-69; Emerson 1968:5-7; Keenlyside 1978:333). These attributes are as follows:

1. Lip thickness refers to the average straight line distance between interior and exterior lip edges of vessel rim sherds.

2. Rim thickness is the average distance between interior and exterior sherd walls measured one centimeter below the lip.

3. Body thickness is the average distance between interior and exterior vessel walls below the rim region of the vessel

4. Rim form "...refers to the general orientation of the rim to the remainder of the vessel" (Allen 1980:69). Vertical (straight), inflaring (inverted), and outflaring (everted) forms are identified (Allen 1980:69; Keenlyside 1978:332-333).

5. Rim shape refers to the relative thickness of the vessel as it nears the lip. A contracting rim narrows towards the lip. An expanding rim is wider near the lip than elsewhere in the rim region. A parallel rim shape indicates no change in vessel thickness at the rim.(Allen 1980:69; Finlayson 1977:86)

6. Lip surface shape is recorded as round or flat. Flat lips exhibit the presence of an angled joint between rim walls and edges of the lip. Round lips lack this angled meeting (Allen 1980:66; Emerson 1968:4-6; Finlayson 1977:86; Keenlyside 1978:333).

Vessel Decoration

The six types of decoration present at Partridge Island are recorded according to the type of tool employed to create the decoration. A single category describes the design or motif created after tool applications while four other categories describe the metric characteristics of the decoration. These vessel attributes are as follows:

1. Dentate tools are made by cutting a series of notches directly across a long thin linear object to produce a toothed instrument (Finlayson 1977:89). The resulting decoration is usually a series of rectangular impressions although circular or amorphous design elements may occur (Foulkes 1981:Appendix E).

2. Alternate notch refers to the design left by a tool that "...is similar to the dentate tool but differs in that the notches alternated on the side of the tool and did not extend directly across its width" (Finlayson 1977:89). Alternate notch is used in cases where the meandering design is extremely angular, leaving a series of triangular impressions (Allen 1980:73-74). A more sinuous decoration is referred to as pseudo-scallop shell.

3. Cordwrapped stick tools are implements wrapped tightly or loosely in fibre or cordage. The resulting decoration is usually a series of tightly or loosely arranged oblong or rectangular impressions often with the 'stick' imprint visible in a plasticine image of the vessel decoration.

4. Plain tools have straight unmodified edges and are relatively long and thin (Finlayson 1977:95). These leave smooth faced imprints (solid lines).

5. Notching refers to indenting the lip edge of a ceramic vessel (Emerson 1968:10).

6. Undecorated refers to a finished exterior (or interior) surface bearing no design.

7. Design orientation refers to the angle of design lines relative to the longitudinal plane of the vessel. Vertical, horizontal and oblique (right or left) and any combinations of the three are recorded (Finlayson 1977:96-140).

8. Design element impressions refers to the average number of imprints left by a single application of a toothed or cordwrapped tool.

9. Width is the distance (in millimeters) from edge to edge of a single decorative application of a tool and is equivalent to the width of the tool face.

10. Length measurements are equivalent to the length of the decorative tool and are recorded as the distance between terminating points of a linear impression on a vessel.

Decoration Techniques

Two techniques of vessel decoration are identified:

1. Stamping (plain) refers to the application, impression and removal of a tool to a vessel surface, leaving a clear imprint. Rocker stamping refers to the impressing of a tool followed by pivoting on either terminal end and re-impressing (Keenlyside 1978:330-331).

2. Drawing refers to moving an implement across the vessel surface. Incising refers to drawing a sharp edged tool across a clay surface. The resulting impression is clean with no ridging. Trailing refers to drawing a blunt tool across a wet clay surface. The resulting design line is bordered by parallel ridge (Emerson 1968:10; Keenlyside 1978:331).

Miscellaneous Vessel Attributes

Five attributes are recorded. These are as follows:

1. Interior surface treatment is recorded as: a) scraped (bearing striations and/or grooves), b) wiped (having smooth, flowing markings), or c) indeterminate (markings indistinct under 10x hand lens magnification) (Shepard 1968:191).

2. The visually predominate lithic or organic component of sherd temper is given as the temper classification eg. mica-based, quartz-based, or shell tempered.

3. Maximum particle size of temper fragments are recorded.

4. Sherds having obvious coil breaks are recorded as coil constructed. Sherds exhibiting random breakage with no visible anvil markings are recorded as having an unknown method of construction.

5. General colour terms for external surfaces and core regions are given.

TABLE 20: Ceramic Vessels, Attribute Liste

Key to abbreviations:

uk = unknown
pr = present
ab = absent

All measurements, unless otherwise stated, are given in millimeters

Attribute	Vessel # 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
# of Sherds																						
rim	0	2	2	5	0	3	0	0	0	0	2	1	1	4	1	1	1	0	1	0	0	0
body	22	0	0	115	51	33	21	15	4	6	61	0	1	28	7	0	37	38	0	1	1	5
Primary Decoration																						
dentate	pr	pr	pr			pr	pr	pr			pr	pr		pr		pr		pr	pr	pr		pr
alternate notch				pr						pr			pr								pr	
cordwrapped stick					pr																	
plain impression									pr													
undecorated															pr		pr					
Metric Attributes (decoration)																						
Impression width	2.5	2	1.5	2	2	2	1	1.5	1.6	2	1.5	2	1	1.4		1.5		1.5	2	1.1	2	2.5
Impression length	uk	uk	uk	uk	uk	uk	uk	uk	uk	uk	uk	uk	uk	38		uk		27	21	uk	uk	uk
Impressions per cm.	5	6	5	4	6	7	8	7	0	4	3.5	3	8	6		4.5		4	4	8	uk	6
Field of Decoration																						
body	pr	uk	uk	pr	pr	pr	pr	pr	pr	pr	pr	uk	pr	pr	ab	uk	ab	pr	pr	pr	pr	pr
rim exterior	uk	pr	pr	uk	uk	pr	uk	uk	uk	uk	pr	uk	pr	pr	ab	pr	ab	uk	uk	uk	uk	uk
rim interior	uk	ab	ab	ab	uk	ab	uk	uk	uk	uk	ab	pr	pr	pr	ab	ab	ab	uk	pr	uk	uk	pk
lip	uk	pr	pr	pr	uk	pr	uk	uk	uk	uk	pr	uk	pr	pr	ab	pr	ab	uk	ab	uk	uk	uk
Technique																						
(body and rim exterior)																						
plain stamping	pr	pr	pr	pr	pr		pr					uk	pr	pr	ab	pr	ab				uk	
rocker stamping						pr		pr		pr	pr	uk			ab		ab	pr	pr		uk	pr
rocker stamping/trailing																				pr		
trailing									pr													
(rim interior)																						
plain stamping	uk	ab	ab	ab	uk	ab	uk	uk	uk	uk	uk			pr	ab	ab	ab	uk	pr	uk	uk	uk
incising	uk	ab	ab	ab	uk	ab	uk	uk	uk	uk	uk		pr		ab	ab	ab	uk		uk	uk	uk
rocker stamping	uk	ab	ab	ab	uk	ab	uk	uk	uk	uk	uk	pr			ab	ab	ab	uk		uk	uk	uk
(lip)																						
plain stamping	uk	pr	pr	pr	uk	pr	uk	uk	uk	uk	pr	uk		pr	ab	pr	ab	uk	uk	uk	uk	uk
incising	uk				uk		uk	uk	uk	uk		uk	pr		ab		ab	uk	uk	uk	uk	uk
Orientation of Design Lines																						
(body and rim exterior)																						
vertical/horizontal	uk						uk			uk	pr	uk			ab		ab				uk	
oblique right	uk						uk			uk		uk	pr		ab		ab				uk	
oblique left	uk			pr			uk			uk		uk			ab		ab	pr			uk	
vertical/oblique	uk						uk		pr	uk		uk			ab		ab				uk	
horizontal/oblique	uk					pr	uk			uk		uk		pr	ab		ab		pr	pr	uk	
vertical	uk		pr				uk			uk		uk			ab	pr	ab				uk	
horizontal	uk	pr			pr		uk	pr		uk		uk			ab		ab				uk	pr
(lip)																						
oblique	uk	pr	pr	pr	uk	pr	uk	uk	uk	uk	pr	pr	pr	pr		pr		uk	uk	uk	uk	uk
absent	uk				uk		uk	uk	uk	uk					pr		pr	uk	uk	uk	uk	uk
Metric Attributes (Vessel Form)																						
body thickness	uk	uk	uk	6	6	7	uk	7	uk	uk	6	uk	8	13.5	uk	uk	uk	7	uk	7	uk	uk
lip thickness	uk	7	5	5	uk	4.5	uk	uk	uk	uk	5	uk	4	10	5	4.5	1	uk	uk	uk	uk	uk
neck thickness	uk	9	8	uk	uk	uk	uk	uk	uk	uk	uk	uk	6	13.5	uk	7	4	6	uk	uk	uk	uk
Rim Form																						
vertical	uk			uk	uk		uk	uk	uk	uk	uk						pr	uk	uk	uk	uk	uk
outflaring	uk	pr		uk	uk	pr	uk	uk	uk	uk	uk	pr	pr	pr		pr		uk	uk	uk	uk	uk
inflaring	uk		pr	uk	uk		uk	uk	uk	uk	uk				pr			uk	uk	uk	uk	uk
Rim Shape																						
contracting	uk	pr	pr	uk	uk	pr	uk	uk	uk	uk	uk	uk	pr	pr		pr	pr	uk	uk	uk	uk	uk
parallel	uk			uk	uk		uk	uk	uk	uk	uk	uk			pr			uk	uk	uk	uk	uk
Lip Shape																						
round	uk		pr	uk	uk	pr	uk	uk	uk	uk		pr	pr	pr		pr	pr	uk	uk	uk	uk	uk
flat	uk	pr		uk	uk		uk	uk	uk	uk	pr				pr			uk	uk	uk	uk	uk
Lip Edge Treatment																						
notched	uk				uk	pr	uk	uk	uk	uk	pr	uk				pr	pr	uk	uk	uk	uk	uk
plain	uk	pr	pr	pr	uk		uk	uk	uk	uk		uk	pr	pr	pr			uk	uk	uk	uk	uk
Method of Construction																						
coil	pr		pr	pr		pr	pr	pr	pr	pr	pr		pr	pr		pr	pr	pr	pr	pr	pr	
unknown		pr			pr							pr			pr							pr
Temper																						
quartz-based	pr	pr	pr	pr		pr	pr	pr	pr	pr	pr	pr	pr	pr	pr	pr	pr		pr	pr	pr	pr
mica-based																		pr				
shell-based					pr																	
Temper Particle Size	2.2	3	2	4	2	1.5	5	3.5	2	4	2.5	2	2.5	4	2	5	2	2	6	1.3	4	3
Interior Surface Finish																						
wiping								pr										pr			uk	uk
scraping	pr	pr		pr	pr	pr															uk	uk
indeterminate			pr				pr		pr	pr	pr	pr	pr	pr	pr	pr	pr		pr	pr	uk	uk
Colour (exterior wall)																						
buff	pr			pr	pr			pr	pr	pr		uk		pr		pr	pr	pr	pr		pr	pr
gray		pr										uk								pr		
brown			pr			pr	pr					uk	pr									
red											pr	uk			pr							
Colour (core region)																						
gray	pr			pr	pr		pr		pr	pr	pr	pr	pr	pr	pr	pr	pr		pr	pr	uk	pr
brown		pr	pr			pr															uk	
red								pr										pr			uk	

APPENDIX IV

LITHIC ARTIFACTS: ATTRIBUTE TERMINOLOGY AND ARTIFACT DESCRIPTIONS

Attribute Terminology

All groupings of lithic artifacts were discussed using directional terminology (Figure 36). The primary reference terms were proximal, distal, dorsal and ventral. Proximal referred to the surface bearing the striking platform. In the event the tool was not knapped, or the position of the platform indeterminate, the proximal end referred to the non-utilized surface. Distal regions were either the margin opposing the striking platform or the primary region of use. When speaking of pointed or stemmed artifacts tip and base were used interchangeably with proximal and distal. When referring to groundstone, celt-like objects, bit and poll were also used in the same way as distal and proximal, respectively. The dorsal surface was the outer surface of a flake, while the ventral surface referred to the undersurface or area of original contact with the core (Crabtree 1972). On finished flake tools or groundstone, where flake morphology was not evident, dorsal and ventral were arbitrarily assigned.

Other descriptive terminology was based upon elementary shape identification. Terms such as triangular, rectangular, oval, wide angle, convex or plano were used to identify artifact outline and longitudinal or cross-section (Figure 37). Where two terms were given, the ventral form was always stated first.

A number of metric attributes were also utilized in describing artifact groups. Using a system of points and lines, similar to those used for the bone point, measurements (in millimeters) were recorded for complete specimens (Figure 38). Maximum length was

Figure 36: Lithic Artifacts, Directional Terminology

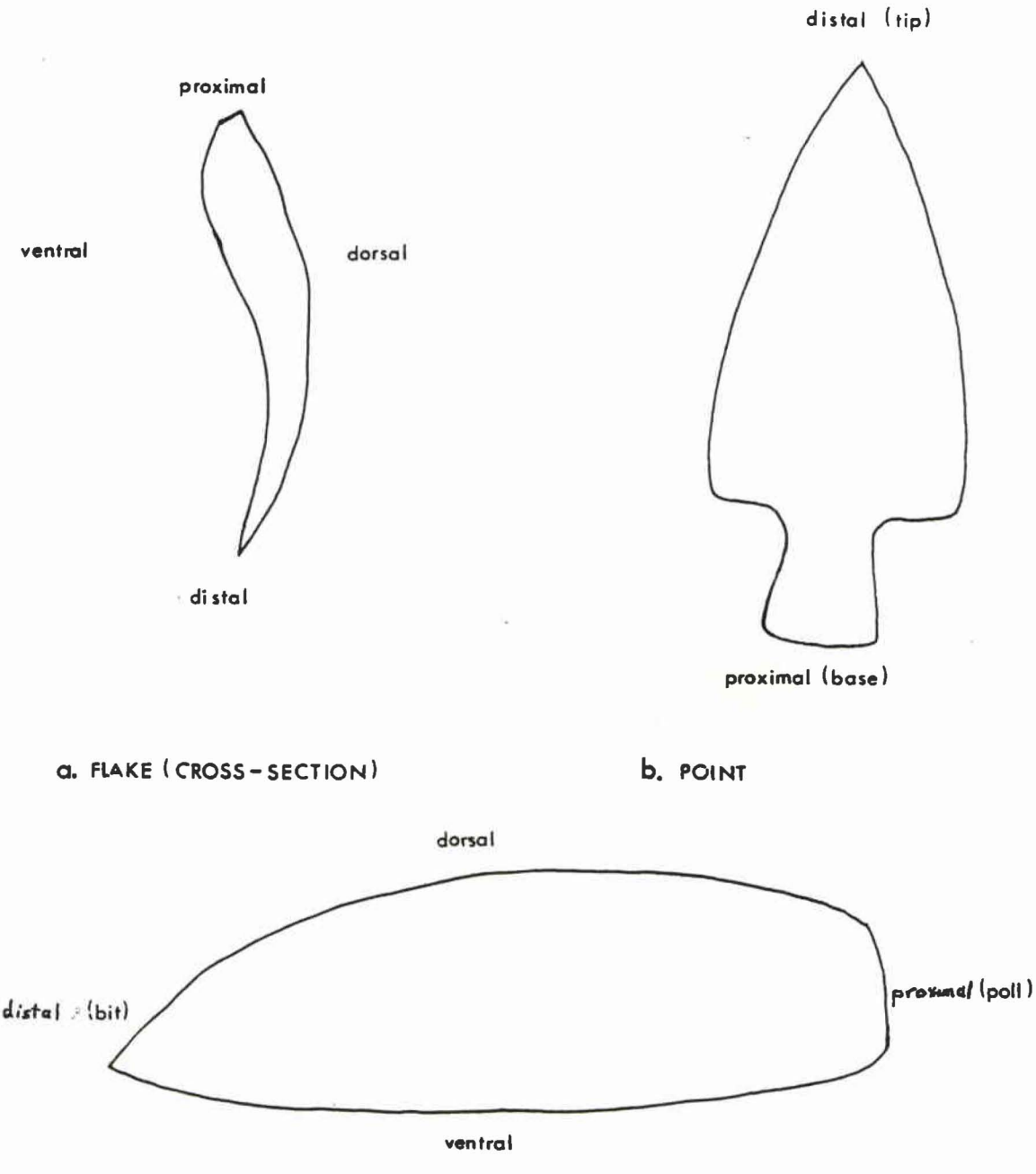


FIGURE 36: DIRECTIONAL TERMINOLOGY

Figure 37: Lithic Artifacts, Descriptive Terminology

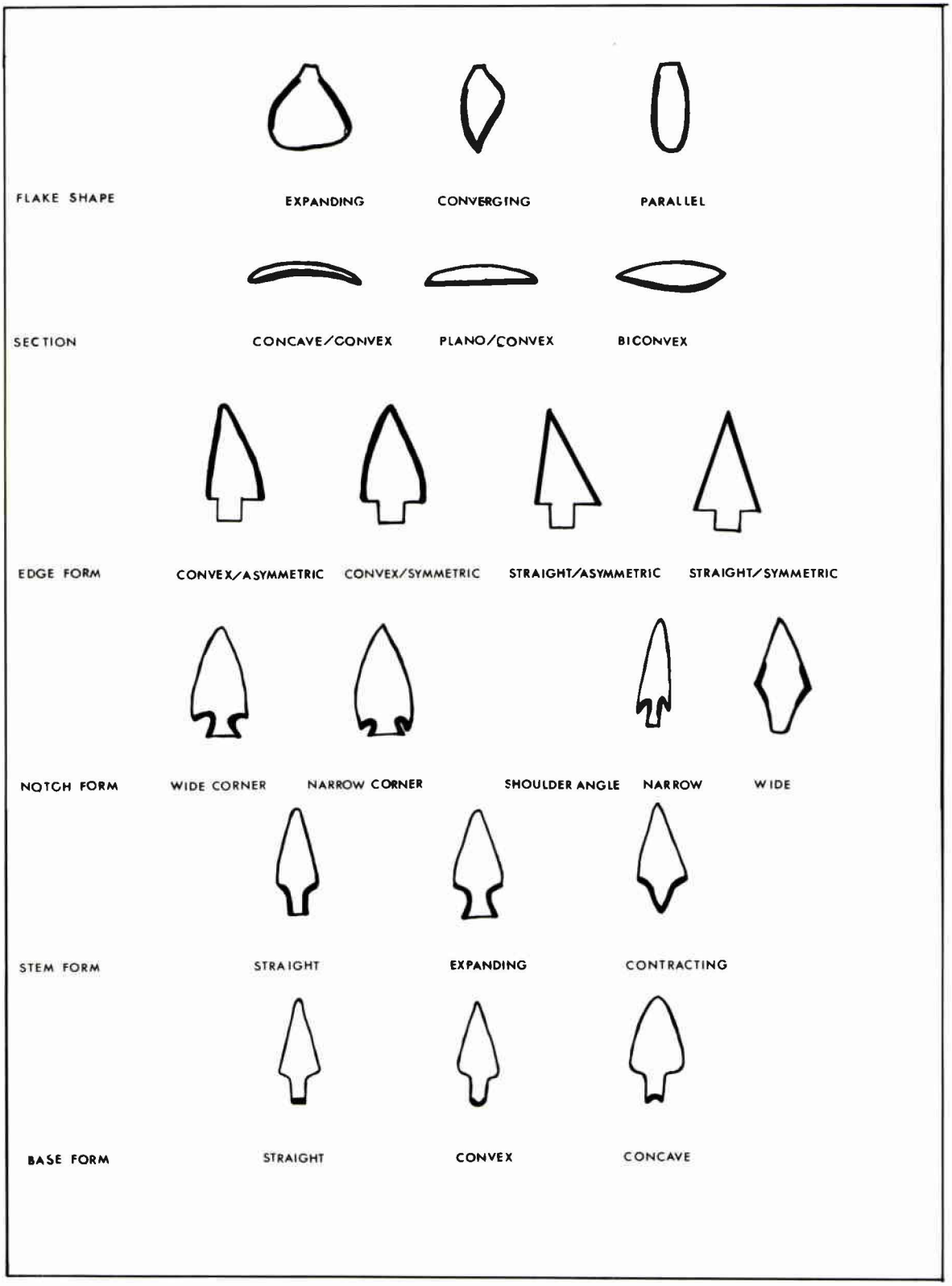
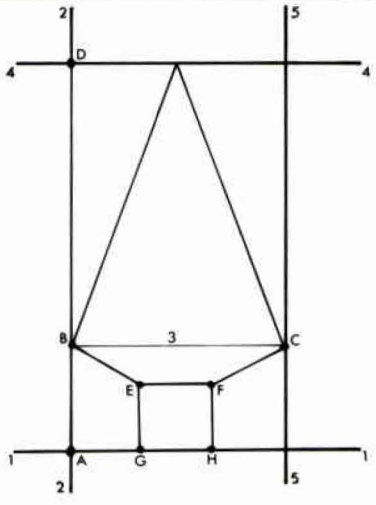
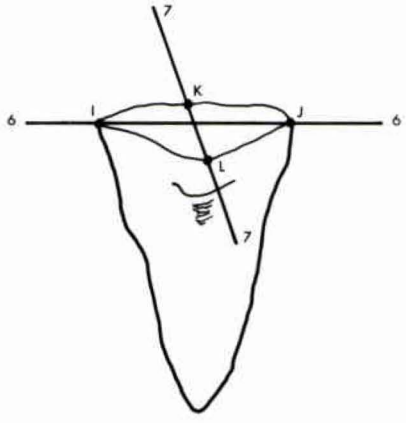
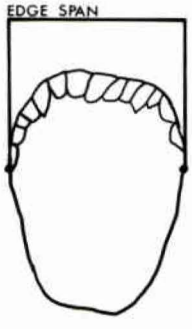
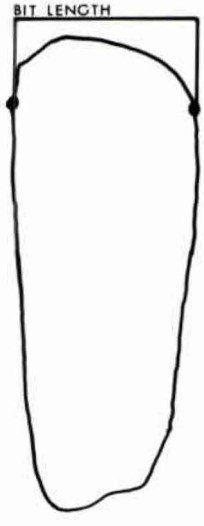

FLAKE SHAPE
EXPANDING
CONVERGING
PARALLEL
SECTION
CONCAVE/CONVEX
PLANO/CONVEX
BICONVEX
EDGE FORM
CONVEX/ASYMMETRIC
CONVEX/SYMMETRIC
STRAIGHT/ASYMMETRIC
STRAIGHT/SYMMETRIC
NOTCH FORM
WIDE CORNER
NARROW CORNER
SHOULDER ANGLE
NARROW
WIDE
STEM FORM
STRAIGHT
EXPANDING
CONTRACTING
BASE FORM
STRAIGHT
CONVEX
CONCAVE

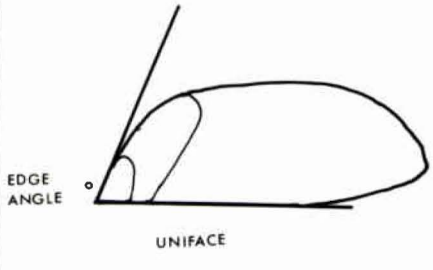
Figure 38: Lithic Artifacts, Metric Attributes
Top: Point and Line System
Middle: Edge Span and Bit Length
Bottom: Edge Angles

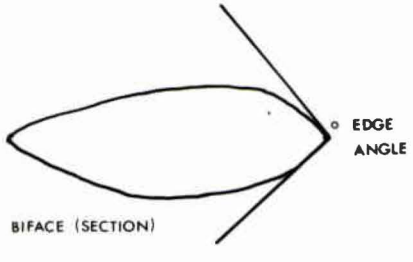

2
5
D
4
4
B
3
C
E
F
1
A
G
H
1
2
5


7
K
6
I
J
6
L
7


EDGE SPAN


BIT LENGTH


EDGE
ANGLE
UNIFACE


EDGE
ANGLE
BIFACE (SECTION)

the distance between point A and D where line 2 (perpendicular to the platform or base) was intersected by lines 1 and 4. Maximum width was the distance between points B and C where line 3 intersects lines 2 and 5. Thickness measurement was essentially the distance between ventral and dorsal surfaces, but was taken 1 cm below the lip on flakes and at the point of greatest distance on other tools. Neck width was the distance between points E and F on line 8. Base width was the distance between points G and H on line 1. Platform length was the distance between points I and J on line 6 and platform width was the distance between points K and L on line 7.

In addition to the measurements given above, edge span, bit length, and edge angles, were calculated for appropriate artifact categories. Edge span was the distance between the beginning and end of the working edge of a unifacial tool. Bit length was the distance between terminating ends of the working edge of a celt-like tool. Edge angles were measured using a goniometer and were provided for unifaces, bifaces and bit edges.

Artifact Descriptions

Debitage

Flakes

Descriptions of flakes are provided in the form of summary attribute lists given in Table 20.

Core Fragments

BgDr-48:24jj

This triangular portion of a quartz nodule bears numerous negative flake scars on the left margin and dorsal surface. No

TABLE 21: Flake Debitage, Summary Attribute Lists

Key to Abbreviations:

pr = present
ab = absent
- = unknown
un = unprepared
gr = ground
sc = scrubbed
fl = flaked
ct = contracting
pl = parallel
ex = expanding
nl = normal termination
fr = fracture termination
qt = quartz
rh = rhyolite
ch = chert
an = andesite
ga = gabbro
fd = feldspar
ba = basalt
sh = shale
L = length
W = width
T = thickness
Prep = preparation
S = shape
Term = termination
C = cortex
Rwmt = raw material
cl = chalcedony

#	Dimensions L mm	W mm	T mm	Platform L mm	W mm	Prep	Lip	Flake S	Term	C	Rwmt
2a	-	-	13	19	6	un	ab	-	fr	ab	rh
3	39	29	7	9	1.7	gr	pr	ct	nl	ab	rh
15	-	-	9	23	11	sc	pr	pl	fr	ab	rh
64a	-	-	12	28	10	un	ab	ex	fr	pr	ch
64b	-	-	5	15	4	un	ab	ex	fr	ab	ch
64c	-	-	-	-	-	-	-	-	fr	ab	ch
64d	-	-	4	11	3	sc	pr	-	fr	ab	rh
64e	24	23	3	8	3	fl	pr	pl	nl	ab	ch
64f	29	15	3	6	1.5	fl	pr	pl	nl	ab	ch
318a	-	-	-	-	-	-	-	-	fr	ab	ch
318b	-	-	-	2.5	.5	sc	pr	-	fr	ab	ch
469a	-	-	-	-	-	-	-	-	nl	ab	ch
469b	18	12	2.8	1	.7	gr	ab	pl	nl	pr	ch
469c	-	-	1	2.5	.8	gr	pr	pl	fr	ab	ch
469d	-	-	-	-	-	-	-	-	fr	ab	ch
469e	-	-	-	-	-	-	-	-	fr	ab	ch
474a	-	-	2	6	1.6	sc	pr	-	fr	ab	ch
474b	10	11	1.5	1.5	.5	sc	ab	pl	nl	ab	ch
474c	-	-	-	-	-	-	-	-	fr	ab	ch
474d	-	-	-	-	-	-	-	-	fr	ab	ch
18	-	-	-	-	-	-	-	-	fr	ab	ch
24a	27	15	2	4	1	sc	pr	pl	nl	ab	ch
24b	-	-	-	5	1.2	sc	pr	-	fr	ab	ch
24c	-	-	-	-	-	-	-	-	nl	ab	ch
24d	-	-	-	-	-	-	-	-	fr	ab	ch
24e	-	-	-	-	-	-	-	-	fr	ab	ch

TABLE 21: Continued

#	Dimensions L mm	W mm	T mm	Platform L mm	W mm	Prep	Lip	Flake S	Term	C	Rwmt
24f	23	23	1	6	1	sc	pr	ex	nl	ab	ch
24g	-	-	-	-	-	-	-	-	fr	ab	ch
24h	-	-	-	-	-	-	-	-	fr	ab	ch
24i	-	-	-	-	-	-	-	-	nl	ab	ch
24j	-	-	-	5	2	sc	pr	-	fr	ab	ch
24k	-	-	1	2	1	sc	pr	-	fr	pr	ch
241	-	-	-	5	1	sc	pr	-	fr	ab	ch
24m	6	9	.5	3	.8	sc	pr	ex	nl	ab	ch
24n	-	-	-	-	-	-	-	-	fr	ab	ch
24o	-	-	-	-	-	-	-	-	fr	ab	ch
24p	26	12	2	3	.8	sc	pr	pl	nl	ab	ch
24q	21	17	2	3	1	sc	ab	ct	nl	pr	ch
24r	30	16	2.5	4	2	sc	pr	ex	nl	pr	ch
24s	22	16	2	5.5	1.3	sc	pr	pl	nl	ab	ch
24t	19	24	2	5	1.2	sc	pr	ex	nl	ab	ch
24u	-	-	-	-	-	-	-	-	fr	ab	ch
24v	-	-	-	-	-	-	-	-	fr	ab	ch
24w	-	-	-	-	-	-	-	-	fr	pr	ch
24x	-	-	-	-	-	-	-	-	fr	ab	ch
24y	-	-	2	4	2	sc	pr	-	fr	ab	ch
24z	-	-	-	-	-	-	-	-	fr	ab	ch
24aa	19	19	1	9	4	sc	pr	ex	nl	ab	ch
24bb	-	-	2	8	2	sc	pr	-	fr	ab	ch
24cc	13	13	1	5	1	un	ab	ct	nl	ab	ch
24dd	-	-	-	3	1	sc	pr	-	fr	ab	ch
24ee	-	-	-	-	-	-	-	-	fr	ab	ch
24ff	14	12	1.3	4	1	sc	pr	ex	nl	ab	ch
24gg	24	12	1.2	6	2	sc	pr	pl	nl	ab	ch
24hh	-	-	-	-	-	-	-	-	fr	ab	ch
24ii	-	-	-	-	-	-	-	-	fr	ab	ch
208a	-	-	-	-	-	-	-	-	fr	pr	qt
208b	8	13	1	3	.8	fl	ab	ex	nl	ab	qt
263	-	-	-	-	-	-	-	-	fr	ab	qt
129	52	49	5	8	2	sc	pr	pl	nl	ab	an
207a	30	30	6	12	5	gr	pr	ex	nl	ab	rh
207b	23	37	5	14	4	sc	pr	ex	nl	ab	rh
88a	35	34	6	20	4	sc	pr	pl	nl	ab	ga
88b	25	35	5	21	6	sc	pr	ex	nl	ab	ga
89a	-	-	4	14	4	ab	ab	pl	fr	pr	rh
89b	-	-	7	17	4	fl	ab	-	fr	pr	rh
89d	12	16	1	8	2.2	fl	pr	pl	nl	ab	fd
86a	-	-	-	-	-	-	-	-	fr	ab	ba
86b	20	31	3	12	3	sc	pr	ex	nl	ab	ba
86c	10	18	1	5	1.5	gr	pr	ex	nl	ab	ba
86d	-	-	-	-	-	-	-	-	nl	pr	ba

TABLE 21: Continued

#	Dimensions L mm	W mm	T mm	Platform L mm	W mm	Prep	Lip	Flake S	Term	C	Rwmt
86e	19	19	1.5	5	1	sc	pr	ex	nl	ab	ba
80a	-	-	7	6	3	fl	ab	pl	fr	pr	qt
80b	10	15	2	9	4	sc	ab	ex	nl	ab	qt
79	-	-	4	16	8	fl	ab	pl	fr	pr	cl
87a	-	-	-	-	-	-	-	-	fr	pr	qt
87d	20	24	5	6	2	fl	ab	ex	nl	pr	qt
209a	41	21	3	5	1	sc	pr	pl	nl	ab	an
209b	31	41	6	16	5	gr	pr	ct	nl	ab	an
209c	21	16	2	7	1	sc	pr	pl	nl	ab	an
209d	-	-	2	7	1.5	sc	pr	-	fr	ab	an
209e	22	15	2	7	1.5	sc	pr	pl	nl	ab	an
209f	-	-	2	7	1.5	sc	pr	-	fr	ab	an
209g	-	-	-	-	-	-	-	-	fr	ab	an
209h	18	12	2	4	1.2	sc	pr	pl	nl	pr	an
209i	20	19	2	7	2.2	sc	pr	ex	nl	ab	ah
209j	16	21	2.5	4	1	sc	pr	ex	nl	ab	an
209k	-	-	-	-	-	-	-	-	fr	ab	an
2091	-	-	-	-	-	-	-	-	nl	ab	an
209m	15	20	2	5	1	sc	pr	ex	nl	ab	an
262a	-	-	5	13	3	sc	pr	ex	fr	pr	an
262b	-	-	2.5	5	2	sc	pr	ex	fr	ab	an
237b	28	37	4	17	5	sc	pr	ex	nl	pr	rh
237c	27	28	5	7	2	sc	pr	ex	nl	ab	rh
237d	26	26	4	4	3	sc	pr	ex	nl	pr	rh
237e	-	-	3	13	5	sc	pr	ex	fr	ab	rh
237f	-	-	-	-	-	-	-	-	fr	pr	rh
237g	-	-	-	-	-	-	-	-	fr	ab	rh
237h	-	-	2	7	2	sc	pr	-	fr	ab	sh
237i	-	-	1	10	3	sc	pr	-	fr	ab	sh
237j	-	-	-	-	-	-	-	-	fr	pr	rh
237k	-	-	-	-	-	-	-	-	fr	ab	rh
2371	-	-	-	-	-	-	-	-	fr	ab	rh
237m	-	-	-	9	3	sc	pr	-	fr	ab	rh
237n	-	-	4	7	3	sc	pr	-	fr	pr	rh
451	32	38	3	9	3	sc	pr	ex	nl	ab	rh
332	25	29	4	11	4	sc	ab	pl	nl	pr	rh
488	-	-	1	7	2	sc	pr	-	fr	ab	rh
73	-	-	-	-	-	-	-	-	fr	ab	rh
74	-	-	-	-	-	-	-	-	fr	ab	qt
71a	22	25	4	10	3	gr	pr	ex	nl	pr	rh
71b	-	-	-	-	-	-	-	-	fr	pr	rh
71c	28	31	9	14	5	sc	pr	ex	nl	pr	rh
71d	-	-	7	7	3.5	sc	pr	-	fr	ab	rh
71e	-	-	-	-	-	-	-	-	nl	ab	rh
82	-	-	-	-	-	-	-	-	nl	pr	qt

TABLE 21: Continued

#	Dimensions L mm	W mm	T mm	Platform L mm	W mm	Prep	Lip	Flake S	Term	C	Rwmt
81a	18	24	1.8	11	4	sc	pr	ex	nl	pr	rh
81b	-	-	-	-	-	-	-	-	nl	ab	rh
81c	26	23	3	10	4	sc	pr	pl	nl	ab	rh
81d	20	21	2	13	4	sc	pr	pl	nl	ab	rh
496	-	-	4	13	3	sc	pr	-	fr	pr	rh
778	20	30	3	11	2	sc	pr	ex	nl	ab	ch
508	-	-	3	9	3	sc	ab	-	fr	ab	qt
650a	14	18	1	3	.5	sc	ab	ex	nl	ab	qt
650b	-	-	-	-	-	-	-	-	fr	ab	qt
650c	22	33	11	10	7	un	ab	ex	nl	pr	qt
796	-	-	-	-	-	-	-	-	fr	ab	qt
797	4	3	2	1	.2	sc	pr	ct	nl	ab	qt
798	5	3	2	2	.5	sc	pr	ct	nl	ab	qt
799	7	3	2	2.9	1	sc	pr	ct	nl	ab	ch

flaking pattern is evident. Cortex is present on the remaining dorsal surfaces. This specimen is 82 mm long, 45 mm wide and 19 mm thick.

BgDr-48:2b

This rectangular shaped portion of rhyolite bears numerous irregularly positioned negative flake scars on all surfaces. The specimen is 48 mm long, 34 mm wide and 18 mm thick.

Bifaces

BgDr-48:147

This specimen is a complete implement 43 mm long, 22 mm wide, 7 mm thick and weighs 4.5 g. Edges of the biface tip and medial sections are straight and asymmetric; the right margin being more steeply angled. The point is bifacially worked on all surfaces with secondary bifacial retouch visible along the right lateral margin. The stem is contracting with wide angled shoulders and a blunt, convex base. The tool neck width is 9 mm, with a 4 mm base width and a stem length of 11 mm. In both cross and longitudinal sections the implement is biconvex. The raw material is slate.(Figure 30).

BgDr-48:116

This specimen is a basal and medial portion of a large stemmed implement. All dorsal and ventral surfaces are bifacially worked and both lateral margins bear secondary bifacial retouch. The basal and medial edge angles are 35^{o}. The stem is straight with a single, narrow corner notch on the left margin. The base is slightly concave and thinned by flaking. The tool neck width is 30 mm, with a base width of 26 mm, and a stem length of 6 mm. The tool, found in two

fragments, bears a transverse fracture, possibly the result of end shock during tool manufacture or retouch (Crabtree 1972:60), separating the basal and medial portions. In both cross and longitudinal section the tool is biconvex. The raw material is dark brown, porphyritic rhyolite.(Figure 30).

BgDr-48:4

This find is a basal portion of a large stemmed implement. Ventral and dorsal surfaces are completely worked with secondary bifacial retouch evident on both margins. Basal edge angles for this specimen are 35°. The stem is straight with wide angled shoulders and a straight base. Neck width is 25 mm, base width is 23 mm, and stem length is 8 mm. Some attempt at basal thinning by flaking is evident. In both cross and longitudinal section the piece is biconvex. This artifact is formed from dark green chert (Figure 30).

BgDr-48:21

This roughly rectangular lithic specimen is 106 mm long, 41 mm wide, 14 mm thick and weighs 69.2 g. The tool is bifacially flaked on the distal edge. The modified area is 51 mm long, with an edge angle of 41°. A few random unifacial flakes were also removed from the ventral surface of the opposing margin. Remaining surfaces of the pebble are unmodified. In cross and longitudinal section this tool is roughly biconvex. The raw material is gabbro.

BgDr-48:9

This rectangular specimen is 122 mm long, 52 mm wide, 14 mm thick and weighs 112.2 g. Roughly one-half of the tool is bifacially worked. The distal flaked edge is 114 mm long with an edge angle of 55°.

Proximal surfaces that are not flaked are smooth but no striations indicating grinding are visible even uder magnification. In both cross and longitudinal section the tool is plano-convex. The tod is of a rhyolitic tuff.

Unifacially Retouched Flakes

BgDr-48:122

This triangular quartz flake is 21 mm long and is steeply retouched along the distal flake face. Due to longitudinal breakage through the modified face no edge span could be calculated; however the edge height for the remaining worked face is 6 mm with an edge angle of 56°. Along the distal margin, an area of slight crushing is evident. In cross and longitudinal section, the tool is concave/convex.(Figure 31).

BgDr-48:114

This triangular quartz flake is 30 mm long, 20 mm wide, 4 mm thick and weighs 3.4 g. The primary retouched edge is the distal flake surface although a few small flakes have been removed from the right lateral margin. The principal working edge has a span of 18 mm with an edge height of 6 mm and an edge angle of 60° (Figure 31).

BgDr-48:118

This mid-section fragment of a blade has deliberate retouch along the right lateral margin. The edge span is 81 mm, with an height of 2 mm and an angle of 49°. Cortex is visible on most of the ventral surface and the artifact is biconvex in both cross and longitudinal section. The raw material is rhyolite.

BgDr-48:89

Continuous retouch on this lithic fragment occurs along the distal margin. The edge span is 33 mm, with a height of 2.5 mm and an angle of 36°. The non-formed implement is rectangular in shape with a biconvex section and is of rhyolite.

BgDr-48:19

This quartz flake is 39 mm long, 31 mm wide, 11 mm thick and weighs 15.2 g. Non-continuous retouch occurs along the distal edge. The edge span is 38 mm, the edge height 4 mm, and the edge angle 69°. In outline the specimen is circular with a plano/convex cross and longitudinal section. Except for the area of retouch, the entire ventral surface is cortex (Figure 31).

Bipolar Flakes

BgDr-48:87a

This quartz flake fragment contains areas of heavy crushing on both right and left margins. The angle of the right margin crushing is 70° and the left edge has a 72° angle (Figure 31).

BgDr-48:87b

This quartz flake fragment contains areas of heavy crushing on both right and left margins. The angle of the right margin is 63° and the left margin has an angle of 58° (Figure 31).

Ground and Pecked Stone Tools

BgDr-48:38

This rectangularly shaped specimen is 155 mm long, 65 mm wide, 32 mm thick and weighs 198.4 g. All surfaces of the tool are ground.

The bit is 47 mm long and has an edge angle of 87°. Near the poll, or proximal end of the artifact two slight depressions occur on the lateral margins. This tool is constructed from gabbro (Figure 32).

BgDr-48:391

This rectangular specimen of rhyolite is 165 mm long, 50 mm wide, 23 mm thick and weighs 254.6 g The lateral margins of this artifact are pecked and the 21 mm long bit region is blunted by heavy battering, and/or crushing.

BgDr-48:22

This specimen is roughly rectangular in shape and is 112 mm long, 50 mm wide, 18 mm thick and weighs 133.7 gm. The artifact is somewhat unusual, having a clearly defined striking platform at the poll end of the tool. The dorsal surface is ground; and the tool margins are pecked. Ventrally, only the area near the bit is ground; the remaining surfaces are unmodified. The ventral surface at the bit is also the only region to exhibit faint, slightly diagonal striations running across the ground surface. The bit is 32 mm long with an angle of 58°. In both cross and longitudinal section the tool is plano/convex. The artifact is formed from rhyolite (Figure 32).

BgDr-48:11&13

This artifact is partially reconstructed from two flakes. The dorsal surface is highly polished. Strong longitudinal striations are visible running along the ground regions of each flake. A few small flake scars are visible on the distal margin of one flake. Raw material for these flakes is rhyolite (Figure 32).

BgDr-48:113

This artifact is a portion of the bit region of a groundstone celt. lateral margins of the implement are pecked and other surfaces ground. The bit is highly polished on both dorsal and ventral surfaces with some chipping, attributable to use, occurring at the edge. The bit is 49 mm long with an edge angle of 82°. The tool is constructed from a rhyolite (Figure 32).

BgDr-48:352

This specimen is 126 mm long, 52 mm wide, 25 mm thick, and weighs 145.6 g . The gabbro rock has a naturally bevelled edge which has been slightly ground but does not form a proper bit or working edge.

Miscellaneous Lithic Material

BgDr-48:72

This roughly cylindrical rock is pitted at the proximal end and otherwise unmodified. The artifact is 135 mm long, 34 mm wide, 23 mm thick and weighs 99.8 g . The raw material is rhyolite.

BgDr-48:394

This specimen of rhyolite contains several areas of visible abrasion, possibly cultural. Two areas, one on the ventral and the other on the dorsal surface, are worn smooth with visible parallel striations. The dorsal abrading surface is about 25 x 10 mm and basin shaped, while the ventral region, an area roughly 25 x 30 mm is even. The artifact is 145 mm long, 42 mm wide, 62 mm thick, and weighs 182.4 g .

BgDr-48:593

This large granitic rock is 300 mm long, 111 mm wide, 120 mm thick and weighs more than 2600 gm. An area about 20 x 20 mm on the dorsal surface is worn. Faint striations on this surface are parallel.

BgDr-48:359

This particular specimen is 170 mm long, 170 mm wide, 80 mm thick and weighs more than 2600 gm. Several amooth surfaces, 20 x 20 mm, bear parallel longitudinal striations and exhibit a polish or sheen. The worn faces are slightly depressed.