PALAEO-ESKIMO OCCUPATIONS IN BONAVISTA BAY, NEWFOUNDLAND

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PALAEO-ESKIMO OCCUPATIONS IN BONAVISTA BAY, NEWFOUNDLAND

by

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ABSTRACT

The first indication that an early Palaeo-Eskimo occupation was present in Bonavista Bay came from excavations at The Beaches site in the early 1970's. However, its relationship to the Middle Dorset occupation and its chronological significance were unclear.

The primary goals of this study are to identify and examine the Palaeo-Eskimo manifestations in Bonavista Bay and to determine if the differences between them - in technology, time and use of raw materials - suggest distinctly different occupations. In order to achieve these goals, a detailed comparison of artifact attributes, tool categories, utilization of raw materials and available radiocarbon results from eight Bonavista Bay sites is presented. Comparisons are also made with dated Palaeo-Eskimo occupations in other areas of Newfoundland and Labrador.

Based on the results of the analysis, the Palaeo-Eskimo occupations are identified as the Groswater and Middle Dorset phases of two temporally and technologically distinct traditions: Early and Late Palaeo-Eskimo. Furthermore, there clearly exists a cultural relationship between the Bonavista Bay Groswater and Middle Dorset phases and similar complexes throughout Newfoundland and Labrador.

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CHAPTER 1 - INTRODUCTION

A Review of Palaeo-Eskimo Research in Newfoundland

In Newfoundland (Fig. 1), the first major investigation relating to the Palaeo-Eskimo question was carried out by Elmer Harp Jr. (1964) along the coastal regions of the Great Northern Peninsula. The largest and most prolific site excavated was Port au Choix-2 (EeBi-1), known locally as Phillip's Garden. Harp identified the artifact collection from the site as "Newfoundland Dorset Eskimo" (ibid.). Excavations not only revealed a large and varied artifact assemblage, but also some 36 semi-subterranean dwellings. Faunal specimens collected indicated that subsistence was based primarily on seal hunting, with 90% of the bone attributed to the Harp seal (Phoca groenlandica). In addition, there were minor occurrences of fish, beaver, fox, migratory birds and caribou. Fifteen radiocarbon dates, based on wood charcoal, reflected a substantial occupation within the first half of the first millennium A.D. (1736±48 to 1321±49 B.P.)[1] (McGhee and Tuck 1976).

Typical Newfoundland Dorset artifact assemblages were also recovered by Helen Devereux (1969) during surveys along the coastal regions of Sop's Arm, White Bay, Notre Dame Bay and Bonavista Bay.

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[1] Unless otherwise stated, all dates presented in this thesis are based on the internationally agreed Libby half-life for C-14 (5568 years).

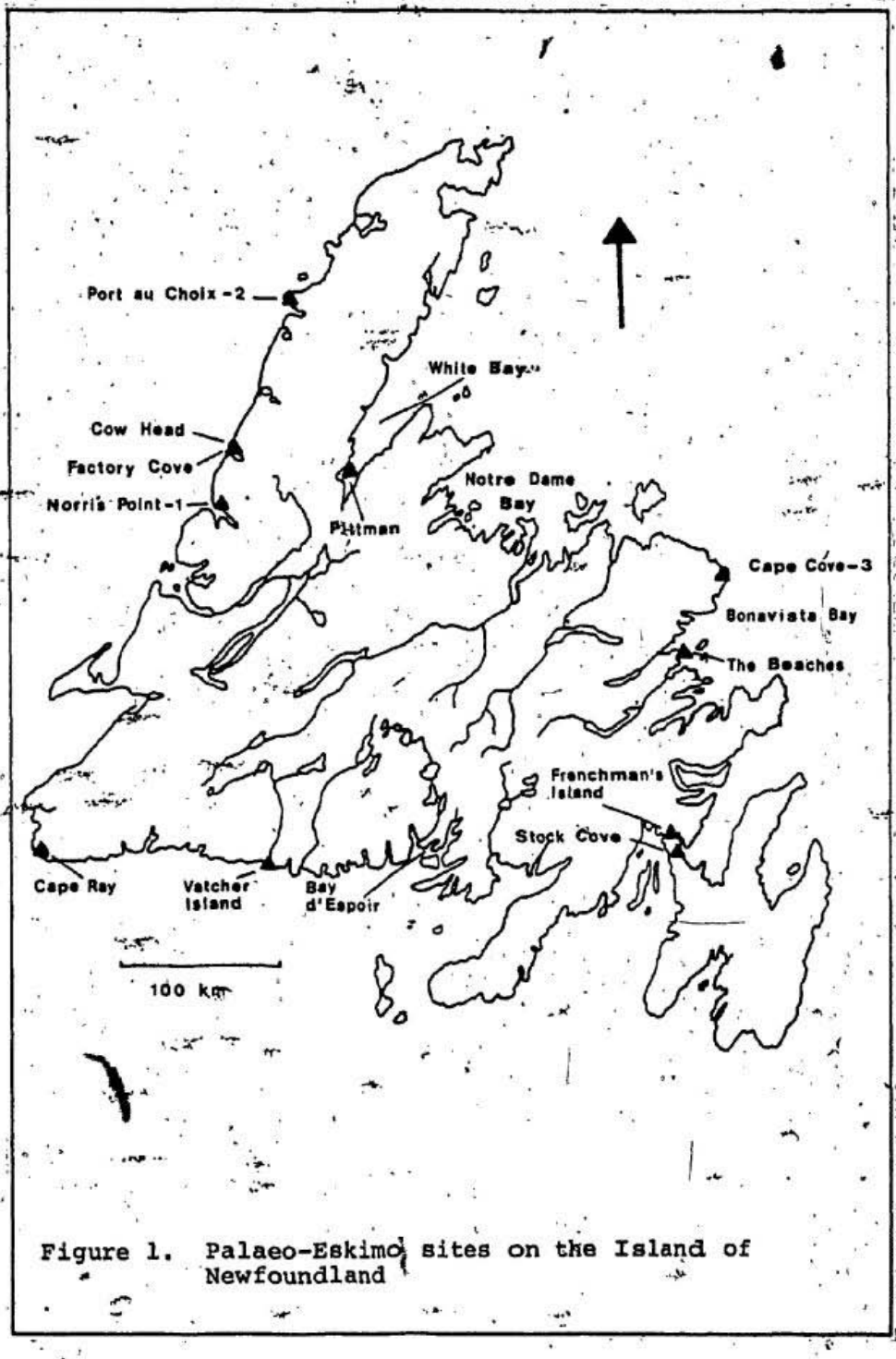

Figure 1. Palaeo-Eskimo sites on the Island of Newfoundland

In the late 1960's, excavations carried out by Urve Linnamae (1975) at the Pittman site (DkBe-1), Sop's Arm and the Cape Ray Light site (CdBt-1) near Port aux Basques, led to a detailed analysis of Newfoundland Dorset lithic technology. Supplementing her own data with assemblages from other known Newfoundland Dorset sites (Harp 1964; Devereux 1969), Linnamae concluded that typical Newfoundland Dorset traits consisted of tip-fluted and high side-notched endblades, asymmetric side-notched knives, ground slate knives and endblades, sideblades, various forms of endscrapers, tabular burin-like tools, blades and microblades, polyhedral cores and rectangular and rounded soapstone vessels.

Four radiocarbon dates from the Cape Ray Light site indicated that the maximum spread of occupation at the site was 1400 years. However, Linnamae pointed out that,

> ...the artifact analysis does not point to such an early complex nor is there enough variation in types or in raw material to suggest a long term occupation, (Linnamae 1975:48).

After comparing the collection and radiocarbon dates with Harp's Port au Choix-2 material, Linnamae indicated that occupation at the site more than likely occurred in the first half of the first millennium A.D. (Linnamae 1975).

Three charcoal samples from the Pittman site ranged from 2780±100 to 1340±100 B.P. suggesting a very long period of occupation, but Linnamae again concluded that,

> ...the overwhelming majority of artifactual material favours the

later part of the range of dates, or the first half of the first millennium A.D. (Linnamae 1975:62).

Since 1976, there has been a proliferation of archaeological information regarding the Palaeo-Eskimo occupations on the Island of Newfoundland. Although these investigations have increased our knowledge about these prehistoric peoples, they have also generated numerous questions, the answers to which continue to elude us.

Past interpretations of typical "Newfoundland Dorset Eskimo" are now supplemented by data indicating that these people were not the earliest Palaeo-Eskimo occupants in Newfoundland. Occasional artifacts relating to earlier occupations have been recorded at sites throughout the Island (Carignan 1975; Linnamae 1975). Newfoundland Dorset, distingished from earlier and later Palaeo-Eskimo cultures in Newfoundland and Labrador, is now referred to as Middle Dorset.

The first indications of an earlier Palaeo-Eskimo culture on the Island came from excavations conducted by Paul Bishop (1973) on the west coast. At Norris Point-1 (DjBl-2), in Bonne Bay, Bishop noted that two particular artifact types, side-notched plano-convex endblades and chipped and ground burin-like tools, probably represented an early stage in the Dorset Eskimo continuum. He concluded that the collection showed close affinities in style and use of raw materials to William Fitzhugh's Groswater Dorset material from Labrador (cf. Fitzhugh 1972). Bishop (1973) dated the site between ca. 2650 and 2450 B.P.

Subsequent information pertaining to an earlier Palaeo-Eskimo culture in Newfoundland came from excavations conducted by James Tuck, on the west coast (Tuck, pers. comm. 1978). At Cow Head (DlBk-1), work on a cobble and stone slab mid-passage hearth produced burin spalls, true ground and spalled burins and a number of other tools, most made from local fine-grained Cow Head cherts. Although the collection was small and could not be dated satisfactorily, Tuck regards it as Early Palaeo-Eskimo in origin, probably dating between 3200 and 3000 B.P. (Tuck, pers. comm. 1983).

Additional evidence at Cow Head, from Bands 4, 5, 6 and 7, indicated that a later occupation was also present at the site. Dated to ca. 2800 B.P. (Tuck, pers. comm. 1982), artifacts included: tiny, biconvex sideblades; thin, side-notched endblades; scrapers; bifaces; thin preforms; and a fragment of a possible side-notched and ground burin-like tool. All suggested the presence of a Palaeo-Eskimo manifestation at least vaguely comparable to collections from Labrador (cf. Fitzhugh 1972). The typical Newfoundland Dorset (Middle Dorset) period was represented by only two endblades (Tuck, pers. comm. 1981).

In the summer of 1981, archaeological investigations continued in the Cow Head region. Reginald Auger, with a crew from Memorial University, including the author, excavated the Factory Cove site (DlBk-3). Excavations revealed the presence of two Palaeo-Eskimo occupations (Auger 1982). The earliest occupation, dated at 2700±140 B.P. (Auger, pers. comm. 1982), has examples comparable to those from the

contemporaneous or somewhat earlier Palaeo-Eskimo components at Cow Head (cf. Auger 1982: Pl. 4:8, 11 & 12). According to Auger (pers. comm. 1982), the later occupation, dated between 2530±280* and 2100±60 B.P., represents the main occupation at the site. In addition to a substantial collection of artifacts, Factory Cove also yielded a large quantity of debitage, blanks and preforms, a semi-subterranean structure and a number of hearths, all of which are indicative of a work-shop/habitation site.

Along the south coast, surveys and excavations showed how widespread the Palaeo-Eskimo occupation was in Newfoundland. Although undated, artifacts collected by Gerald Penney (1981) at the L'Anse a Flamme site (CjAx-1) were comparable to those from the later occupation at Factory Cove. These included a burin-like tool, high side-notched endblades and notched uniface points (Penney 1981: Pl. II). The recovery of a true spalled burin and a chipped and ground burin-like tool at Vatcher Island (CjBj-8) in the Burgeo-Ramea area, west of Bay d'Espoir, also suggested some antiquity of occupation. Unfortunately, erosion has destroyed much of the site (Penney 1981), thereby making interpretations difficult.

Additional investigations along the south coast indicated that the major Palaeo-Eskimo occupation was related to the Middle Dorset period (Penney 1981, 1982). This was reinforced by an examination of sites in the Burgeo-Ramea and Bay d'Espoir regions and supplemented by three radiocarbon

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* Based on Libby half-life of 5570 years.

dates ranging from 1600±85 (Penney 1981) to 1335±115 B.P. (Penney, pers. comm. 1982).

In the fall of 1981, Ralph Pastore (1982) and a crew from Memorial University surveyed eastern Notre Dame Bay and located at least 11 Palaeo-Eskimo sites. Although many of these sites yielded few artifacts, the majority belonged to the Middle Dorset period.

Investigations in Trinity Bay, on the east coast of Newfoundland, yielded considerable information on a possible terminal stage of the Middle Dorset period (Evans 1981, 1982; Robbins 1982). At Stock Cove (CkAl-1), located on the western shore of Bull Arm approximately 13km south of Sunnyside, work conducted by Douglas Robbins (1982) indicated that the site was an area of repeated and intense occupation but was restricted temporally. Robbins concluded that the lack of typological variety within the category of endblades could not "...readily be interpreted as evidencing a very long time span" (ibid.:200). Three of the radiocarbon dates from the site ranged from 1560±60 to 1280±60 B.P. and they appear to support this conclusion (Robbins, pers. comm., 1982). These dates, together with a preliminary artifact analysis suggested a late Middle Dorset occupation (Robbins 1982). In addition to the lithic tools recovered, a large house structure was found. Robbins suggests that a considerable amount of work had gone into its construction, probably indicating more than just temporary use.

Excavations and preliminary analysis carried out by Clifford Evans at Frenchman's Island (ClCl-1), Trinity Bay, indicated that the earliest and major occupation at the site was related to the Middle Dorset period (Evans 1981, 1982). The majority of artifacts were patinated (Evans 1981: Pl. 3) and typologically comparable to the material reported from Stock Cove, about 13 km to the south (cf. Robbins 1982: Pl. 1). The radiocarbon date of 805±70 B.P. did not reliably reflect such a late occupation and Evans feels that on typological grounds, a range from A.D. 400 to 600 would be a more accurate time frame for occupation (pers. comm. 1982). The 1981 excavations (Evans 1982) also yielded a sample of finely flaked artifacts made from fine-grained, colourful cherts. These include several sideblades, small triangular scrapers and an irregularly-shaped side-notched knife. All are characterized by a markedly different technique of manufacture in comparison with most of the artifacts recovered and are reminiscent of an earlier Palaeo-Eskimo component.

Before turning to a review of Palaeo-Eskimo research in Bonavista Bay, it is important to summarize the state of Palaeo-Eskimo prehistory in Newfoundland. With the spread of Palaeo-Eskimo cultures from the Arctic to southern regions such as Labrador and Newfoundland, a number of temporal and regional variants developed. Prior to the author's 1980 field season, several of these variants were defined for Newfoundland: "Transitional Pre-Dorset", Early Dorset and Middle Dorset.

The first indications of Palaeo-Eskimo peoples on the Island came from the west coast. Transitional Pre-Dorset material recovered at Cow Head is believed to date between 3200 and 3000 B.P. Following this initial Palaeo-Eskimo migration onto the Island, a later occupation was identified at Cow Head. This Palaeo-Eskimo manifestation, referred to as Early Dorset, probably dated between 3000 and 2500 B.P. Material from Norris Point-1, comparable in most artifact forms to Groswater Dorset in Labrador, was considered to date towards the more recent and of the Early Dorset manifestattion in Cow Head.

The final period in Newfoundland Palaeo-Eskimo prehistory was related to Newfoundland or Middle Dorset (A.D. 1 to A.D. 600). Middle Dorset sites were known throughout the surveyed coastline of the Island and at least at two interior sites recorded by Helen Devereux (cited in Linnamae 1975:8) and Gerald Penney (1980).

Following the 1980 field season, new information regarding Palaeo-Eskimo cultures of Newfoundland and Labrador necessitated a re-examination of the previous data known from the Island (cf. Harp 1964; Linnamae 1975; Carignan 1975). The collection of confusing terms used to identify various periods or phases in Palaeo-Eskimo prehistory made it difficult to distinguish between one phase and another.

Using a concept initially proposed by Fitzhugh (1980a) for Labrador and Newfoundland and recently adopted by the author and others (Auger 1983; Fitzhugh and Tuck 1983), New-

foundland Palaeo-Eskimo prehistory can be separated into two distinct traditions: Early and Late Palaeo-Eskimo. According to Fitzhugh and Tuck (1983), each tradition has reasonably well-defined spatial and temporal limits and each can be divided into a number of sequential phases.

On the Island, the major Early Palaeo-Eskimo occupation is referred to as the Groswater phase, although there appears to be a slightly earlier manifestation of the same tradition at such places as Cow Head, The Beaches, Factory Cove, the Pittman site and along the south coast. This earlier manifestation, known previously as "Transitional Pre-Dorset", is regarded as the transitional phase between Pre-Dorset in Labrador and Groswater in Newfoundland and Labrador (Pre-Dorset/Groswater phase). The term "Groswater" (Fitzhugh and Tuck 1983) replaces "Early Dorset" (Bishop 1973; Sawicki 1981) in Newfoundland Palaeo-Eskimo terminology. To date, the only phase of the distinct Late Palaeo-Eskimo tradition represented on the Island is Middle Dorset.

A Review of Palaeo-Eskimo Research in Bonavista Bay, Newfoundland

Information pertaining to the Palaeo-Eskimo presence in Bonavista Bay (Fig. 2), is based upon surveys and excavations done by several researchers over the past seventeen years.

In 1966, Helen Devereux excavated a sample of Palaeo-Eskimo artifacts during investigations of the Historic Beothuck component at The Beaches site (DeAk-1) (Devereux 1969). Recently, the author had an opportunity to inspect

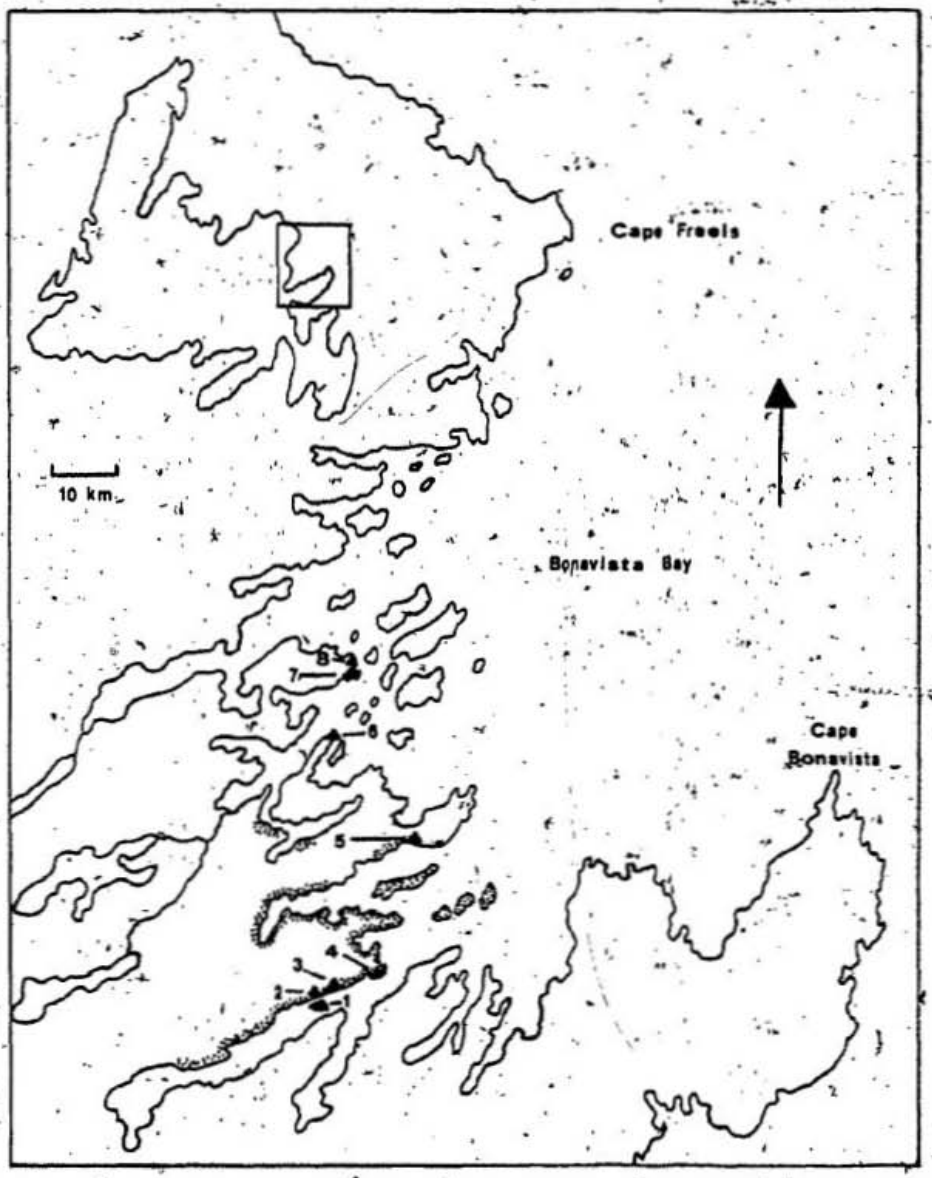


Figure 2. Palaeo-Eskimo sites in Bonavista Bay

some of this material at the Archaeological Survey of Canada in Ottawa. The majority of artifacts are comparable with those related to the Middle Dorset period of the Palaeo-Eskimo tradition as identified by Linnamae(1975) and Carignan (1975). These artifacts include tip-fluted end-blades, small triangular snub-nosed endscrapers and side-notched knives. A few described by Devereux as "small finely chipped stone" may in fact correspond to an earlier Palaeo-Eskimo component at The Beaches.

Following Devereux's initial investigations, Paul Carignan returned to Bonavista Bay in 1972 and 1973 to re-examine the prehistoric components tentatively identified by Devereux. Carignan (1973, 1974) also surveyed and initiated excavations at a number of sites north of Newman Sound. Artifacts recovered during this survey showed similarities to the Palaeo-Eskimo material from The Beaches site.

Analysis of The Beaches material indicated that there were two Palaeo-Eskimo occupations (Carignan 1975). Carignan concluded that the bulk of the lithic assemblage pertained to the Middle Dorset period, spanning A.D. 100 to A.D. 600. The artifact assemblage was characterized by tip-fluted end-blades, triangular snub-nosed and flared endscrapers, burin-like implements, flat-bladed chisels, ground triangular end-blades and rectangular and rounded soapstone vessels. The majority of artifacts were made from locally derived coarse-grained cherts and rhyolites, although fine-grained cherts and quartz crystal were also utilized. A small number of

tools, including a burin, a high side-notched endblade and a multiple side-notched endblade, Carignan attributed to an earlier Palaeo-Eskimo occupation. He interpreted this occupation to be "...as early as 400 B.C." (1975:133). At the time of his report, Carignan supported this interpretation with widely varying radiocarbon dates reported from Newfoundland (Linnamae 1975) and Labrador (Fitzhugh 1972).

In 1979, while investigating the relationship between late Maritime Archaic Indian and "proto-Beothuck" cultures at Cape Cove 3 (DhAi-3), located at the northern extension of Bonavista Bay, Shaun Austin (1981) recovered three artifacts of Palaeo-Eskimo affinity at Cape Freels. These included a possible endblade fragment, a concave-based asymmetric endblade and a cooking vessel fragment or gorget. The presence of these artifacts led Austin to suggest that the Indian phase in Bonavista Bay was influenced by Dorset Eskimos. Although this relationship is not within the scope of this thesis, it is important to note that the possibility of close co-existence between Palaeo-Eskimo and Indian populations in Newfoundland and Labrador has been discussed by numerous other researchers (Harp 1964; Linnamae 1975; Tuck 1975, 1977; Carignan 1975, 1977; Fitzhugh 1975, 1978, 1980a, 1980b).

In the fall of 1979 (Fig. 2), James Tuck and a crew from Memorial University, including the author, conducted a survey of Terra Nova National Park (Tuck 1980). Under the auspices of Parks Canada, the purpose of this investigation

was to determine what prehistoric components were present within the park. Initial surveys along coastal regions of the park and environs identified sites related to a Palaeo-Eskimo tradition. Although most sites yielded artifacts typical of the Middle Dorset period, investigations at two sites, Moose Pasture (DcAk-3) and Ashley Baker Island (DcAk-2), revealed a little-known Palaeo-Eskimo manifestation. Artifacts included triangular scrapers, sideblades, a stemmed endblade, microblades and numerous small flakes. These assemblages were characterized by a microlithic industry and a predominance of exotic raw material.

Field Objectives

Archaeological investigations in Bonavista Bay before 1979 suggested that an overwhelming majority of Palaeo-Eskimo sites pertained to typical Newfoundland or Middle Dorset (Carignan 1975). However, preliminary surveys in 1979 (Tuck 1980) established the fact that earlier Palaeo-Eskimo occupations were represented in Bonavista Bay, notably at the Ashley Baker Island and Moose Pasture sites. How different these assemblages were from Middle Dorset and how similar to earlier manifestations from the west coast were the primary questions when fieldwork began in 1980 in Terra Nova National Park.

In May of 1980, controlled excavations were initiated at Ashley Baker Island and Moose Pasture. In addition to this work, salvage operations were to be conducted at the

nearby Zodiac site (DdAk-3) because it was being threatened by erosion. This site (Fig. 2) yielded the largest number of Maritime Archaic Indian artifacts within the park during the 1979 survey, but once excavations commenced, it became obvious that a Palaeo-Eskimo occupation was also present.

Thesis Objectives

This thesis focuses upon the Palaeo-Eskimo occupations in Bonavista Bay. It examines the exact nature of the Palaeo-Eskimo manifestations represented at Ashley Baker Island, Moose Pasture and Zodiac sites; in particular, it examines whether or not these assemblages represent Palaeo-Eskimo occupations earlier than those from the Middle Dorset period. It also attempts to assess how widespread theis Palaeo-Eskimo manifestation is within Bonavista Bay. This is done by an attribute analysis of artifacts from eight assemblages. This analysis is based primarily on functional categories. The attributes that characterize Middle Dorset technology include such triats as tip-fluting of endblades, burin-like tools that are ground and tabular in shape, triangular knives, angular soapstone vessels and tip-fluting flakes. Those attributes which seem to characterize the technology of the earlier Palaeo-Eskimo manifestations tentatively identified at the Ashley Baker Island, Moose Pasture and Zodiac sites (Sawicki and Tuck 1981) include, high side-notched endblades, semi-lunar and lenticular sideblades, chipped and ground side-notched burin-like tools and irregularly-shaped knives. Analysis also takes into account the presence and absence

of artifact categories and attributes. A more detailed description of attributes can be found in Appendix A. If it can be demonstrated that differences between Palaeo-Eskimo manifestations in Bonavista Bay indicate technological or typological variation, and/or involve other factors such as raw material types, perhaps they would represent distinctly different cultures.

Chapter 2 is concerned with a description of the general environmental setting of Bonavista Bay. Chapter 3 presents the descriptions of the eight sites including physical and biological aspects of the environment and physical descriptions of the sites. Excavation and recording procedures are also included. Chapter 4 is devoted to methodology and artifact descriptions, comparisons and analyses. Interpretations of the artifact analysis are presented in Chapter 5. These include summaries of the chronology and cultural data from Bonavista Bay and comparisons with dated Palaeo-Eskimo occupations in other areas of Newfoundland and Labrador. Chapter 6 presents the conclusions of the thesis.

CHAPTER 2 - ENVIRONMENTAL SETTING

Geography

Bonavista Bay is located in the northeastern section of Newfoundland and is bordered to the northwest by Notre Dame Bay and to the south by Trinity Bay. Significant landmarks delineating this region include Cape Freels in the north and Cape Bonavista to the south (Fig. 2, Pg. 11).

Much of the region lies within the central plateau of Newfoundland and is part of the Atlantic Upland physiographic division (Jenness 1963). Within this division, Bonavista Bay and its interior drainage are characterized by two physiographic sub-divisions. The first includes the coast where relief is generally below 76 metres. The almost 320 kilometres of coastline are characterized by numerous channels, reaches and islands. Long embayments such as Clode Sound, Newman Sound, Freshwater Bay, Bloody Reach, Lockers Reach and Alexander Bay penetrate into the interior. In many of these areas, the land surface rises steeply from the sea to elevations between 60 and 90 metres. Locally, high ridges such as Mt. Stamford in Newman Sound, Blandford's Ridge and the Blue Hills rise above the shore from 180 metres to approximately 335 metres (Hussey 1979). The second sub-division consists of the relatively flat interior. It lies chiefly above 150 metres in elevation and is dotted with numerous valleys, lakes, ponds and bogs (Jenness 1963).

The geological structure of Bonavista Bay belongs to the Avalon Platform group and is based on the structure and stratigraphy of the Lower Palaeozoic and Precambrian rocks (Younce 1970). Rock types consist of,

> ...thick Precambrian slates, greywackes, volcanic rocks, granites and post-tectonic conglomerates overlain by fossiliferous Cambrian and Ordovician shales of the Atlantic faunal province (ibid.:3).

The major drainage area for Bonavista Bay follows two major river systems: the Terra Nova and the Gambo. This drainage pattern,

> ...oriented in a northeastward direction is largely a result of the coincidence of the northeasterly slope of the terrain and the northeast trend of the underlying rocks (Jenness 1963:6).

Soils are classified according to Leahey's (1969) Eastern Podzol group and are primarily a product of post-glacial drift deposition. A number of factors, including the slow development of good topsoil, the production of organic soils such as peat, and climate have caused extensive podsolization and leaching (Pollett 1968).

Newfoundland's climate is described by Hare (1952) as the moist marine type, Dfc. It is dominated by the cold Labrador Current, which is responsible for many features of Newfoundland climate and weather. These conditions are characterized by cool, wet summers and mild, wet winters. Average January and July temperatures are -6.6° C and 15.5° C, respectively. The temperatures during the winter months are

affected by the presence of offshore ice. Spring conditions can be delayed by the prevailing easterlies and low sea surface temperatures (Banfield 1981). Fog often occurs along the east coast, especially in the spring when the warmer air masses from the south (Gulf Stream) are strongly chilled by the arrival of the Labrador Current from the north. During the summer months, fog is less frequent "..due to a general excess of offshore over onshore winds" (ibid.:117). Mean annual total precipitation, according to available long term averages, ranges from 1513.6 mm at St. John's Torbay Airport to 1135.9 mm in St. Anthony on the Great Northern Peninsula (Environment Canada 1982). Recordings from the weather station at Bonavista indicated that during the 1980 field season, total precipitation for May and June was 102.2 mm and 97.4 mm, respectively. The total number of days with precipitation over 1.0 mm was 16 and 13 (Environment Canada 1980a, 1980b).

Based on Rowe's (1959) classification, the Boreal Forest cover in Bonavista Bay is divided into two categories: Avalon (B30) and Grand Falls (B28a). The extreme coastal environs, characteristic of the former, comprise extensive barren areas that are, in part, a result of forest fires and historic cultural practices such as sawmilling. These regions are predominantly characterized by stands of white spruce (Picea glauca) and balsam fir (Abies balsamae). The remaining coastal regions, where stands of black spruce (Picea mariana) and balsam fir dominate, belong to the Grand

Falls category. Within Terra Nova National Park (Burrows 1981), the ground cover is typical of the black spruce forest comprising of bunchberry (Cornus canadensis), corn lily (Clintonia borealis), twinflower (Linnaea borealis), wild lily-of-the-valley (Maiathemum canadense) and sheep laurel (Kalmia angustfolia). In the interior and areas of higher relief, these species give way to extensive barrens where Labrador tea (Ledum groenlandica), sheep laurel, reindeer moss (Cladonia rangiferina) and other lichens dominate (Cameron 1958). Also present in these areas are isolated stands of overmature white birch (Betula papyifera).

Throughout Newfoundland, there are numerous varieties of vegetal resources available along shorelines, in bogs, marshes and barrens (Rouleau 1956). In Terra Nova National Park and environs (Marsh and Burrows 1981), some of these varieties include bakeapple or cloudberry (Rubus chamaemorus), partridgeberry or mountain cranberry (Vaccinium vitis-idaea), blueberry (Vaccinium angustfolium), large and small cranberry (Vaccinium macrocarpon, Vaccinium oxycoccus), red raspberry (Rubus idaeus), squashberry (Viburnum edule) and red elderberry (Sambueus pubens).

Island faunal resources provide an abundance of marine and terrestrial species. Today, five species of seal frequent the coastal waters of Newfoundland (Mansfield 1967). These include Harbour (Phoca vitulina), Grey (Halichoeurus grypus), Harp (Phoca groenlandica), Hooded (Cystophora cristata) and

Ringed (Pusa hispida). During the late winter and early spring the Harp seal is probably the most abundant species available along the coast. However, since the pups are born on Arctic pack ice towards the end of February or the first few days of March (Sergeant 1963), they are often inaccessible without a boat. The Harbour seals give birth in the late spring on rocky shorelines or land-fast ice and have a tendency to inhabit regions close to estuaries, rivers and sheltered bays (ibid.). Historically, this species was the most plentiful in Bonavista Bay (Pinhorn 1976).

Other marine mammals that inhabit the coastal waters of Newfoundland include fifteen species of whales and dolphins (ibid.). Of these, the Fin (Balaenoptera physalus), Minke (Palaenoptera acutorostrata) and Northern Pilot (Globicephala melaena) whales, Harbour porpoise (Phocoena phocoena), and the White-beaked dolphin (Lagenorhynchus albirostus) frequent the shores during the summer months in search of capelin, squid or herring. In prehistoric times, hunters may have been able to take advantage of the nearness of these animals to the shoreline, especially if they beached in shallower waters. During the 1980 field season, a number of unidentifiable whales were seen in Clode Sound. In addition to whales, walrus (Odobenus rosmarus) were known to inhabit the Gulf of St. Lawrence during historic times (ibid.) and may have come into the Bonavista Bay region although there is no indication of this.

Smaller marine fauna, available seasonally, include capelin (Malloto villosus), which spawn along the coast in June, and numerous varieties of molluscs such as the soft-shelled clam (Mya arenaria), blue mussel (Mytilus edulis) and the common periwinkle (Littorina littoria). Other shellfish include lobster (Homarus americanus), shrimp (Pandalus borealis) and rock crab (Cancer irroratus). Groundfish such as cod (Gadus morhua) is the single most important species in Newfoundland today, but we can only speculate whether technology enabled aboriginal peoples to exploit this resource. During the summer months, Atlantic salmon (Salmo salar) spawn along major rivers and streams and can be caught in great quantities. This is especially true for the Terra Nova and Gambo Rivers in Bonavista Bay.

Numerous birds are available from spring to fall (L. Tuck 1967; Burrows 1981). Many sea and shore species have large breeding colonies and rookeries along the coastal islands which dot the bays throughout eastern Newfoundland. More than thirty species are known to frequent Newfoundland's coast, some of which include herring gull (Larus argentatus), common tern (Sterna hirundo), common murre (Uria aalge), common puffin (Fratercula arctica) and gannet (Morus bassana). The now extinct Great auk (Pinguinus impennis) was last known to breed in the Funk Islands, northwest of Bonavista Bay, and it may be reasonable to assume that prehistorically, it was available to aboriginal peoples of Bonavista Bay. The interior regions offer an abundance of upland birds and

and waterfowl year-round or seasonally (L. Tuck 1967; Burrows 1981). These include ptarmigan (Lagopus lagopus), Canada goose (Branta canadensis), common loon (Gavia immer), common merganser (Mergus merganser) and Black duck (Anas rubripes).

Of the fifteen terrestrial mammals native to Newfoundland (Peters 1967), perhaps the most economically important is the caribou (Rangifer caribou). During historic times, there were three main herds on the Island (Cameron 1958:104). In the Bonavista Bay region, this animal is presently known to congregate in the barren areas around Maccles Lake (Telfer 1964: cited in Carignan 1975:19). This area may also have supported a caribou population during prehistoric times and hunters could have travlled via the Terra Nova and Gambo rivers to intercept this animal's spring and fall migration routes. Of the remaining terrestrial mammals native to insular Newfoundland (Peters 1967), those which have been either spotted or are in evidence in the Terra Nova National Park and environs include Canada lynx (Lynx canadensis), Black bear (Ursus americanus), Snowshoe hare (Lepus americanus), Beaver (Castor canadensis), Red fox (Vulpes fulvo), Otter (Lutra canadensis), Wolf (Canis lupus), Weasel (Mustela erminae) and Red squirrel (Tamiasciurus hudsonicus).

Palaeo-Geography

Of the few palynological studies done on the Avalon Peninsula, south of Bonavista Bay, pollen assemblages indicate that no major vegetational and climatic changes have occurred for the past 3000 years (Terasmae 1963; Macpherson pers.

comm. 1981). Minor fluctuations are noted in pollen diagrams indicating that short-term, yearly and/or seasonal changes do occur. According to Joyce Macpherson, Department of Geography, Memorial University, the same could be said about Bonavista Bay. This being the case, it may be reasonable to say that the seasonal and geographic availability of faunal and floral resources in Bonavista Bay during late prehistoric times was similar to that at the time of European contact.

Unfortunately, the faunal data from Bonavista Bay are inconclusive. At The Beaches site (Carignan 1975), all the faunal remains, identified as seal bone fragments, were recovered from a culturally mixed layer (Cultural Layer 1) and it was impossible to determine the cultural affiliation of these specimens. Moreover, since species identification was not possible, site seasonality was difficult to assess. In view of the fact that the lack of an underlying limestone deposit throughout most of the Island produces a strongly acidic soil, the preservation of these fragments, if indeed they were associated with a Palaeo-Eskimo occupation, is anomolous. The only exceptions to this situation occur at three sites along the west coast of the Island. Faunal specimens recovered at Port au Choix-2 (Harp 1964), Englee (LeBlanc 1974) and Factory Cove (Stewart 1979; Auger 1982) indicated that a vast majority were seal. Analysis showed that the most common were Harp seal, probably taken between February and June (Stewart 1979) and that this reflected a subsistence based on sea mammal hunting.

Since most of the archaeological evidence for subsistence activities on the Island appears to be skewed primarily towards marine mammals, the importance of vegetal resources to Palaeo-Eskimo populations is difficult to assess. However, the lack of specific investigations regarding these materials does not necessarily indicate that they are absent from the archaeological record.

In summarizing the current evidence, we can only suggest that similar faunal and floral resources were available during late prehistoric times as modern day. The recovery of these remains together with a detailed palynological study could not only provide additional information on subsistence activities but also on the function and ultimately the viability of prehistoric settlements.

CHAPTER 3 - SITE DESCRIPTIONS

Introduction

Of the eight sites which will be described below, Ashley Baker Island, Moose Pasture, Zodiac, Sandy Cove and Bank were all surveyed in 1979 during archaeological investigations of Terra Nova National Park (Tuck 1980). The following year, excavations commenced at the Ashley Baker Island, Moose Pasture and Zodiac sites. The Beaches, Fox Bar and Bloody Bay Cove sites were surveyed and excavated in the 1970's by Paul Carignan (1973, 1974, 1975).

Ashley Baker Island Site - DcAk-2 (Fig. 2, Pg. 11)

Location and Environment ($48^{o}29'44"N$, $53^{o}49'41"W$)

The site is located at the southern portion of Ashley Baker Island (Pl. 1) on the north shore of Clode Sound, roughly 20 km northeast of the community of Charlottetown. It is probably no more than one hectare in total area and has only one cove, on the western side of the island, where a boat can be landed safely at high tide. The site is within easy walking distance of the cove. Much of the island's vegetation consists of spruce, fir, low-lying willow brush and grassy patches.

The present elevation of the site is two to three metres above sea level. Between the time of its initial discovery and subsequent excavation, the site was undamaged by erosion or other agencies. Many fishermen from the

surrounding area continue to use the island for storing their lobster traps during the winter. The bedrock outcrops, which occur throughout certain areas of excavation, slope down into the water to the south, west and east of the site. To the north, the site is bordered by spruce and fir trees.

Excavations

Investigations during the 1979 survey indicated that the major area of occupation on Ashley Baker Island was located within the grassy southern portion of the island. At that time, only seven artifacts and a small number of minute flakes were recovered. Many of the flakes were made from fine-grained colourful cherts. Although the site did not yield many artifacts, it was felt that further excavations could provide significant information related to the Palaeo-Eskimo period in Newfoundland.

In 1980, additional test pits were sunk at the southern and western parts of the island. The only artifacts recovered were minute flakes similar to those found in 1979. Because of time limitations, five one metre squares, designated Areas A through E, were opened. These squares were selected according to areas where artifacts had been recovered the previous year (Areas C through E) and areas that would delimit the region of occupation (Areas A and B). Datum, EONO, was located in a grassy patch at the southwest corner of the island. All 1 x 1 m squares were gridded according to this point (Fig. 3).

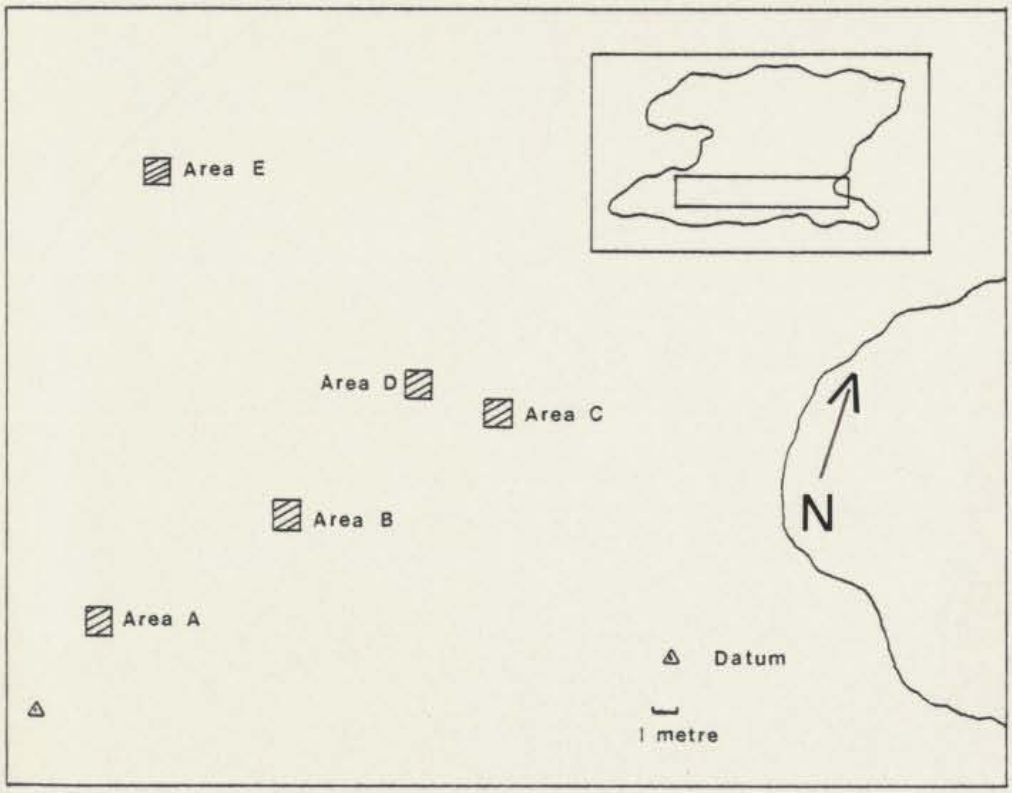


Figure 3. Aerial photograph and map of the Ashley Baker Island Site

The first area, A, was located close to horizontal datum and yielded a few flakes. The second, B, was opened up along the edge of the large grassy region described above and produced only four flakes. Areas C and D, located within the grassy region, yielded a total of five and four artifacts, respectively. Finally, Area E was excavated in the wooded portion of the island, just northwest of C and D. Cultural evidence consisted of three artifacts and numerous flakes. All areas were fully excavated to bedrock and soil profiles were recorded. Because of their relative unproductivity, it appeared that Areas A and B effectively formed the western limit of the site.

Stratigraphy and Features

Stratigraphic units were based upon physical differences believed to be natural occurrences and typical of podzolic changes in the soil horizons. These natural processes were acting independently of the cultural activities. This situation was reinforced by the recovery of a small number of artifacts and the obvious mixing of cultural material both vertically and horizontally. In addition, analysis of the artifacts indicated that the Palaeo-Eskimo occupation present at the site represented two and possibly three components.

Excavations revealed that, with the exception of Area A, all cultural material was located beneath a thick peat layer. The stratigraphic sequence in Area A consisted

of a thin layer of peat, varying in thickness from 2 to 6 cm, overlying a thin layer of disintegrated rock. This layer yielded a few flakes. In Areas B through E, the immediate surface consisted of the present vegetation growth of grass and low-lying willow. The mass of roots graded into a well-developed peat layer varying in thickness from 10 to 40 cm. It was fine and compact in composition and reddish brown in colour. The greatest thickness of peat occurred in Areas C and D. The stratigraphic sequence beneath the peat will be described below according to areas and is illustrated in soil profile examples (Fig. 4).

In Area B, immediately below the first layer of peat was a second comprised of much more compact peat of an almost greasy texture. Designated as Humified Peat, it was devoid of cultural material and varied in thickness from 2 to 10 cm. This phenomenon, of unknown origin, was not distributed continuously throughout the area but was concentrated along its eastern quadrants. Immediately below was a clay/gravel which ranged in colour from light grey to light brown and varied in thickness from 3.5 to 12 cm. Designated as Stratum 1, it yielded a few flakes but no artifacts. Beneath Stratum 1 was bedrock.

To the northeast, in Area C and below the peat, was Stratum 1 (see above), which varied in thickness from 2 to 4 cm. Three artifacts, including two scrapers and a micro-blade fragment were recovered. Underlying Stratum 1 was a layer of dark brown/black clay and gravel. Designated as

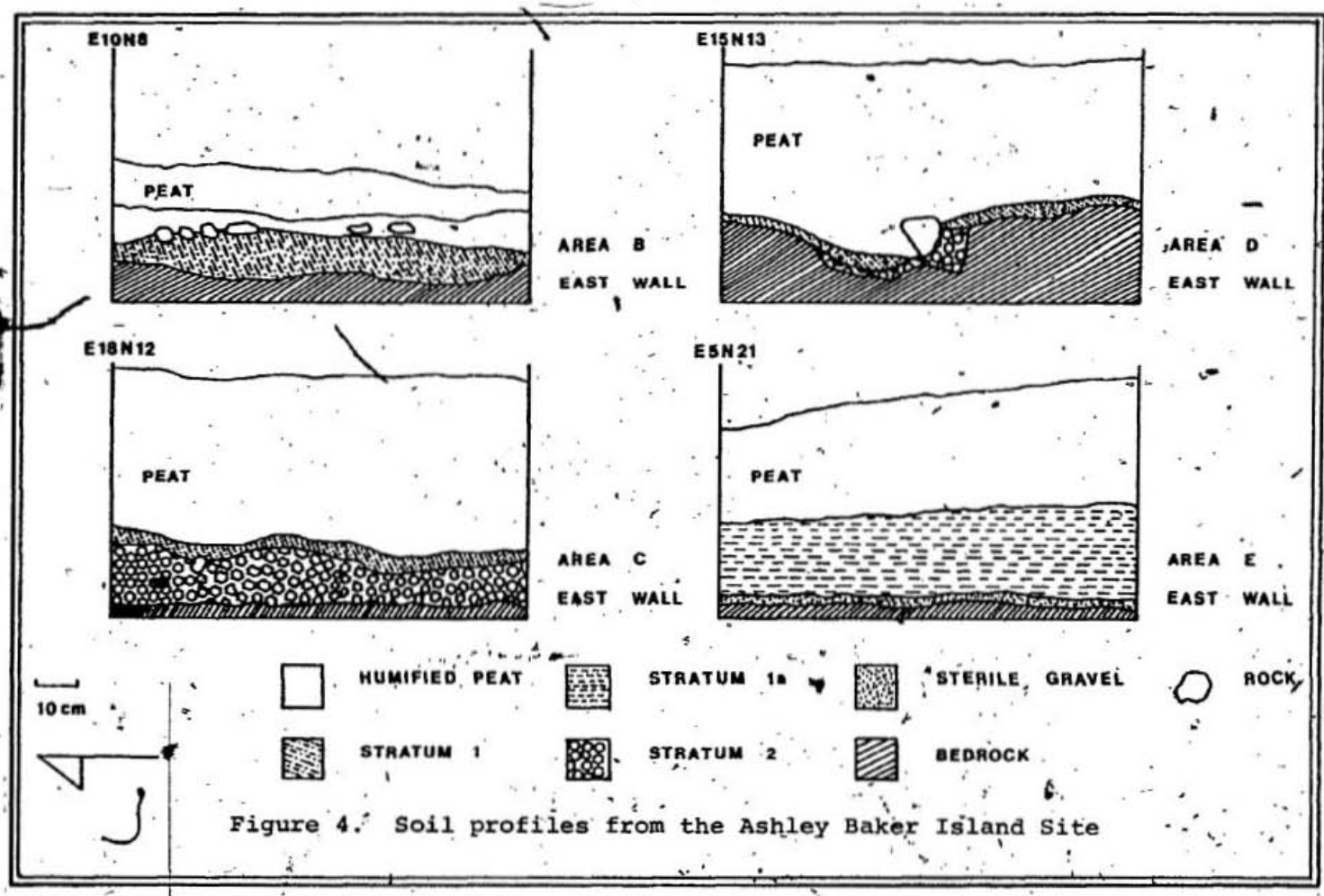


Figure 4. Soil profiles from the Ashley Baker Island Site

Stratum 2, it varied from 12 to 20 cm in thickness and yielded one tip-fluting flake and a microblade fragment. Stratum 2 was underlain by bedrock.

Located below the peat in Area D was Stratum 1, which varied from 1 to 4 cm in thickness and yielded a retouched flake and the distal end of a tip-fluted endblade. Beneath Stratum 1 was Stratum 2 (see above) which was not continuously distributed throughout the area. It varied in thickness from 0.5 to 10 cm and yielded a retouched flake and the base of a side-notched endblade. Immediately below and surrounding this stratum was bedrock.

In Area E frequent flooding made excavations difficult. Below the peat was a dark gravel/pebble subsoil stained by humates percolating from above. This layer, which varied from 15 to 20 cm in thickness and produced a scraper (1979), microblade fragment, tip-fluting flake and a scraper-like implement, was designated as Stratum 1(a). Immediately below was a thin layer (2 cm) of sterile gravel which probably represented decaying bedrock.

There were no distinguishable features or hearths uncovered at the site. Areas C and D contained very small amounts of scattered charcoal, but they were of insufficient quantity for radiocarbon analysis.

Moose Pasture Site - DcAk-3 (Fig. 2, Pg.11)

Location and Environment (48°29'54"N, 53°49'38"W)

Moose Pasture is situated approximately 20 km northeast

of the community of Charlottetown, on the north shore of Clode Sound. In 1979, the site, which takes its name from the abundant evidence of moose droppings found over the surface of the meadow, was originally thought to be restricted to the eastern end of the meadow.

The meadow itself measures approximately 100 x 50 m and is bordered by a gravel beach to the south; a small, unnamed stream to the east which separates DcAk-3 from the historic Moose Pasture Sawmill Site (DcAk-4); and bedrock outcrops, spruce and fir brush to the north and west (Pl. 3). The gravel beach, directly in front of the site, today provides easy access by boat and may have done so when the site was occupied in the recent past and during prehistoric times.

Excavations

Initial testing of the site in 1979 suggested a 50 square metre area of occupation, confined to a small knoll in the extreme northeastern portion of the meadow. Subsequent investigations indicated that the site was considerably larger than previously estimated. A number of test pits, sunk to the west of the original site designation, indicated that the site may extend, at least intermittently, more than 50 metres in that direction. Unfortunately, time limitations did not allow us to open up additional excavation units.

Datum, EONO, was set up in the northern section of the site, against a bedrock outcrop and was calculated to be

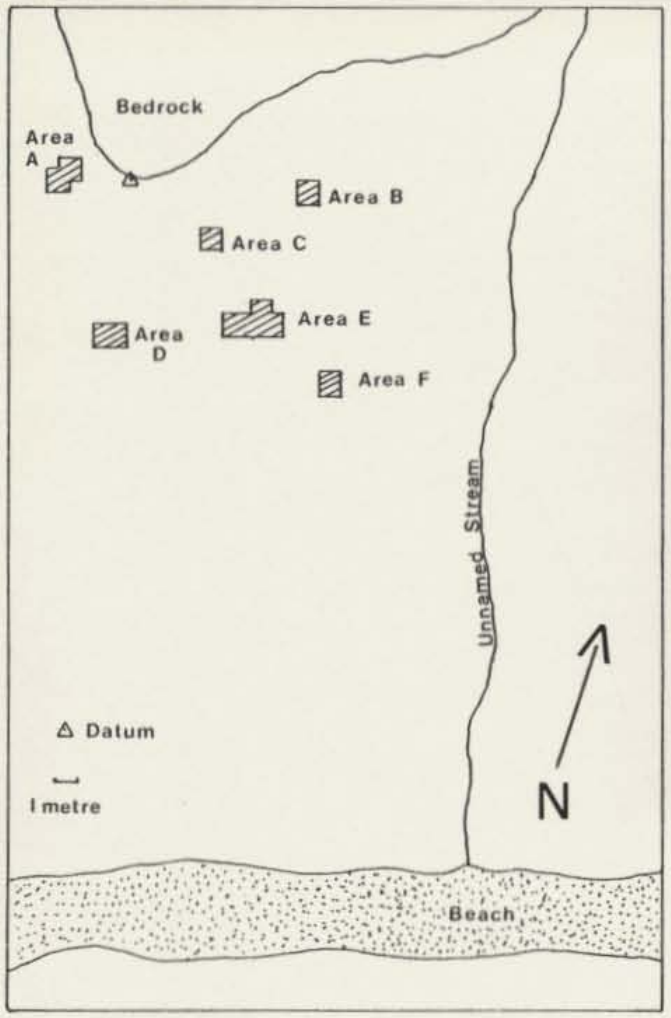


Figure 5. Aerial photograph and map of the Moose Pasture Site

approximately 4.6 metres above sea level. Initially, five random squares (1 x 1 m), gridded to datum, were opened up and designated as Areas A through E. During the course of the field season, additional squares or partial squares were excavated in Areas A, D and E together with a 1 x 1 m square in Area F. The Total area excavated in 1980 was 9.1 square metres (Fig. 5).

Stratigraphy and Features

During the archaeological investigations initiated in 1979, the depositional sequence below the sod suggested that there were two stratigraphically separate prehistoric occupations at Moose Pasture (Tuck 1980). This suggestion was based upon the recovery of Palaeo-Eskimo material from the upper stratum and probable Indian material recovered from the lower stratum.

In 1980, excavations revealed that differences between the two strata below the sod were physical or natural rather than cultural. Consequently, references to Stratum 1 and Stratum 2 are based upon natural stratigraphic units. This factor is reinforced by the similarity of the Palaeo-Eskimo material from both strata and the similarity of stratigraphy throughout the site, even though the areas of excavation were never physically connected.

The material recovered includes numerous historic artifacts recovered exclusively from the sod and no doubt related to the nearby abandoned sawmill; a small number of

artifacts of probable Indian affiliation (12) recovered from the sod (1), Stratum 1 (10) and Stratum 2 (1); and finally a large number of artifacts related to a Palaeo-Eskimo occupation recovered from the sod (31), Stratum 1 (70) and Stratum 2 (12). Initial analysis of the last group of specimens indicated a high degree of similarity and represented the major prehistoric occupation at Moose Pasture (Sawicki 1981). The minimal evidence of a probable Indian occupation at the site does not allow us to make a more definitive statement with regard to the type and duration of occupation. In addition, it is difficult to identify the temporal position of these artifacts. However, additional excavations in the future may clarify this situation.

The general stratigraphic sequence described below is illustrated in the sample profiles in Figure 6. Below the grassy surface of the site, stratigraphy consisted of a root-filled sod zone which varied in thickness from 2 to 26 cm. Underlying the sod was a black humus containing numerous pea-sized gravel inclusions (designated as Stratum 1) and varying in thickness from 1 to 20 cm. Immediately below Stratum 1 was a brown gravel that appeared to have been stained by humates percolating from above. This layer was designated as Stratum 2 and varied in thickness from 3 to 17 cm. The lowermost stratum consisted of sterile gravel. The only exceptions to this sequence occurred in Area B, where a layer of burnt bone was noted at the top of Stratum 1 and may have been historic in origin (Fig. 6) and in Area A,

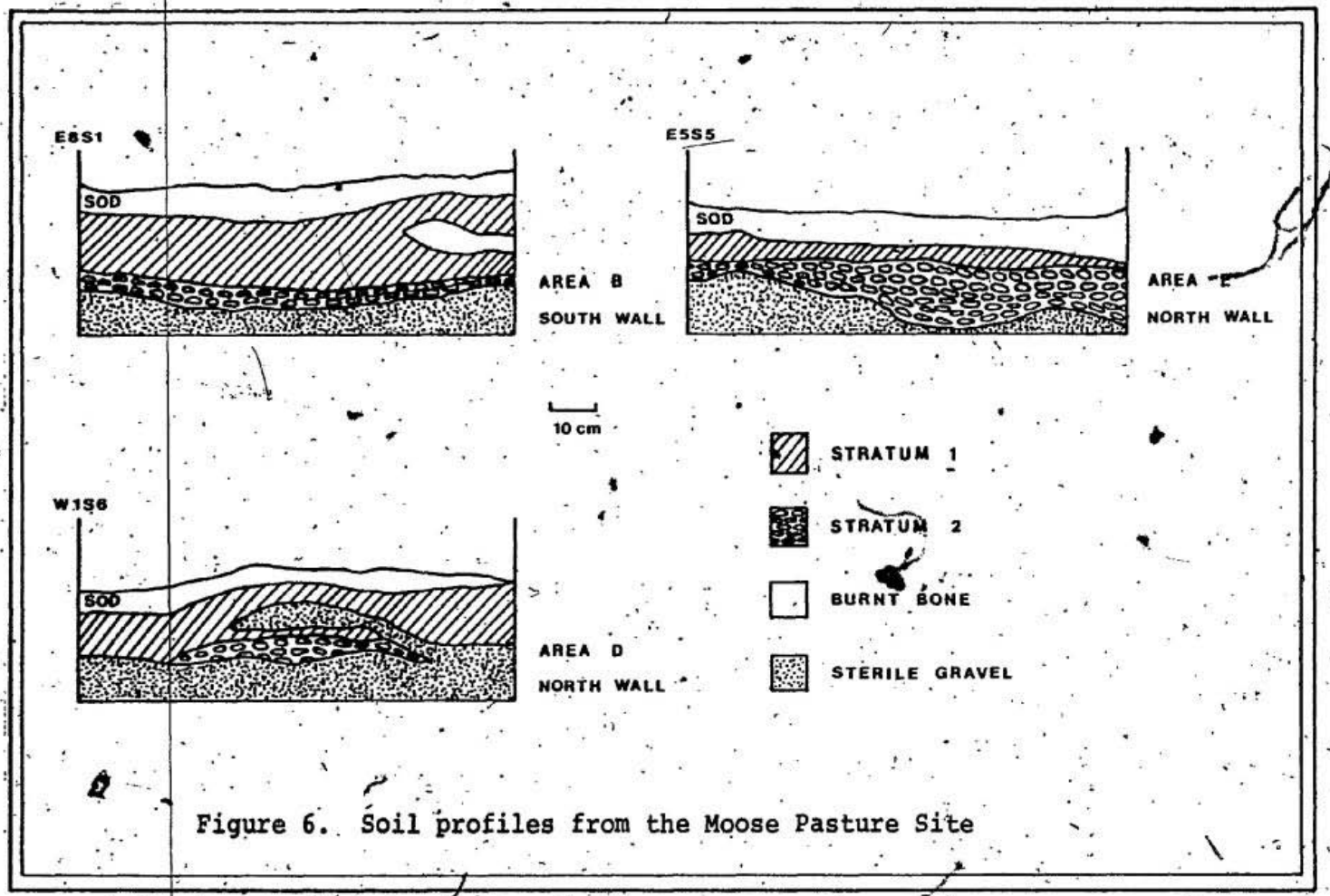


Figure 6. Soil profiles from the Moose Pasture Site

where a fine loam-like soil was uncovered between Strata 1 and 2.

A total of seven features was wholly or partially revealed by excavations. Six of these were associated with Stratum 1 (Features 1 through 6) and one with Stratum 2 (Feature 7).

Feature 1, located in Area E, appeared as a semi-circular hearth, two metres long and approximately one metre wide (Fig. 7, Pl. 4). Three microblades and one burin-like tool were found in association with this feature and the majority of flakes were concentrated within the northwestern boundary of the area. Small but deep pockets of scattered wood charcoal were noted and a sample submitted for analysis returned a date of 470±70 B.P. (Beta 2264). This date, by no means acceptable, was probably a result of post-occupational contamination.

Feature 2 was a roughly semi-circular, shallow hearth that encompassed a large portion of Area D (Fig. 8, Pl. 5). Two knives, two microblades, one scraper and one retouched flake were recovered in association with this feature. Of the three concentrations of wood charcoal found within the northern limit of this feature, the largest measured approximately 21 x 27 cm. Since all three concentrations were considered to be part of the same feature, Area D was expanded 60 cm to the west of the original excavation in order to follow the pattern of the hearth (see Fig. 8, Features 2 and 5).

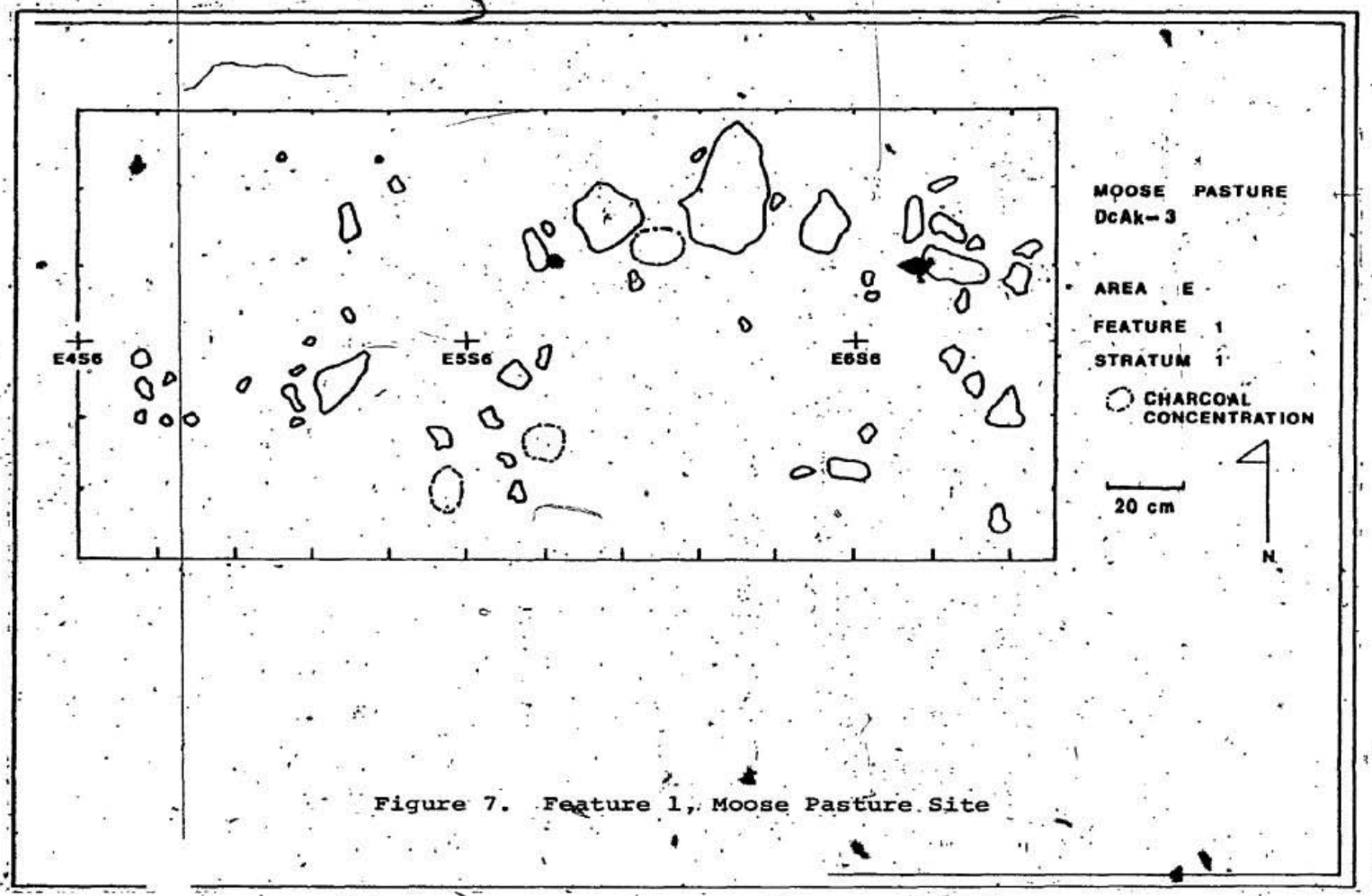


Figure 7. Feature 1, Moose Pasture Site

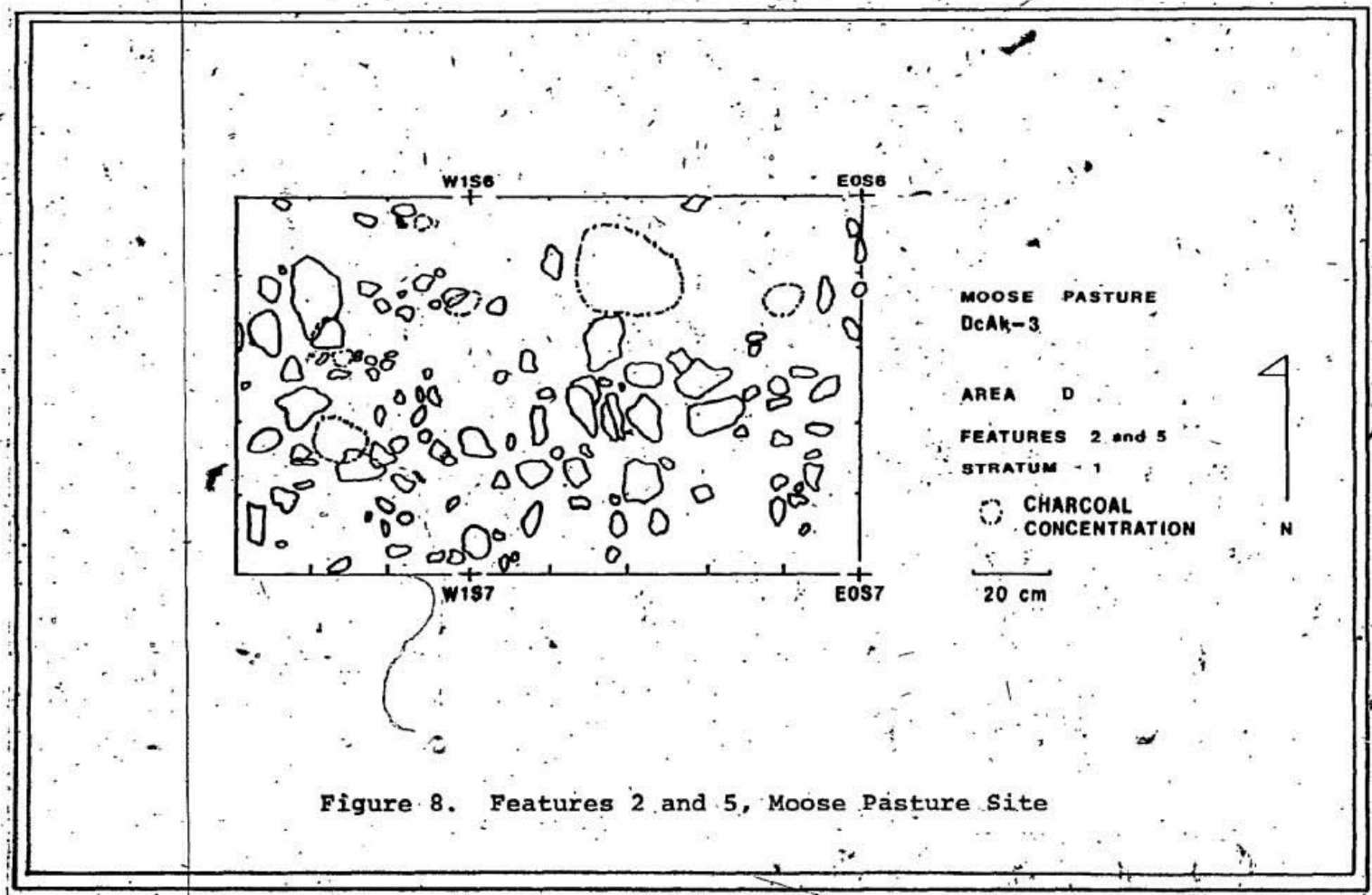


Figure 8. Features 2 and 5, Moose Pasture Site

Feature 3 (Fig. 9) was a small concentration of flat rocks located in Area B. Its importance lay in the fact that a large concentration of flakes and a small number of artifacts were recovered. A total of four artifacts of Palaeo-Eskimo origin was retrieved in direct association with this feature. They included a triangular endblade, microblade, knife, and sideblade. Judging by the large concentration of flakes recovered from the feature, it may well have been a working station. Work to the southwest revealed a large concentration of burnt bone (Fig. 9). This material, which was initially noted at the top of Stratum 1 and continued intermittently into Stratum 2, may have been historic in origin. Unfortunately, precise identification of the burnt bone fragments was not possible.

Located in Area A, Feature 4 (Fig.10) appeared as a semi-circular arrangement of rocks, indicating the presence of a hearth. Wood charcoal was noted along the margin of the hearth's eastern boundary and a radiocarbon date of 2160±90 B.P. (Beta 2263) was returned on the sample collected. An incomplete, side-notched knife and numerous flakes were recovered within this feature.

Feature 5 was located in the 60 cm extension of Area D and was regarded as part of Feature 2 (Fig. 8). Three areas of wood charcoal concentration and one area of burnt fat/charcoal were noted. A wood charcoal sample was collected from an area encompassing W 1.30 to 1.40/S 6.60 to 6.70, and the date recorded was the earliest from the

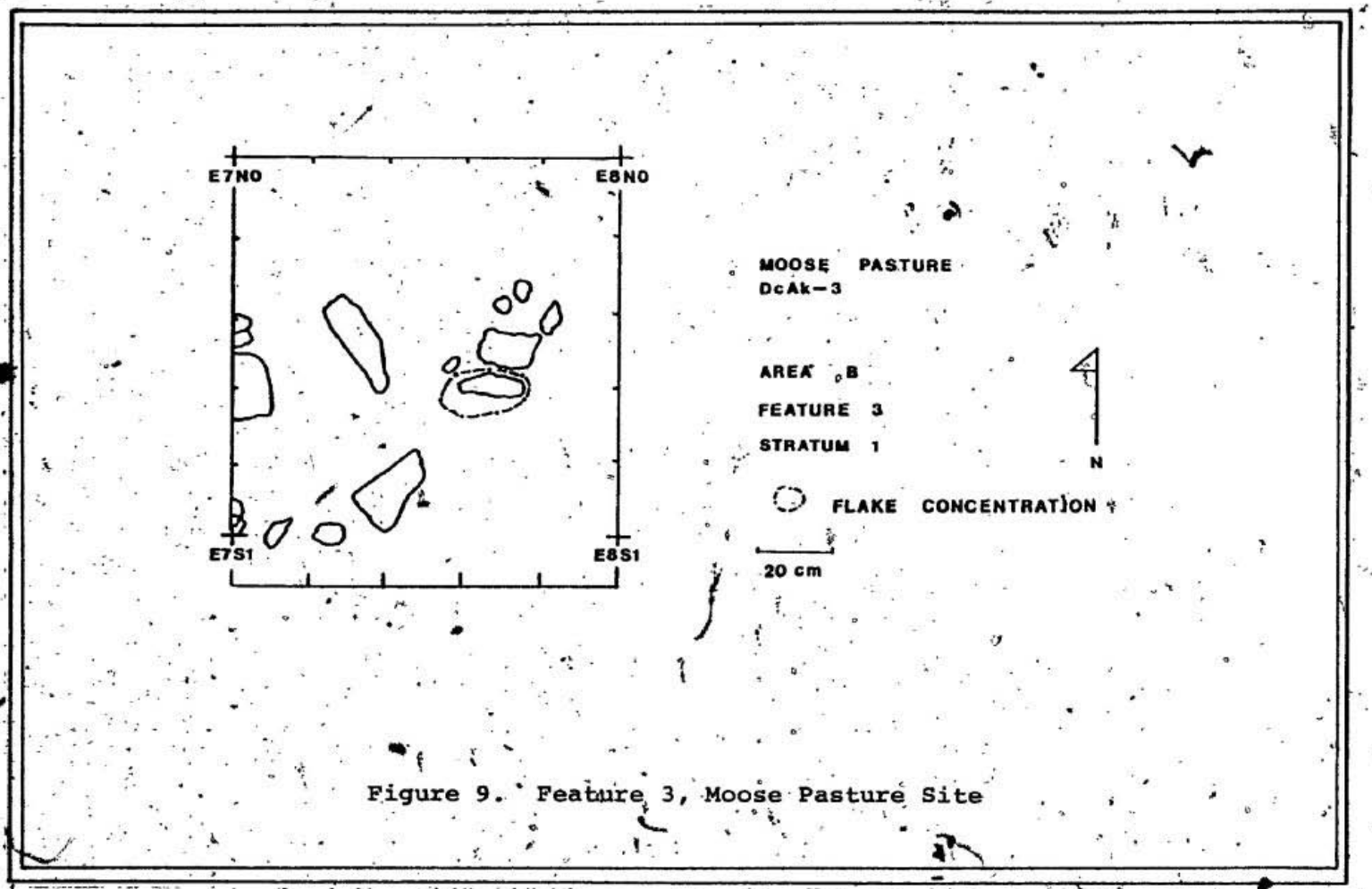


Figure 9. Feature 3, Moose Pasture Site

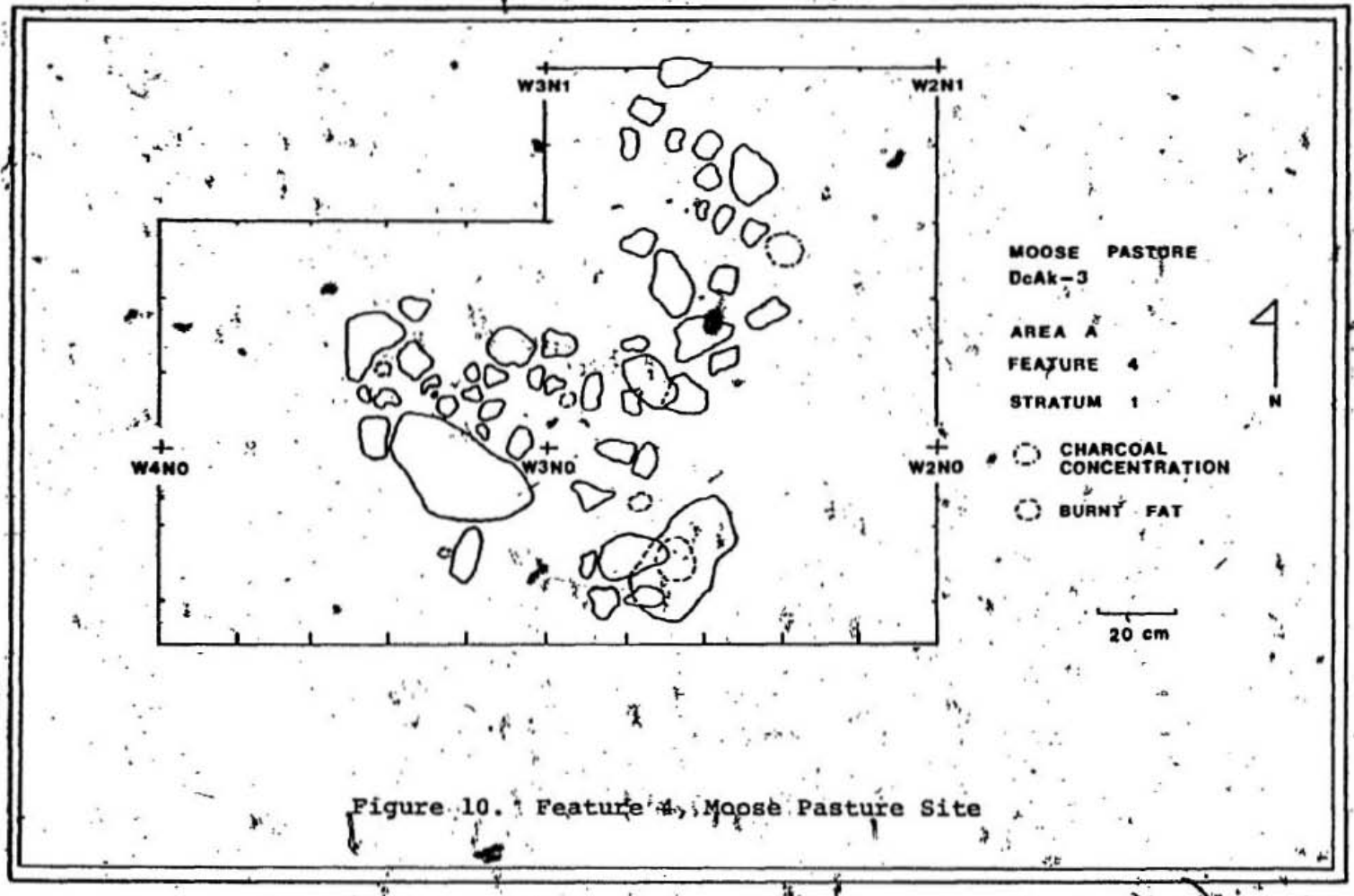


Figure 10. Feature 4, Moose Pasture Site

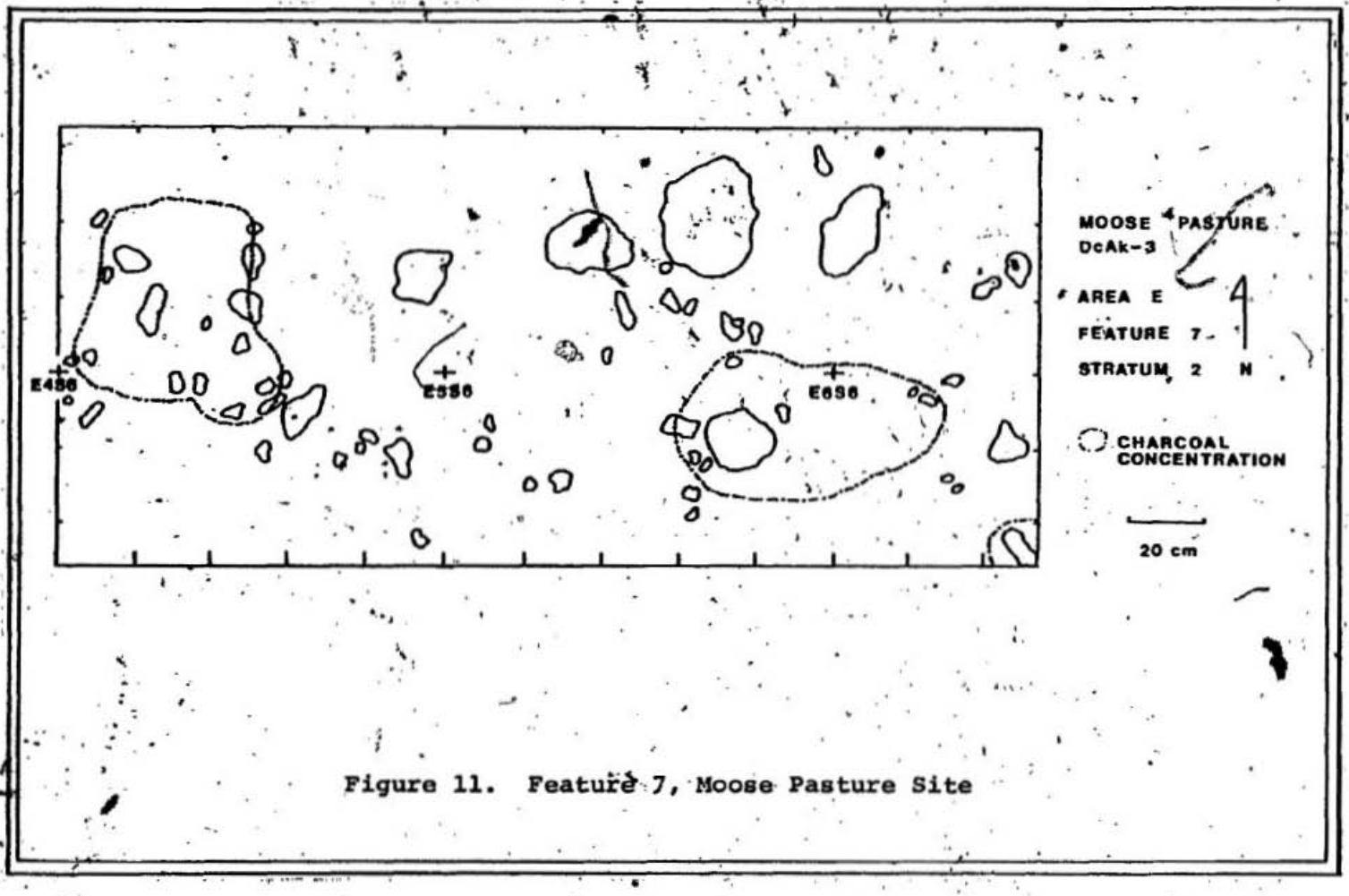


Figure 11. Feature 7, Moose Pasture Site

site - 2480±80 B.P. (Beta 2265). A total of eight artifacts, all Palaeo-Eskimo in origin, was recovered from this feature. These included two endblades, two scrapers, two knives, one burin-like tool and one retouched flake.

Feature 6 was an unusually deep loam-like soil located along the northern boundary of Area A. Stratigraphically between Strata 1 and 2, it was void of pebbles, gravel, artifacts or flakes. The specific origin of this feature is uncertain, although it may have been associated in some way with Feature 4.

Feature 7 was a large concentration of wood charcoal in Stratum 2, Area E (Fig. 11). Although there were few rocks surrounding this feature, its configuration strongly suggested the presence of a hearth. One triangular endblade was recovered in association with this feature. A wood charcoal sample was collected and it returned a date of 2140±90 B.P. (Beta 2405). This date was compatible with the dates from Stratum 1 and given the proximity of this concentration to Feature 1, it was highly likely that these features were, in fact, one and the same.

Zodiac Site - DdAk-3 (Fig. 2, Pg. 11).

Location and Environment (48°30'41"N, 53°49'05"W)

This disturbed stratified site, located on a low gravel bar approximately 1 to 1.5 metres above sea level, is southwest of Shag Point, Clode Sound and approximately 34 km northeast of Charlottetown. The bar is 22 metres long and 1.5 metres wide at its narrowest point. To the west

and east, the gravel overburden is replaced by a thick peat layer, numerous low-lying shrubs and spruce and fir trees (Pl. 11). To the north of the site is a small, unnamed cove.

Excavations

Because the site could only be reached by boat and the time for excavation was limited, the bar was divided into 1 x 1 m squares (north-south orientation) and further divided into 40 cm trenches. Datum, E0N0, was situated at the western section of the bar and calculated to be 1.9 metres above sea level, at high tide.

Work began just west of the mid-point of the bar and continued in that direction. Test pits dug to the east did not yield any cultural material. A total of eleven 40 cm trenches (E8 through E18) was excavated (Fig. 12). Because excavations were of a salvage nature, it was felt that this method was the most reasonable. Towards the end of the field season, in order to obtain a better perspective on the stratigraphy, a 1 x 1 m square (E3S3) was excavated at the western end of the bar.

Originally, this site was thought to yield only Maritime Archaic Indian material. Upon arrival at the site, the only evidence for a Maritime Archaic occupation came from the 1979 collection recovered from the beach and eroding bank. Initially, no artifacts from this occupation were found in situ. This situation may have been the result of continuous erosion undercutting the bar, thereby displacing

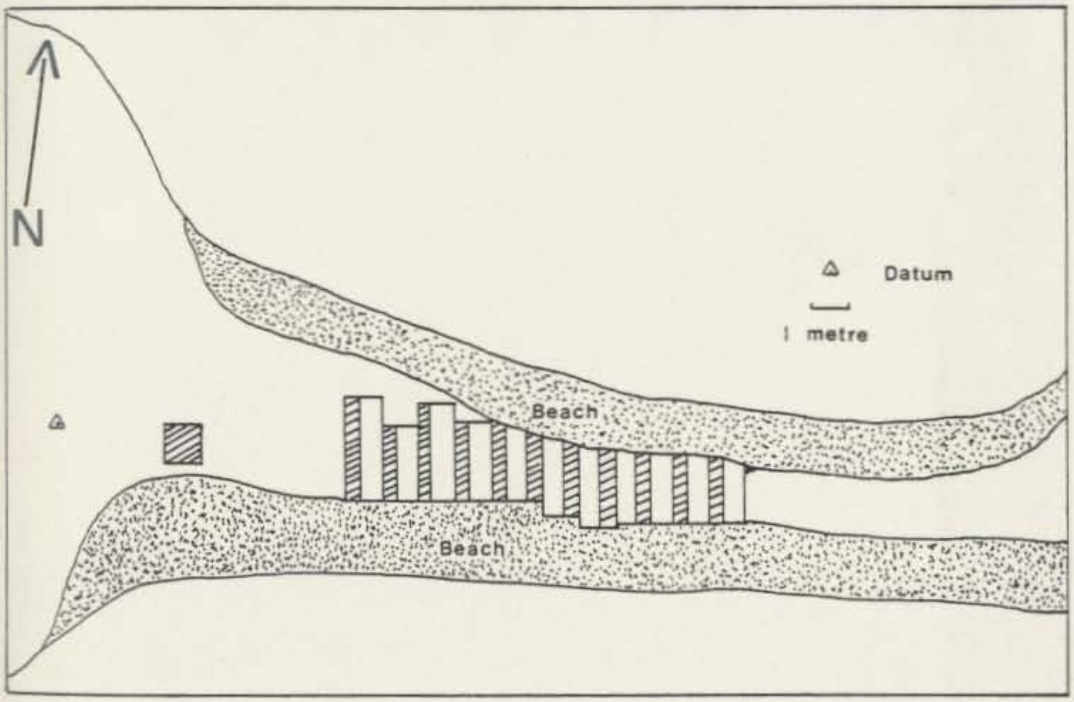


Figure 12. Aerial photograph and map of the Zodiac Site

many of the Maritime Archaic artifacts. As excavations proceeded, Palaeo-Eskimo artifacts were recovered from below the peat.

Stratigraphy and Features

Because of the orientation of the bar, a number of trenches did not contain full 1 x 1 m squares. Therefore, in order to obtain 1 metre soil profiles (horizontal), it was necessary to use a combination of two squares. Exceptions in the stratigraphic sequence will be discussed below according to square provenience, rather than by area. Examples of soil profiles are illustrated in Figures 13a and 13b. Photographs of these profiles were not taken since it was next to impossible to obtain accurate pictures given the width of the trenches.

The general stratigraphic sequence consisted of four distinct layers. The first was a root-filled sod/peat zone which varied in thickness from 7 to 44 cm. The greatest depth of peat occurred towards the western sections of excavation. Artifacts recovered, included two examples each of Recent Indian and Palaeo-Eskimo affiliation. Below the peat was a gravel layer, varying in colour from light to dark grey and in thickness from 2 to 21 cm. The greatest variability in thickness occurred as excavations proceeded westward. This layer, designated as Stratum 1, yielded four artifacts of Maritime Archaic Indian affiliation, thirty-one of Palaeo-Eskimo origin and five examples of undetermined affiliation. Beneath Stratum 1 was a dark brown gravel/clay which varied in thickness from 4 to 27 cm and yielded eighteen

artifacts related to a Maritime Archaic occupation, eleven examples of Palaeo-Eskimo affiliation and one undetermined specimen. In the majority of soil profiles, this layer, designated as Stratum 2, was thicker than Stratum 1. The lowermost layer, located above the original beach, consisted of reddish clay subsoil. Three large rhyolite flakes were recovered in this otherwise sterile layer and possibly represented evidence of the earliest Maritime Archaic Indian occupation at the site. They may also have been displaced into the subsoil by natural or human disturbance.

There were several exceptions to the general stratigraphic picture described above. In E18S3 (Fig. 13b), a thick deposit of beach cobbles overlaid the peat layer. Since this trench was located at the lowest point of elevation in the bar, it was easy to see why the greatest accumulation occurred here. In E9S1/S2, Stratum 2 was located immediately below the peat, with no Stratum 1 in evidence (Fig. 13a). In E15S3/S2 (Fig. 13b), a thin layer of humified peat, stained with charcoal, was noted immediately above Stratum 1. This layer was not horizontally distributed and was devoid of artifacts. Its origin is unknown, although it may have been a result of forest fires. In E17S3, immediately below the peat, two sterile layers of differently graded gravel were deposited after occupation (Fig. 13b). In E13S2 a thin layer of dark gravel was recorded above Stratum 1 (Fig. 13b). Although similar in composition to Stratum 1, it was stained with charcoal. This same layer was noted in

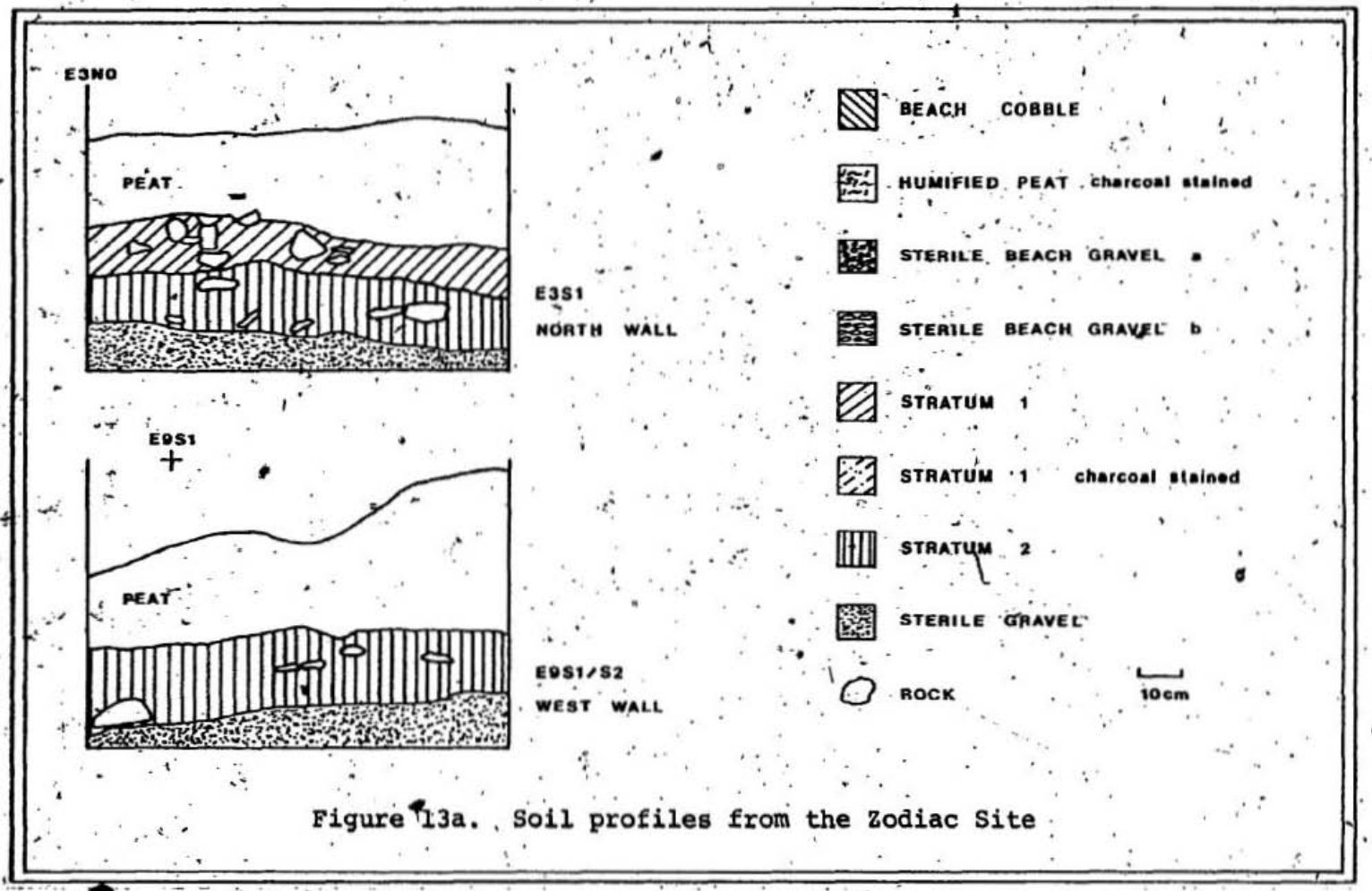


Figure 13a. Soil profiles from the Zodiac Site

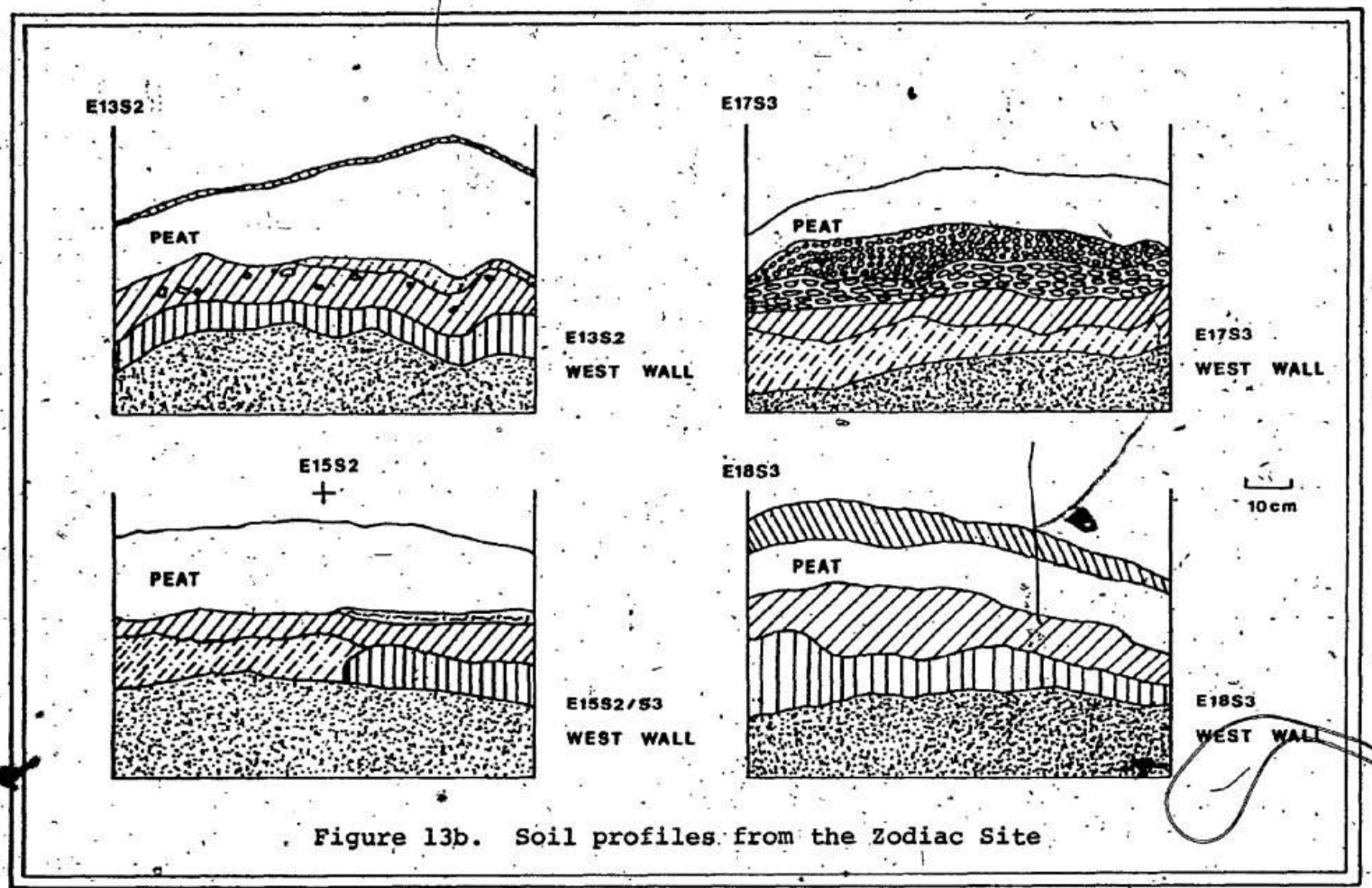


Figure 13b. Soil profiles from the Zodiac Site

E15S3/S2 (Fig. 13b) but it was located below Stratum 1. One artifact of Palaeo-Eskimo affiliation was recovered. In E17S3 (Fig. 13b), this dark gravel was located below Stratum 1 and yielded two artifacts of Palaeo-Eskimo origin. Stratum 2 was not represented.

It was apparent from the excavations that the site had undergone considerable disturbance. Artifacts related to both the Maritime Archaic Indian and Palaeo-Eskimo occupations were mixed and out of stratigraphic context. The stratigraphic relationship of the cultural material was clarified with the excavation of E3S1 (Fig. 13a). Here, artifacts related to the Palaeo-Eskimo occupation were recovered exclusively from Stratum 1. Stratum 2 yielded 11 artifacts related to the Maritime Archaic Indian occupation.

There were no distinguishable features uncovered at the Zodiac site. However, two samples of scatttered wood charcoal were collected. The first was recovered from E17S3, Stratum 1. Unfortunately, it was of insufficient quantity to be sent for analysis. The second sample was collected from E10S2, Stratum 2, and returned a date of 2490±80 B.P. (Beta 2262). Given the less than perfect vertical distribution of artifacts at this site, the date was accepted as representing an early Palaeo-Eskimo occupation.

The Beaches Site - DeAk-1 (Fig. 2, Pg. 11)

Excavations at The Beaches, done by Paul Carignan (1975) in the summers of 1972 and 1973, concerned the identification of a multi-component coastal site in

Bonavista Bay. In order to prevent repetition, a short synopsis follows. Additional information on the description of stratigraphy can be found in Carignan's report (1975). Due to the nature of the present study, information on The Beaches will deal exclusively with the Palaeo-Eskimo material recovered at the site.

Location and Environment (48°48'32"N, 53°49'15"W)

The Beaches site is located in Bloody Bay Reach, approximately 18 km from the Terra Nova River. The area comprises two low-lying points of land fronted by storm beaches to the north and south. Between these beaches is a boggy area which separates the spruce and fir stands along the north shore, from the alder, ferns, wild rose and raspberry patches which grow in the southern portion of the point.

The site is located at the base of a cliff on the southern shore of the western point of land. At its eastern end is an island which was once connected to the mainland by a continuous gravel bar.

Excavations, Stratigraphy and Features

Excavations were concentrated in two areas. The largest of these was located on the bank of land along the southern shore. A second area was opened up along the tidal flat, just off the bank (Carignan 1975, Fig. 3). These excavations revealed evidence of occupation within two distinct cultural layers (ibid., Figs. 4 and 5).

Cultural Layer 1, which was exposed by erosion, encompassed most of the largest area of excavation. Artifacts recovered from this layer included those related to Maritime Archaic Indian, Palaeo-Eskimo and Beothuck Indian (now known as "The Beaches Complex") occupations and a large number listed under an undetermined category.

> This lack of stratigraphic buildup in this multi-component layer may be an indication of the continuous usage of this area of the site from Maritime Archaic to Beothuck times with no major temporal break or gap (Carignan 1975:32).

Work to the east and along the bank revealed a second artifact-bearing layer (designated as Cultural Layer 2). Here, the stratigraphic relationship between the two layers showed that Cultural Layer 1 overlaid Cultural Layer 2. The overlap occurred within a small area west of datum (ibid., Fig. 3). Further excavations to the east of this area, and along the tidal flat, revealed that the only occupation layer present corresponded to Cultural Layer 2 (ibid., Fig. 5). This layer yielded only Maritime Archaic Indian material.

The only feature found at The Beaches was an isolated hearth. Wood charcoal was collected from the base of this stratified hearth deposit and analyzed. A date of 1650±95 B.P. (SI-1383) provided the only chronometric evidence for a Palaeo-Eskimo occupation at the site. Because of the nature of this feature and the fact that it was isolated from the main distribution of Palaeo-Eskimo artifacts, the date

provided only a terminus post quem for the artifacts recovered in association with the hearth. These included three endblades, two scrapers and one microblade.

Fox Bar Site - DeAk-3 (Fig. 2, Pg. 11)

Location (48°45'55"N, 53°48'50"W)

This stratified site is located about 1 km east of The Beaches site, "... on a narrow, low-lying bar of land below Beaches Head" (Carignan 1974:6, see Pl. 11). Excavations uncovered two stratigraphically separate cultural layers. Palaeo-Eskimo material, mixed in with Maritime Archaic Indian and Beothuck Indian artifacts, was recovered from the upper layer. The second cultural layer did not produce any artifacts. No features were noted at the site.

Bloody Bay Cove Site - DeAl-1 (Fig 2, Pg. 11)

Location (48°44'58"N, 53°50'55"W)

This site is located within a cove east of Bloody Point and was partiallly excavated by Paul Carignan during the summer of 1974 (Carignan 1974). The site consisted of a single occupation layer which contained a cultural admixture of lithic material pertaining to three cultural groups: Maritime Archaic Indian, Palaeo-Eskimo and Beothuck Indian. No features were found at the site. Additional information on the site can be obtained from Carignan's report prepared for the Archaeological Survey of Canada (Carignan 1974).

Sandy Cove Site - DdAk-6 (Fig. 2, Pg. 11)

Location (43°38'30"N, 53°43'48"W)

This small, badly disturbed site on the north shore of Newman Sound is located east and possibly west of the paved road leading to the government wharf in the village of Sandy Cove. The area is now occupied by several small stores or sheds and has undergone considerable disturbance during the construction of the road, the structures and other recent activities related to their use.

Approximately ten metres east of the road is a bedrock outcrop surrounded by stands of low-lying brush. This outcrop stretches parallel to the road and continues to the south, dropping abruptly about fifteen metres into the water. To the west is a sandy beach which stretches for approximately 1 km, effectively forming the cove.

Almost all of the artifacts from the site belong to a private collection. Survey of the site did not uncover any cultural features.

Bank Site - DdAk-5 (Fig. 2, Pg. 11)

Location (48°30'01"N, 53°49'09"W)

The Bank site is located on the north shore of Clode Sound, within easy walking distance of the Moose Pasture site to the west. The site is fronted by a gravel beach. Spruce and fir trees are located on top of the bank which is covered by a thick layer of peat and humus (Pl. 21). Eight artifacts of Palaeo-Eskimo origin were recovered from the eroding bank.

CHAPTER 4 - ARTIFACT ANALYSIS

Introduction

This chapter includes a description of methodology and a detailed analysis of the artifacts recovered at the eight sites described in Chapter 3. Artifacts recovered from excavations and surface surveys are combined for the purpose of this thesis.

Methodology

The presentation of artifact analysis is divided into two groups. The first comprises those sites excavated under controlled conditions. These include Ashley Baker Island, Moose Pasture, Zodiac, The Beaches, Fox Bar and Bloody Bay Cove. Of these, the first three were excavated by the author and crew in 1980. Reference to the stratigraphical position of individual specimens recovered from the first three sites is made in the tables and photographs or within the text. Artifacts from Fox Bar and The Beaches were recovered from Cultural Layer 1 (Carignan 1974, 1975) and those from Bloody Bay Cove were recovered from a single cultural layer below a thick humus/peat cover (Carignan 1974). The second group comprises those sites where surface collection took place and include the Sandy Cove and Bank sites.

All the artifacts analyzed are made from stone and are organized according to functional and morphological categories. Many of these incorporate a number of attributes

felt to be important in determining diagnostic changes within and between assemblages. In general, an effort has been made to keep categories and attributes as simple and as clear as possible.

> The attributes of most artefacts are almost infinite and to suggest that the objective archaeologist must analyse them all is unrealistic and in practice the attempt is never made (Clarke 1974:14).

The system of categorizing artifacts is based upon the work done by a number of researchers (Taylor 1968; Linnamae 1975) and a group of graduate students from the Archaeology Unit at Memorial University.

A total of nineteen categories, which can be divided into three groups, is used for the artifact analysis. The first group includes endblades, scrapers, microblades, side-blades, burins, burin-like tools, knives and soapstone vessels. These artifacts are classified according to functional types. Terms such as endblades and scrapers, etc., are employed because they are commonly used and understood to apply to certain categories. It must be remembered that in some cases, the function implied by the term may not actually fit the artifact. For the purposes of this thesis, the retention of traditional names appears to be advantageous in terms of clarity, simplicity and comparison. An additional category consisting of two ground stone examples is included in this first group. Both specimens were recovered from The Beaches and although ground stone is a morphological category, the

examples represent functional tools. They are described individually in the text.

The criteria for assigning a function to an artifact category are morphology and size of specimens, manufacturing and retouching techniques, relationships to other artifact categories and, in some cases, the use of raw material. A particular case in point is the difference between endblades and knives. For the purposes of this thesis, endblades are small and generally symmetric in form to allow hafting into or onto harpoon heads or foreshafts and were presumably used as hunting weapons. Knives are generally larger and less symmetrical than endblades. For these reasons they are assumed to have served as tools for butchering and general cutting.

The second group of categories consists of specimens resulting from the various manufacturing stages of functional tools and weapons. These include tip-fluting flakes, preforms, retouched flakes, thinning flakes and ridge flakes. It should be mentioned that any number of these categories could be employed for general use. In fact, retouched flakes and preforms could be considered "quasi tools".

The final group consists of two categories: undetermined and miscellaneous. Specimens included in the former are those whose typological attribution is uncertain because of their fragmentary nature. They are differentiated from retouched flakes because of the degree and character of purposeful retouch. Miscellaneous specimens include those that are flaked or ground, exhibit a distinctive form, are

partially or wholly intact but their exact type cannot be determined. Suggestions on their possible function are included, based primarily on parallels with similar artifacts from other sites on the Island. Also included in this group are quartz crystal chunks. They appear to have their greatest potential as raw materials for certain categories in the first group. The same holds true for cores and therefore are also included in this category.

Of all the categories presented in this thesis, attributes of individual specimens are presented in tabular form for only six. These include endblades, scrapers, microblades, sideblades, burin-like tools and knives. In the majority of sites, these represent the most prominent categories. Rather than divide each category into smaller classes (cf. Taylor 1968; Linnamae 1975) such as side-notched endblades or sidescrapers, attributes in the tables will indicate the differences and similarities within each category. In addition, it is felt that the presence or absence of certain attributes will indicate chronological distinctions.

Attributes include both descriptive and metric variables and have been derived from all known Palaeo-Eskimo components on the Island. This standardization, by no means exhaustive, has been employed in order to facilitate inter-site and intra-site comparisons, especially in future investigations. A discussion and description of attributes can be found in Appendix A.

Of the remaining categories, descriptions are presented in two ways. In categories that contain few examples, each specimen is described individually. For those categories with a larger number of examples, descriptions are presented as a group. Where feasible, ranges are given for all artifact categories. Means are only presented if there are ten or more complete specimens, or in the case of microblades, ten or more complete and proximal segments.

Ashley Baker Island Site

This site yielded a total of nineteen artifacts, seven of which were collected from test pits opened during the 1979 survey. Six of these specimens were recovered from Stratum 1 and a single example was recovered from Stratum 1(a). Tables 1a and 1b show the distribution of each artifact category and the frequency of raw materials used in their manufacture. The majority of 287 unmodified flakes are relatively minute in size, averaging less than 22 x 15 mm. Of these, 242 consist of black and grey granular cherts and rhyolites, 29 fine-grained, colourful cherts, seven patinated or white cherts, three undetermined, two quartz crystal and one each of white quartz, pink quartzite, Ramah chert and speckled chert. The number of artifacts is not large, but it serves to indicate their Palaeo-Eskimo origin.

Endblades (Pl. 2a-d, Table 12)

This category is represented by four specimens, including two basal fragments (Pl. 2b, d), a tip fragment (Pl. 2c),

Table 1a
Distribution of Artifact Categories
Ashley Baker Island Site

CATEGORY	S 1	S 1a	S 2	TOTAL	%
Endblades	3		1	4	21.0
Scrapers	2	1		3	15.7
Microblades	1	1	1	3	15.7
Sideblades					
Burins					
Burin-like Tools					
Knives					
Ground Stone					
Soapstone Vessels					
Tip-fluting Flakes	1	1	1	3	15.7
Preforms					
Retouched Flakes	2		2	4	21.0
Ridge Flakes					
Thinning Flakes	1			1	5.2
Undetermined					
Miscallaneous a) Ground					
b) Flaked		1		1	5.2
c) Cores					
d) Quartz Crystal Chunks					
TOTAL	10	4	5	19	99.5

Table 1b
Frequency of Raw Materials used for Artifacts
Ashley Baker Island Site

RAW MATERIALS	S 1	S 1a	S 2	TOTAL	%
Coarse-grained Cherts and Rhyolites	6	1	3	10	52.6
Fine-grained Cherts	2	2	2	6	31.5
Quartz Crystal	2			2	10.5
Patinated Chert		1		1	5.2
TOTAL	10	4	5	19	99.8

and a single example that is missing its very tip (Pl. 2a). All four are different in morphology and their fragmentary nature makes it difficult to establish general trends. However, specific characteristics that are not listed in the table are mentioned below.

One basal fragment (Pl. 2d) possesses broad bilateral notches. Because this example is broken immediately above the upper extension of the notches, it is difficult to assess the degree of surface retouch. The stemmed example (Pl. 2a) exhibits complete retouch only over the entire stem portion. The final example (Pl. 2c), which is not described in the table, is too small to determine the majority of attributes. It is characterized by tip-fluting on the ventral surface, a blunted distal end, and is made from coarse-grained rhyolite.

Scrapers (Pl. 2e-g, Table 13)

Three examples were recovered and only one is complete (Pl. 2e). Of the remaining examples, it is difficult to assess their original form. All are endscrapers and all exhibit relative uniformity in the edge angles and a certain degree of bilateral edge retouch on the dorsal surface. Only two examples (Pl. 2e, g) possess minimal crushing along the working edge.

Microblades (Pl. 2h-j, Table 14)

This category is represented by one proximal and two medial segments ranging in length from 9 to 12 mm. One

example exhibits a fair amount of battering along its lateral edges and dorsal surface (Pl. 2h). As a result, many of the attributes are indeterminate. However, its size and choice of raw material indicates a Palaeo-Eskimo affiliation.

Tip-fluting Flakes (Pl. 2k-m)

All three triangular examples representing this category are made from coarse-grained black chert. All are secondary flakes comprising one left (Pl. 2k) and two right (Pl. 2l, m) examples. The largest specimen measures 26 x 11 x 2 mm and the smallest measures 14 x 10 x 2 mm.

Retouched Flakes

A total of four fragmentary specimens was recovered. One triangular example (12 x 9 x 2 mm) has fine but irregular unifacial retouch along both edges. The remainder are all made from coarse-grained grey chert. They possess irregular unifacial retouch along one or more edges and range in size from 25 x 11 x 3 mm to 49 x 36 x 6 mm.

Thinning Flake

A single bifacial flake was recovered from Stratum 1. It is is made from coarse-grained grey chert.

Miscellaneous (Pl. 2n)

A single blade-like flake, made from patinated chert and measuring 25 x 13 x 4 mm, is included in this category. Its partially intact end is characterized by minimal retouch

that is reminiscent of a scraper. However, it is referred to as a scraper-like implement because the edge is thin and poorly defined. It was recovered from Stratum 1(a) and is similar to an example recovered at Moose Pasture (see Pl. 10g).

Moose Pasture Site

Although this site produced the largest number of artifacts among the three sites excavated by the author and crew, this number still represents only a portion of the potential recoverable. In contrast to other Palaeo-Eskimo sites throughout Newfoundland (Harp 1964; Linnamae 1975; Carignan 1975; Auger 1982; Robbins 1982), the total number of artifacts recovered in stratigraphic context at this site is small. Therefore, specimens recovered from the sod are included in the analysis.

Following the 1979 survey, Tuck (1980) suggested that some of the low quality flakes were derived from Stratum 2 and perhaps indicated an earlier occupation of Indian origin. At that time, this lower stratum yielded the base of a side-notched or corner-notched projectile point, which further reinforced this suggestion. During the 1980 excavations, an additional eleven artifacts of probable Indian origin were collected (Sawicki 1981). All, with the exception of one slate example, were made from rhyolite. Of course, this small sample may reflect the inadequacy of the sample size and/or excavation procedures and may, with more excavation, prove that an Indian occupation was present at the site.

However, the nature of the majority of artifacts recovered indicates an obvious affiliation with a Palaeo-Eskimo occupation.

The site's lithic assemblage consists of 1429 specimens. Of these, 113 are worked and the remainder are classified as unmodified flakes. Tables 2a and 2b show the distribution of artifact categories and the frequency of raw materials used in their manufacture. Debitage includes 867 examples of coarse-grained cherts and rhyolites that vary in colour from black to grey, 321 fine-grained cherts, 68 patinated or weathered cherts, 24 speckled cherts, 12 mudstone examples (Robert Stevens, pers. comm. 1981), 11 white quartz specimens, six Ramah cherts, four quartz crystals and three examples of purple/pink quartz.

Approximately 65% of the artifact assemblage consists of four categories: microblades, endblades, knives and scrapers (Table 2a). The majority of all artifacts are made from either fine-grained cherts or coarse-grained cherts and rhyolites (Table 2b). What is interesting is that the proportion of coarse-grained materials utilized in the unmodified flake group (65.8%), as opposed to the same raw material used in the manufacture of artifacts (22.1%), is directly opposite to the majority of artifacts made from fine-grained cherts (67.2%). Although this may be indicative of the sample size, there are three other possibilities which may account for this situation. First, the fine-grained cherts may have been easier to work and also highly

Table 2a
Distribution of Artifact Categories
Moose Pasture Site

CATEGORY	SOD	S 1	S 2	TOTAL	%
Endblades	10	5	1	16	14.1
Scrapers		11	3	18	15.9
Microblades	5	16	2	23	20.3
Sideblades	1	5	1	7	6.1
Burins					
Burin-like Tools		4	4	8	7.1
Knives	4	7	1	12	10.6
Ground Stone					
Soapstone Vessels					
Tip-fluting Flakes					
Preforms					
Retouched Flakes	6	13		19	16.8
Ridge Flakes					
Thinning Flakes		3		3	2.6
Undetermined	1	2		3	2.6
Miscellaneous a) Ground		1		1	.8
b) Flaked		2		2	1.7
c) Cores		1		1	.8
d) Quartz Crystal Chunks					
TOTAL	31	70	12	113	99.4

Table 2b
Frequency of Raw Materials used for Artifacts
Moose Pasture Site

RAW MATERIALS	SOD	S 1	S 2	TOTAL	%
Coarse-grained Cherts and Rhyolites	8	17		25	22.1
Fine-grained Cherts	21	45	10	76	67.2
Quartz Crystal	2	5	2	9	7.9
Patinated Chert		3		3	2.6
TOTAL	31	70	12	113	99.8

prized. Second, because there is no local source for these colourful cherts, a major portion of the assemblage may have been continually re-sharpened and re-used. The minute size of the artifacts, unlike many in comparable assemblages, may be a reflection of this possibility. Finally, the site may have been used for a specific purpose which required manufacturing particular tools from these cherts for reasons such as durability, preference or facility of manufacture.

Endblades (Pl. 6, Table 12)

A total of sixteen endblades and endblade fragments, of which fourteen are made from fine-grained chert, was recovered. These include five complete specimens, four basal fragments, four medial examples, three specimens which are missing the extreme distal end and two examples which are missing the base. The sample is represented by two groups. The first is characterized by symmetrically bilateral notches ranging from broad (Pl. 6d, p) to narrow (Pl. 6e, f). The second group consists of endblades which do not exhibit any hafting modification (Pl. 6b, c, l).

In general, endblades are characterized by extremely fine bifacial surface and edge retouch, straight bases and plano-convex cross sections. In addition, there is a notable absence of surface grinding, tip-fluting, edge serration and basal thinning. Complete specimens range in length from 17 to 23 mm, in width from 9 to 10 mm, and in thickness from 2 to 3 mm. Fragments are considered to fall within these ranges.

Scrapers (Pl. 7, Table 13)

Of the eighteen scrapers recovered, eight are fragments. These include four broken at the base (Pl. 7i; l-n), two missing a portion of the working edge and Edge A (Pl. 7j, k), one missing a portion of the working edge and Edge B (Pl. 7r) and a single side-notched, concave sidescraper missing its extreme distal end (Pl. 7o). With the exception of this last example, all specimens are endscrapers. Complete specimens range in length from 11 to 43 mm ($\bar{x}$ = 17.8 mm), in width between 12 and 23 mm ($\bar{x}$ = 15.8 mm) and in thickness from 3 to 8 mm ($\bar{x}$ = 4.6 mm).

These artifacts are characterized by fairly steep, convex working or scraping edges ranging from 60° to 80°. All are made from fine-grained cherts. Although the sample is small and attributes indicate variation within the sample, some general trends are noted. These include unifacial retouch and edge retouch on the dorsal surface; triangularity in form with no distinguishable hafting modifications; sharp working edge corners, whether the working edge is symmetric or bevelled; slight crushing along the same; the absence of graving spurs and flared corners; and finally, edge chords corresponding to the maximum width.

In addition, three examples exhibit ventral retouch along both edges (Pl. 7d, n, o) and three possess retouch along one edge only (Pl. 7e, f, j). Only one unusually large example (Pl. 7d) is characterized by complete retouch on the ventral surface.

Microblades (Pl. 8a-w, Table 14)

A total of twenty-three examples was recovered and comprised the largest category of artifacts at the site. Of these, only one is complete and the remainder constitute four distal, eight medial and ten proximal segments. Some of the segments recovered may have been used, which presents the problem of determining whether they were broken during use or after deposition. However, the lateral edges of these same examples appear sharp enough that retouching may not have been necessary. With this in mind, the majority of specimens are characterized by the absence of edge retouch, the predominance of a single arris (82.6%) and a high frequency of fine-grained raw materials. Those specimens which can be measured are small in overall size and complete and proximal segments possess platform angles ranging from 70° to 90°. Widths range from 4 to 12 mm ($\bar{x}$ = 7 mm) and thicknesses range from 1 to 4 mm ($\bar{x}$ = 2.1 mm). Segments range in length from 7 to 20 mm and are comparable, in overall size, to the measurable examples.

Sideblades (Pl. 8x-dd, Table 15)

Seven specimens, all made from fine-grained cherts, were found. Only one example is nearly intact (Pl. 8bb). It is asymmetrically triangular, possesses a straight base and exhibits minimal crushing along its more convex lateral edge. Retouch is restricted to the lateral edges. This example, together with a second specimen (Pl. 8cc), is plano-

convex in transverse cross section. The remaining specimens exhibit extremely fine bifacial surface and edge retouch and lack surface grinding. The most common form, semi-lunate, is characterized by a straight (hafting) edge and a convex (working or cutting) edge. The relatively minute size of all examples, estimated to range between 15 and 20 mm in length, most likely distinguishes them as implements set into harpoon heads or lances where they functioned as added cutting edges.

Burin-like Tools (Pl. 9a-h, Table 16)

Eight specimens were found, only one of which is complete (Pl. 9a). The fragmentary examples include three distal (Pl. 9b, c, g), one basal (Pl. 9e), one specimen which is missing its base (Pl. 9h) and two edge fragments (Pl. 9d, f). Where observable, the grinding on the ventral surface extends to the extreme working edge (A), corresponding to the left side of the artifact. This fact may indicate that they were used as right-handed tools. Bevelling at the distal end is asymmetric with the greater amount of surface grinding occurring on the dorsal side. Two examples are characterized by broad, bilateral notches (Pl. 9a, e). Only one of these (Pl. 9e) exhibits bifacial grinding past the base of the notches.

It is difficult to determine the extent of grinding and/or flaking on the edge fragments. The first specimen (Pl. 9d) is represented by a portion of an intact surface and two edges. The surface is ground and the adjoining edges are flaked along the same surface. Irregular retouch is present

on the opposite surface. The second example (Pl. 9f) exhibits grinding on both surfaces and the distal end is characterized by a ground (ventral?) bevel, 3 mm wide. The extreme, intact edge is bifacially flaked, which may indicate that this specimen represents Edge B. All examples are made from fine-grained cherts.

Knives (Pl. 9i-t, Table 17)

This category is represented by a total of twelve examples, including four complete and eight fragmentary specimens. As a group, these artifacts exhibit a greater degree of variation than any other category. Where observable, examples exhibit slightly asymmetric bilateral notches and possess one edge straighter than the other (Pl. 9n, o). Because of their asymmetric form, they probably functioned more as tools for butchering or general cutting than as projectiles. The curved edge ranges from convex to slightly concave. The majority of examples possess rounded tips and are characterized by irregular bifacial edge and surface retouch. This may be due to the nature of the raw material. Seven of the examples are made from coarse-grained materials. Complete specimens range in length from 33 to 54 mm, in width between 14 and 30 mm and in thickness from 5 to 7 mm.

Retouched Flakes

These nineteen specimens are characterized by irregular shape and retouch. All appear to be fragments of flakes, ranging in size from 9 x 7 x 2 mm to 52 x 28 x 6 mm. Ten

are made from fine-grained cherts of various colours and the remainder consist of coarse-grained rhyolite or chert examples. Eight of the former and three of the latter show purposeful, predominantly unifacial retouch on one or more edges. Only three of these fragments exhibit random bifacial retouch along edges which range from convex to straight. Some of these may in fact be small fragments of formed artifacts. The remaining eight examples show some trace of probable utilization or post-depositional damage. These include two fine-grained examples and six made from coarse-grained chert or rhyolite.

Thinning Flakes

Three small bifacial thinning flakes, made from light grey, coarse-grained chert were recovered from Stratum 1.

Undetermined (Pl. 10b-d)

Three examples, all made from fine-grained cherts, are included in this category. The first (Pl. 10b) is a fragment of what appears to be the base of a stemmed point made from grey chert. Unfortunately, both lateral edges have been broken off. However, the remaining surface exhibits fine, bifacial flaking. The small, straight stem, also formed by fine bifacial flaking, is 7 mm wide and 2 mm high. This specimen was recovered from the sod and measures 11 x 10 x 2 mm.

The second example, represented by a basal fragment, is broken 11 mm above the base (Pl. 10c). It exhibits

irregular bifacial retouch and broad, bilaterally symmetric notches 5 mm above a straight base. It may represent the base of a knife. What is unusual about the notches is that they possess "spur-like" projections at their base. It is made from brown chert and measures 11 x 15 x 3 mm.

The final example is a fragment of what appears to be the contracting stem of a knife or biface (Pl. 10d). Made from a tan chert, it appears to have snapped at the point joining the stem to the blade of the artifact, 24 mm above the proximal end. Surface and edge retouch are partially bifacial and the ventral surface exhibits partial grinding. This example measures 24 x 17 x 4 mm. These last two examples were recovered from Stratum 1.

Miscellaneous (Pl. 10a, e-g)

Four examples, all of which were recovered from Stratum 1, represent this category. Two examples (Pl. 10e, f) can best be identified as stemmed flake points, with stem lengths measuring 5 mm. Although neither example is intact, their forms are distinguishable. Both possess convex lateral edges, straight stems, slightly convex bases, and are made from fine-grained cherts. The first (Pl. 10e) is missing its very distal end and exhibits irregular surface and edge retouch on the dorsal surface. Some minimal ventral retouch is present along the margins of the stem and base, where the bulb of percussion is still evident. It measures 23 x 12 x 2 mm and is made from grey chert. The second example (Pl. 10f) is made

from a brown chert and is missing its distal end. Bifacial retouch is restricted to both lateral edges and along the margin of the stem and base. This specimen measures 19 x 12 x 2 mm.

The third example (Pl. 10g) resembles a similar specimen recovered at Ashley Baker Island (Pl. 2n). It is a thick blade-like flake of coarse-grained, brown chert and is broken at one end. Unifacial retouch, present along the intact end, on the dorsal side, is irregular and probably a result of use. This specimen may have been used as a scraper. In addition, approximately 50% of the intact dorsal surface is ground, which may have facilitated hafting. This example measures 31 x 15 x 4 mm.

The final specimen is a fragmentary core which measures 22 x 31 x 10 mm and is made from a fine-grained, grey chert (Pl. 10a). It is sub-rectangular in shape and bears one scar of microblade removal, 4 mm wide. The remaining surface retains the cortex. The angle between the striking platform and the fluted surface is 90° and the edge is slightly battered. The platform is flat and roughly ovate in shape and the opposite end (keel) has broken off.

Zodiac Site

The mixed nature of the site makes the identification of certain artifact categories difficult. Artifacts regarded as Palaeo-Eskimo in origin are represented by examples made primarily from coarse-grained cherts and rhyolites, fine-

grained cherts and quartz crystal. The problem is that many of those artifacts related to a Maritime Archaic Indian occupation are also made from coarse-grained raw materials. Consequently, distinguishing artifact cultural affiliations based exclusively on the use of raw materials is difficult. This is especially true for the category of retouched flakes. Those that have been included in the analysis have been done so mainly on the basis of their size and of comparison with the Maritime Archaic Indian assemblage.

A similar problem occurs with the unmodified flakes. The 444 flakes recovered from the site are divided as follows: 328 coarse-grained cherts or rhyolites; 35 examples of colourful, fine-grained cherts; 27 different coloured slates; nine white quartz; seven examples of sandstone; two each of speckled and Ramah chert; and one each of quartz crystal and banded mudstone. This last example is similar to those recovered at the Moose Pasture site. Taking into account the use of raw materials for the manufacture of artifacts, the fine-grained cherts, Ramah chert and quartz crystal probably correspond to the Palaeo-Eskimo occupation.

Forty-six artifacts of Palaeo-Eskimo affiliation are included in the analysis. These were recovered from the sod, Stratum 1, Stratum 2 and the eroding bank. The distribution of artifact categories represented at the site and the frequency of raw materials used in their manufacture are illustrated in Tables 3a and 3b.

Table 3a
Distribution of Artifact Categories
Zodiac Site

CATEGORY	SOD	S 1	S 2	SURF	TOTAL	%
Endblades		5	3	2	10	21.7
Scrapers		6			6	13.0
Microblades	2	9	3		14	30.4
Sideblades						
Burins						
Burin-like Tools		1			1	2.1
Knives						
Ground Stone						
Soapstone Vessels						
Tip-fluting Flakes			1		1	2.1
Preforms			1		1	2.1
Retouched Flakes		3	2		5	10.8
Ridge Flakes						
Thinning Flakes						
Undetermined		5			5	10.8
Miscellaneous a) Ground						
b) Flaked						
c) Cores		1	1		2	4.3
d) Quartz Crystal Chunks		1			1	2.1
TOTAL	2	31	11	2	46	99.4

Table 3b
Frequency of Raw Materials used for Artifacts
Zodiac Site

RAW MATERIALS	SOD	S 1	S 2	SURF	TOTAL	%
Coarse-grained Cherts and Rhyolites		9	5	1	15	32.6
Fine-grained Cherts		9	1		10	21.7
Quartz Crystal	2	8	3		13	28.2
Patinated Chert		2	1		3	6.5
White Quartz		2			2	4.3
Ramah Chert			1	1	2	4.3
Felsite		1			1	2.1
TOTAL	2	31	11	2	46	99.7

Endblades (Pl. 12a-j, Table 12)

A total of ten examples were recovered. Of these, only five are complete. The incomplete specimens consist of two basal fragments (Pl. 12a, e), one fragment which is missing a portion of Edge A and the base (Pl. 12d), one example that is represented by the tip (Pl. 12h) and a final specimen which is missing the very tip (Pl. 12j). This total number represents two groups.

The first group (Pl. 12a, f) is characterized by symmetrically bilateral notches, a straight base, the absence of basal thinning, and minute size in comparison with the second group. The second group (Pl. 12b-e, g) is characterized by the absence of hafting modifications, predominance of dorsal edge retouch, slightly to markedly concave bases and the presence of basal thinning. In addition, a number of examples exhibit varying degrees of surface grinding, basal grinding or a combination of both (Pl. 12b-d, g).

The majority of examples are plano-convex in cross section and where observable, tip-fluting is present only in the second group. Not surprisingly, the two specimens collected from the surface are water rolled, making certain observations impossible (Pl. 12i, j). Complete specimens range in length from 20 to 33 mm, in width from 9 to 16 mm and in thickness, between 3 and 4 mm. The side-notched examples are the smallest.

Scrapers (Pl. 12k-p, Table 13)

Of the six specimens recovered, only three are complete. All are endscrapers and the majority exhibit varying degrees of dorsal surface retouch. Edge retouch along the dorsal side is observable on four examples (Pl. 12k, l, n, o) and four specimens exhibit edge crushing along the convex working edge (Pl. 12k-m, o). Edge angles are relatively uniform, ranging from 50° to 70°. Where observable, the edge chord measurement corresponds with the maximum width. All specimens are small in overall size with complete examples ranging in length from 14 to 15 mm, width from 6 to 13 mm and thickness from 2 to 6 mm.

Microblades (Pl. 13a-n, Table 14)

The fourteen microblades found at the site comprise the largest category. Two are complete (Pl. 13c, g), three are proximal segments (Pl. 13b, k, m), four are medial segments (Pl. 13a, f, i, n) and the remaining five examples are distal segments (Pl. 13d, e, h, j, l). Striking platforms show varying degrees of battering at the dorsal edge. With the exception of one example (Pl. 13f), the majority of specimens are characterized by the absence of edge retouch. A few examples show slight "nicking" along their thin lateral edges, but this is more likely due to post-depositional damage than from retouch or use wear. A single specimen (Pl. 13g) exhibits a definite constriction or stem immediately above the proximal end. Complete and proximal segments range in width

from 4 to 11 mm and in thickness from 1 to 3 mm. Segments range in length from 8 to 30 mm and show no standard pattern of breakage. The majority of specimens are made from quartz crystal.

Burin-like Tool (Pl. 13o, Table 16)

A single specimen, possessing slightly asymmetric notches, was recovered. The working edge is ground flat, ventrally, and corresponds to the left lateral edge (A), making it a right-handed implement. The distal end is asymmetrically bevelled with the greatest bevelled surface occurring on the dorsal surface.

Tip-fluting Flake (Pl. 13s)

A single triangular specimen, made from Ramah chert, represents this category. It is a right, secondary flake measuring 25 x 14 x 3 mm and was recovered from Stratum 2.

Preform (Pl. 13r)

One example, made from coarse-grained rhyolite and measuring 39 x 26 9 mm, was recovered at the site. It is characterized by irregular bifacial edge and surface retouch, an asymmetrically biconvex cross section, and a straight base. In addition, two flute facets are in evidence on the ventral surface and a single flake has been struck from the base of the dorsal surface. This specimen was recovered from Stratum 1.

Retouched Flakes

A total of five examples, all made from coarse-grained rhyolite, have been included in this category. Two exhibit "nicking" along one edge and three possess purposeful retouch along one or more edges. Retouch is irregular and predominantly unifacial. One example is roughly triangular and exhibits retouch on the dorsal surface along its most convex lateral edge. Additional marginal retouch occurs around the striking platform. This forms a slight constriction or notch immediately above the striking platform. A second specimen is characterized by marginal retouch along a portion of the remaining intact edge on the dorsal surface. A final example possesses irregular unifacial retouch along the opposite edge. A number of "nicks", along this latter edge, are most probably due to water-rolling damage. The size of these examples range between 15 x 14 x 3 mm and 35 x 31 x 4 mm. Two of the specimens were recovered from Stratum 1 and three from Stratum 2.

Undetermined (Pl. 13t-x)

Five examples are included in this category. All were recovered from Stratum 1.

The first specimen is broken at both ends and is characterized by partial bifacial surface flaking and edge retouch; minimal grinding on both surfaces; and a biconvex transverse cross section (Pl. 13t). Measuring 13 x 14 x 3 mm

and made from a fine-grained grey chert, this example may be either an endblade or knife fragment.

The second example is roughly triangular in outline and exhibits partially bifacial surface and edge retouch (Pl. 13u). The transverse cross section is biconvex. Made from a coarse-grained grey chert, this fragment measures 19 x 12 x 4 mm. It may also be an endblade fragment.

The third specimen, measuring 24 x 12 x 4 mm, is broken at both ends and has been water rolled (Pl. 13v). It is characterized by bifacial surface and edge retouch, a biconvex transverse cross section, and is made from a coarse-grained black chert. This example may also be an endblade fragment.

The smallest specimen represented in this category exhibits bifacial retouch along the intact edge which measures 7 mm (Pl. 13w). It is possibly an edge fragment of an endblade or knife and is made from a fine-grained beige chert.

The final example, made from a fine-grained brown chert, is a basal fragment characterized by unifacial surface and edge retouch (dorsal) (Pl. 13x). There is some minimal retouch on one edge of the ventral surface, but this is restricted to 10 mm above the base. The base is straight, exhibits no hafting modification, and is thinned, with two flakes removed from the dorsal surface. Measuring 26 x 21 x 3 mm, it may have functioned as a knife.

Miscellaneous (Pl. 13p, q)

Three specimens are included in this category. They are two cores and one quartz crystal chunk.

The first core is roughly triangular in outline and it exhibits bifacial retouch or battering along both lateral edges (Pl. 13p). The striking platform is no longer intact and definits callibration is impossible. A single blade scar, measuring 17 mm long and 2 mm wide, is visible. This specimen measures 22 x 15 x 7 mm and is made from quartz crystal. It was recovered from Stratum 1.

The second core is conical in shape and its striking platform is expended (Pl. 13q). A single blade scar, measuring 12 mm long and 3 mm wide, is visible. Made from quartz crystal, this specimen measures 15 x 9 x 9 mm and was recovered from Stratum 2.

The final example included in this category is a quartz crystal chunk. Its amorphous shape retains a portion of the natural facetted surface and there is some battering along one straight edge. It measures 24 x 15 x 8 mm and was recovered from Stratum 2.

The Beaches Site

The Beaches artifact assemblage is the largest analyzed in this study. However, because stratigraphy in Cultural Layer 1 was apparently non-existent, it is also the most complicated. For example, the notable preference for fine-grained raw materials in the Palaeo-Eskimo (31.9%) and the Beothuck (50.1%) (Carignan 1975:43) assemblages makes

it difficult to determine the cultural affiliation of retouched flakes, cores, miscellaneous fragments and the over 5000 unmodified flakes. The same problem occurs in the frequency of artifacts made from coarse-grained cherts and rhyolites. The majority of artifacts in the Palaeo-Eskimo assemblage are made from these materials (55.3%). This is also true for Maritime Archaic Indian artifacts. Given the local availability of coarser materials (Carignan 1975), it is easy to see why both populations would have utilized these raw materials. Overall, many of the artifacts related to the Palaeo-Eskimo occupation are well-made, despite the coarser nature of the raw material.

The re-analysis of the Palaeo-Eskimo material has created additional problems. First, many of the catalogue numbers on individual artifacts were no longer visible which meant a systematic cross-checking with old Newfoundland Muuseum numbers. Second, not all the artifacts could be located. Therefore, there is a discrepancy between the total number of artifacts in this study and that in previous work done by Carignan (ibid.) Also, the re-interpretation of Carignan's data on the Palaeo-Eskimo material has resulted in a greater number of artifacts being classified under an undetermined affiliation. Re-classification is based on the size of artifacts, flaking techniques, comparison of artifact categories of all components present at the site and, to a certain extent, the use of raw materials. Notable differences

Table 4a
Distribution of Artifact Categories
The Beaches Site

CATEGORY	TOTAL	
Endblades	50	16.4
Scrapers	42	13.8
Microblades	62	20.3
Sideblades		
Burins	1	.3
Burin-like Tools	1	.3
Knives	13	4.2
Ground Stone	2	.6
Soapstone Vessels	3	.9
Tip-fluting Flakes	15	4.9
Preforms	85	27.9
Retouched Flakes		
Ridge Flakes	2	.6
Thinning Flakes		
Undetermined		
Miscellaneous a) Ground	4	1.3
b) Flaked		
c) Cores		
d) Quartz Crsytal Chunks	24	7.8
TOTAL	304	99.2

Table 4b
Frequency of Raw Materials used for Artifacts
The Beaches Site

RAW MATERIALS	TOTAL	
Coarse-grained Cherts and Rhyolites	182	55.3
Fine-grained Cherts	60	18.2
Quartz Crystal	35	10.6
Patinated Chert	8	2.4
Ramah Chert	6	1.8
Slate	5	1.5
Quartzite	4	1.2
Schist	1	.3
Soapstone Fragments	28	8.5
TOTAL	329	99.9

within the Palaeo-Eskimo assemblage occur in manufacturing techniques of those artifacts made from coarse-grained cherts and rhyolites and fine-grained raw materials.

Of the 304 artifacts included in the analysis, almost 80% comprise preforms, microblades, endblades and scrapers (Table 4a). The greatest frequency occurs in the category of preforms, reflecting the work-shop nature of the site. Since tip-fluting is considered to be a Newfoundland Dorset trait (Linnamae 1975:81), only preforms characterized by this technique are included. The remainder are rather amorphous in shape, do not exhibit tip-fluting and could conceivably be associated with any one of the other components at the site. This, of course, presupposes that neither the Maritime Archaic Indians nor the Beothuck Indians adopted this technique. The distribution of artifact categories and the frequency of raw materials used in their manufacture are listed in Tables 4a and 4b.

Endblades (Pl. 14, Table 12)

A total of fifty triangular endblades and endblade fragments is included in this category. The majority are symmetric in outline and the most common possess a concave base (27) varying from slightly (Pl. 14a) to markedly (Pl. 14b, c) concave. At least twelve examples are characterized by straight bases (Pl. 14d-f, g, i). Three of these latter specimens possess slightly asymmetric notches. Two have single notches, either rounded (Pl. 14f) or square (Pl. 14g) in appearance and the third (Pl. 14i) possesses three

rounded notches, regularly spaced along each lateral edge. Of the twenty-three complete specimens, length ranges from 25 to 76 mm ($\bar{x}$ = 36.6 mm), maximum width from 12 to 29 mm ($\bar{x}$ = 15 mm) and maximum thickness from 3 to 7 mm ($\bar{x}$ = 4.85 mm). Blade edges are straight, slightly convex or irregular and transverse blade sections of a few specimens are slightly asymmetric.

In general, surface retouch is predominantly complete on the dorsal surface (66%) producing a well-defined ridge. The predominant absence of surface retouch on the ventral surface (88%) is mainly a result of tip-fluting. At least forty-three examples are characterized by this process. The flute scars usually do not extend more than half way down the length of the artifact. Here, the flakes break off as hinge fractures or are removed by basal thinning flakes.

On thirty-one examples, retouch along the lateral edges occurs only on the dorsal surface. Fifteen specimens exhibit partially bifacial edge retouch, but in many of these cases retouch is restricted to an area below the tip-fluting hinge scars on the ventral side. A few possess retouch above the scars but this is because the flute flakes did not remove the entire edge. The importance of tip-fluting for producing sharp distal ends, for thinning specimens or achieving an additional cutting edge on the ventral surface is reflected in the scarcity of endblades that are partially or completely ground. Only two examples exhibit surface grinding. The first (Pl. 14h) is completely ground and the second (Pl. 14i)

exhibits slight grinding along the dorsal median ridge and sporadic grinding on the ventral surface.

The most common form of special retouch or thinning at the base is the removal of flakes from both the dorsal and ventral surface on the same specimen (31). In some cases, thinning scars resemble long flutes (Pl. 14j, k). Only three examples exhibit grinding in the basal area, either completely bifacial (1) or in conjunction with flaking on the dorsal side (2).

Transverse cross sections are predominantly of two types: plano-convex (50%) or triangular-convex (24%). The presence of a ridge on the ventral surface, a result of tip-fluting, produces the triangular-convex examples. The majority of those examples exhibiting plano-convex cross sections are also tip-fluted but the ridge is less pronounced. With regard to the utilization of raw materials, 88% of the specimens are made from coarse-grained cherts or rhyolites.

Scrapers (Pl. 15, Table 13)

A total of forty-two examples, comprised mainly of those that are roughly triangular (26) or rectangular (12), is included in this category. Thirty-two are complete and the remainder include those missing the base (5), one lateral edge (2) or both (3). Forty-one are endscrapers (Pl. 15a-f, h-n), four of which are end-of blade (Pl. 15e, f), and one example is a concave sidescraper with its working edge on the

left (Pl. 15g). Complete specimens range in length from 13 to 45 mm ($\bar{x}$ = 27.02 mm), in width between 11 and 36 mm ($\bar{x}$ = 19.9 mm) and in thickness from 3 to 10 mm ($\bar{x}$ = 5.76 mm). The angle of the working edge ranges between 60° and 90° ($\bar{x}$ = 70.7°) with the shape varying from markedly to slightly convex and forming predominantly sharp corners. Only one example possesses a concave working edge (Pl. 15g). All but four examples show slight crushing at the working edge and the majority are symmetric (64.3%).

Seven examples are characterized by marked (Pl. 15h) to slight (Pl. 15i) expansion of their lateral edges, giving them a stemmed appearance. In five specimens, the distal ends exhibit pronounced (Pl. 15k) to slight (Pl. 15l) flaring, resulting in sharp or rounded corners. Both rounded and sharp corners could conceivably function as graving spurs. A single example possesses symmetrically bilateral notches, approximately 5 mm above its base (Pl. 15m).

Retouching on the dorsal surface varies from partial to absent and six have only partial retouch on the ventral surface. This occurs predominantly in the basal portion of the artifact. Five examples have one or two narrow flakes struck from the proximal end, reaching from one-half to almost the full length of the artifact (Pl. 15k, n).

The majority of specimens exhibit dorsal lateral retouch in addition to slight crushing. Ventral lateral retouch is restricted to twelve examples, either along Edge A (6) or Edge B (6). Two of these exhibit retouch along both lateral

edges. In the majority of examples, this retouch is restricted to the basal portion of the artifact.

Microblades (Pl. 16a-k, Table 14)

A total of sixty-two specimens is included in this category. Of these, eleven are complete (17.7%), twenty-three are proximal segments (37.1%), twenty are medial segments (32.2%) and eight are distal segments (12.9%); 62.9% possess one arris, 33.8% exhibit two arrises and 3.2% have three arrises. The striking platforms form angles with the dorsal surface ranging from 70° to 90° ($\bar{x}$ = 83.1°). Only eleven show battering on the dorsal edge. Complete specimens range in length from 22 to 48 mm ($\bar{x}$ = 34.09 mm) with coarse-grained examples being longer. Complete and proximal segments range in width from 6 to 12 mm ($\bar{x}$ = 8.03 mm) and in thickness from 1 to 4 mm ($\bar{x}$ = 2.5 mm). The fine-grained examples tend to be slightly smaller. The average length of the segments is 26.07 mm and they do not appear to have been broken in any standardized pattern.

The lateral edges of fourteen examples are slightly "nicked" but this could be due either to use wear or post-depositional damage. Of these, two may be stemmed (Pl. 16g, h) and two may have been used as gravers (Pl. 16i, j). Only five specimens are purposefully retouched. In one example (Pl. 16k), this retouch has resulted in the formation of broad bilateral notches.

With respect to the use of raw materials, the majority of specimens are made from either coarse-grained cherts and

rhyolites (28) or fine-grained, colourful cherts (26).

Burin (Pl. 161)

A single spalled burin, measuring 27 x 19 x 4 mm and made from a fine-grained mottled chert, was recovered. Its roughly triangular shape is characterized by an obliquely straight edge (A), a straight edge (B) which converges to a sharp point at the distal end, and a straight base. Three successive burin spalls have been removed from Edge A. Using Giddings' definition (1964:218), this specimen is a right-handed implement. The lengths of the burin spalls are 18 mm, 14 mm and 8 mm. The width at the base of the final spall is 12 mm. The last spall has removed most of the distal end, but what remains appears to be ground. This example is also characterized by broad notches, 3 and 5 mm above the base.

Both surfaces of the blade element are ground above the notches and both Edge B and the hafting element are bifacially retouched. The basal area has been bifacially thinned. In addition, there is minimal retouch along the first and second burin spall scars.

Burin-like Tool (Pl. 16m)

A single basal fragment, made from fine-grained mottled chert, represents this category. Because many of the attributes are difficult to assess, this example is not described in tabular form.

The specimen is characterized by broad bilateral

notches, 4 mm above the straight base; bifacial pressure flaking at the hafting element and the base; basal grinding on the dorsal surface; and grinding on both surfaces of the blade element. The ventral surface is ground flat to one edge and below the notches, but is difficult to determine whether this is the working edge because the specimen is broken. This same edge exhibits dorsal retouch and irregular grinding at its extreme edge. The opposite edge is not intact.

Knives (Pl. 17, Table 17)

This category is comprised of thirteen examples, ten of which are complete and vary in shape from slightly to markedly asymmetric. Lateral sides are slightly to widely convex or straight and contract towards the distal end. Only two examples exhibit one concave lateral edge. Many specimens exhibit a combination of these shapes. Edge retouch is predominantly bifacial (76:9%) and surface flaking varies from partial to complete. Seven specimens are characterized by complete retouch on both surfaces. Finer bifacial retouch predominates in the fine-grained examples. Tip shapes range from rounded (8) or blunted (2), to pointed (1). Basal edges are either straight (7) or slightly concave (5).

All knives are characterized by shallow, bilateral notches, varying in shape from rounded to nearly square. Two examples show slight variation of the hafting modification. The first possesses more of a corner notch along Edge A and the second (Pl. 17a) exhibits a poorly defined notch along Edge B which appears more like a stem. Cross sections are

predominantly flat and biconvex in shape (53.8%). Complete specimens range in length from 36 to 91 mm ($\bar{x}$ = 73.9 mm), in width between 18 and 37 mm ($\bar{x}$ = 30.2 mm) and in thickness from 4 to 9 mm ($\bar{x}$ = 5.8 mm). In the majority of specimens, the maximum width occurs immediately above the notches. As a rule, the average size of the fine-grained specimens is smaller than the coarse-grained examples.

Ground Stone (pl. 18a, b)

This category is represented by two examples. The first specimen (Pl. 18b) is a roughly triangular adze which exhibits considerable battering along both lateral edges. This is due partly to flaking and/or post-depositional damage. The aprtially ground surfaces form a rectangular cross section and the working edge is completely ground to an asymmetric bevel. Made from a brown slate, it measures 79 x 43 x 10 mm.

The second example (Pl. 18a) is a complete (reconstructed) rectangular-shaped bowl. It is partially ground and possesses a flat bottom. Well-defined incisions or grooves and grinding marks, presumably resulting from manufacturing, are present along the bottom, rim and on the inside of the vessel. The walls vary in height from 13 to 29 mm and from 13 to 18 mm in thickness. Wall angles range between 90° and 150°. Made from a green schist, this specimen measures 128 mm long and 81 mm wide.

Soapstone Vessels (Pl. 18c, d)

Twenty-eight pieces, comprising sixteen wall, seven rim,

three base/wall and two corner fragments were recovered. Interpretation of these pieces concurs with Carignan's reconstruction that three individual vessels are represented (1975). In order to avoid repetition, a short description is presented below. Additional information can be found in Carignan's report.

The first vessel, comprising twenty-six fragments, is rectangular in shape and measures 160 mm in total height. Information from reconstruction indicates that walls flare out from the base and range in thickness from 7 mm at the rim to 10 mm at the base; angles between the walls and the flat base range from 100° to 120°; wall to wall angles range from 90° to 95°; and the rims are flat and slope obliquely inwards. In addition, repair holes have been gouged on the inside of the vessel and are connected by a rectangular groove (Pl. 18d).

The second vessel is represented by a single corner-rim fragment made from a different quality soapstone than that used in the first vessel. This fragment is characterized by a rounded rim-corner, straight walls which taper slightly towards the rim from 8 to 7 mm, a wall to wall angle of 102°, and a base to wall angle of 107°. The height of this fragment is greater than 53 mm.

The last vessel is represented by a single rim fragment. The rim portion is flat and slopes obliquely outwards. The wall is slightly rounded. The fragment is thickest near the rim (13 mm) and tapers towards the opposite edge (11 mm).

Tip-fluting Flakes (Pl. 19a-d)

A total of fifteen roughly triangular examples are included in this category. With the exception of one Ramah chert specimen, all are made from coarse-grained rhyolite. Eleven are considered secondary flakes and four examples indicate primary removal. Of these, eight have been removed from the right side (Pl. 19a, b, d) and seven from the left side (Pl. 19c). Measurements range from 22 to 55 mm in length ($\bar{x}$ = 30.5 mm), 8 to 30 mm in width ($\bar{x}$ = 10.4 mm) and 2 to 4 mm in thickness ($\bar{x}$ = 2.7 mm).

Preforms (Pl. 19g-n)

A total of eighty-five preforms for tip-fluted end-blades is included in this category. Of these, seventy-eight are made from rhyolite or coarse-grained cherts, five from fine-grained cherts and two from patinated chert. With the exception of one ovate example, all are roughly triangular in shape. Dimensions range from 21 to 64 mm in length ($\bar{x}$ = 37.1 mm), 13 to 30 mm in width ($\bar{x}$ = 21.8 mm) and 5 to 14 mm in thickness ($\bar{x}$ = 7.3 mm).

The fragmentary nature of at least fifty-one examples may be due to post-depositional damage or as a result of a number of manufacturing processes, including attempts to tip-flute the distal end, thin the base or a combination of both. These examples include eighteen basal fragments, thirty distal fragments and three mid-sections.

Examples exhibiting tip-fluting on the ventral surface

comprise twenty-two which have at least one flute removed, fifty-eight which indicate that at least two flutes were struck off and five examples that are characterized by the removal of at least three fluting flakes. Generally, these flakes do not extend past half the length of the specimen. In addition, at least twenty examples show that some attempt has been made to thin the tip from the dorsal surface. Variations in the form include concave (32), straight (24), rounded (7) and pointed (1). Basal shapes consist of twenty-nine straight, nine convex, eight concave and three irregular examples.

Many examples exhibit irregular edge retouch either bifacial (49), unifacial along the dorsal surface (31) or restricted to the ventral surface (5). On some of these, retouch extends across the surfaces, producing a distinctive median ridge. Basal thinning varies from marginal pressure flaking to the removal of longitudinal flakes, resembling flutes, from the dorsal surface (20), ventral surface (11) or both (10). On some examples, these long flakes extend up to one half the length of the specimen (Pl. 19k, l, n).

Ridge flakes (Pl. 19e, f)

Two specimens are included in this category. Both are parallel-sided, exhibit transverse flaking along one or two edges and are made from fine-grained cherts. The translucent example (Pl. 19e) measures 42 x 9 x 4 mm and the black chert specimen (Pl. 19f) measures 27 x 6 x 3 mm.

Miscellaneous (Pl. 20)

Twenty-eight specimens are included in this category. Twenty-four are quartz crystal chunks and four are individual artifacts which will be described below.

Given that a number of microblades and scrapers are made from quartz crystal and that neither the Maritime Archaic Indian nor the Beothuck components contain this material, the quartz crystal chunks appear to have their greatest potential as raw material for the manufacture of Palaeo-Eskimo artifacts. Of the twenty-four examples, many still retain portions of their natural facetted surface. A few exhibit some battering either at their ends or along the edges. They range in length from 30 to 50 mm, in width between 8 and 50 mm and in thickness from 5 to 40 mm.

The remaining four specimens are all made from slate. The first (Pl. 20a) is triangular in form but it is missing both the base and tip. Both lateral edges are ground flat but only partial grinding is present on both surfaces. The resulting cross section is roughly triangular. Measuring 69 x 26 x 5 mm, it may have functioned as a projectile or knife.

The second example (Pl. 20b) is a flat, tapering blade which is broken at one end. Both surfaces are uniformly ground smooth and the lateral edges are symmetrically bevelled. The intact tapered end, which appears to be the working portion of the implement, is convex and ground to a much sharper edge than the lateral edges. It measures more

than 107 mm in length. Although its function is uncertain, this specimen may have been used as a tool for working wood or bone. Its shape and morphology are similar to examples that Harp refers to as flat-bladed chisels found at Port au Choix-2 (1964:64, Plate XVIII, 1-3).

The third specimen (Pl. 20c) is a basal fragment of a thin, flat and potentially large implement measuring 56 x 51 x 5 mm. Both surfaces are partially ground smooth and are characterized by at least four small holes or slits, presumably used for hafting. Two sets of holes are located approximately 9 and 44 mm above the base. The two upper holes are partially obliterated by transverse breakage. The lateral edges and the base are symmetrically bevelled on both surfaces, resulting in sharp and straight edges. Linnamae (1975:121) has suggested that these types of tools may have functioned as knives or skin scrapers.

The final example (Pl. 20d) appears to be the distal fragment of a flat and thin tapering implement. Only one surface (dorsal ?) is partially ground. A portion of the very (straight ?) distal end, and presumably the working edge, is missing. However, it appears to have been asymmetrically bevelled on both sides, forming a sharp edge. Both lateral edges are bifacially bevelled with the extreme edges ground flat. It measures 68 mm in length, 49 mm wide at the broken end and 6 mm in thickness. Although much larger than the second example described above, it may also have functioned as a chisel.

Fox Bar Site

A re-evaluation of the material related to the Palaeo-Eskimo component at this site indicates that the assemblage is restricted to six artifacts and an unknown number of unmodified flakes. Tables 5a and 5b summarize the distribution of artifacts and the frequency of raw materials used in their manufacture.

Microblades (Pl. 22h, i, Table 14)

This category comprises a complete specimen (Pl. 22i) and one distal segment (Pl. 22h). Both have a single arris on the dorsal surface and both are made from fine-grained chert. Neither exhibits retouching.

Burin-like Tools (Pl. 22j, k, Table 16)

This category is represented by two specimens, one of which is missing its distal end (Pl. 22k). Both examples possess symmetrically bilateral notches, although they are much broader and square in the complete specimen. In addition, the working edge, in both specimens, is ground flat ventrally and corresponds to the right side or Edge B. These examples, then, are considered to be left-handed implements (cf. Moose Pasture, Zodiac and The Beaches examples).

As with a number of burin-like tools recovered in the Bonavista Bay region, the distal end of the complete specimen at Fox Bar is characterized by an asymmetric double bevel, with greater surface grinding occurring on the dorsal side. Grinding on the dorsal surface of the fragment is restricted

Table 5a
Distribution of Artifact Categories
Fox Bar Site

CATEGORY	TOTAL	%
Endblades		
Scrapers		
Microblades	2	33.3
Sideblades		
Burins		
Burin-like Tools	2	33.3
Knives	1	16.6
Ground Stone		
Soapstone Vessels		
Tip-fluting Flakes		
Preforms	1	16.6
Retouched Flakes		
Ridge Flakes		
Thinning Flakes		
Undetermined		
Miscellaneous a) Ground		
b) Flaked		
c) Cores		
d) Quartz Crystal Chunks		
TOTAL	6	99.8

Table 5b
Frequency of Raw Materials used for Artifacts
Fox Bar Site

RAW MATERIALS	TOTAL	%
Coarse-grained Cherts and Rhyolites	2	33.3
Fine-grained Cherts	4	66.6
TOTAL	6	99.9

to the basal portion of the artifact, beginning at 8 mm below the broken end. Both specimens are made from fine-grained chert.

Knife (Pl. 22l, Table 17)

A single specimen, with the very tip broken off, was recovered at the site. It is characterized by slightly convex to straight lateral edges, asymmetrically bilateral notches, and a flat, biconvex cross section. By virtue of its morphology and a comparison with similar tools from other sites in Bonavista Bay, it is regarded as Palaeo-Eskimo in origin.

Preform (Pl. 22m)

A single example, made from coarse-grained rhyolite and measuring 42 x 21 x 6 mm, was recovered at the site. It is characterized by the removal of at least two flute flakes from the ventral surface, the absence of retouch on the same surface, and partial but irregular retouch on the dorsal surface and along the lateral edges. Both proximal and distal ends are blunt. The former exhibits minimal thinning on the dorsal surface. It is more than likely a preform for an endblade.

Bloody Bay Cove Site

With respect to the Palaeo-Eskimo assemblage, many of the specimens had previously been misidentified and many could not be located. Of the twenty-three examples originally designated by Carignan (1975) as being Dorset in

origin, only eighteen are considered to be diagnostically Palaeo-Eskimo. A breakdown of the categories represented in this assemblage and the frequency of raw materials used can be found in Tables 6a and 6b.

Endblades (Pl. 23a-d, Table 12)

Four specimens, all exhibiting a certain amount of variation, are included in this category. Only one example is complete (Pl. 23d). In general, these endblades are characterized by slightly convex to straight lateral edges which are partially retouched along both surfaces. Bases vary from straight (Pl. 23b, c) to slightly concave (Pl. 23d).

Variation within this small sample occurs in the basal area of all the artifacts. The first example (Pl. 23d) possesses a poorly defined stem and it exhibits minimal grinding at the distal end of the dorsal surface. Two examples possess high, asymmetrically bilateral notches which give the proximal end a box-like appearance (Pl. 23b, c). Both have flat, biconvex cross sections. The final example (Pl. 23a) has no hafting modification and possesses irregular edge retough below the lowest extension of the fluting hinge scars.

Microblades (Pl. 23f-i, Table 14).

Five specimens, characterized by the absence of purposeful edge retouch, were found. Only one example is complete (Pl. 23f). The remaining examples include one medial and three distal segments. The complete specimen exhibits some battering on the dorsal edge of the striking platform.

Table 6a
Distribution of Artifact Categories
Bloody Bay Cove Site

CATEGORY	TOTAL	%
Endblades	4	22.2
Scrapers		
Microblades	5	27.7
Sideblades		
Burins		
Burin-like Tools		
Knives	1	5.5
Ground Stone		
Soapstone Vessels		
Tip-fluting Flakes	1	5.5
Preforms	7	38.8
Retouched Flakes		
Ridge Flakes		
Thinning Flakes		
Undetermined		
Miscellaneous a) Ground		
b) Flaked		
c) Cores		
d) Quartz Crystal Chunks		
TOTAL	18	99.7

Table 6b
Frequency of Raw Materials used for Artifacts
Bloody Bay Cove Site

RAW MATERIALS	TOTAL	%
Coarse-grained Cherts and Rhyolites	16	88.8
Patinated Chert	2	11.1
TOTAL	18	99.9

Two of the distal segments (Pl. 23h, i) exhibit "nicks" along the edges but these may be due to post-depositional damage or use wear. All examples are made from coarse-grained rhyolite and the average length of the segments is 45.7 mm.

Knife (Pl. 23e, Table 17)

A single example, exhibiting broad, asymmetrically bilateral notches, represents this category. The thickest portion of the specimen occurs just above the base, although flake scars indicate that an attempt had been made to thin the base on both surfaces. The median ridge, located just off-centre on the dorsal surface, produces an asymmetric plano-convex cross section.

Tip-fluting Flake (Pl. 23k)

A single patinated specimen is included in this category. Measuring 21 x 13 x 2 mm, it is triangular in outline and has been removed from the left side of an endblade. It is considered to be a primary flake.

Preforms (Pl. 24)

Seven specimens, representing two groups of endblade preforms made from coarse-grained cherts and rhyolites, were recovered. The first group consists of five examples that have undergone various degrees of the tip-fluting and retouching processes. They represent the preliminary stages in the manufacture of tip-fluted endblades (Pl. 24a-e). The second group comprises two examples which have not been

tip-fluted and probably were not intended to be. This group may represent stemmed or side-notched examples (Pl. 24f, g).

In the first group, examples are characterized by the removal of one fluting flake (Pl. 24a, c) or two or more flakes struck from the ventral surface (Pl. 24b, d). These fluting scars do not extend past half the length of the specimen. The remaining example (Pl. 24e) appears to have had at least one flute removed, but the resulting blow has fractured irregularly and has removed the distal end. The remaining four examples possess concave (1) or straight (3) distal ends. A single specimen (Pl. 24d) exhibits thinning or fluting scars on the dorsal surface of the distal end. Four of the preforms exhibit irregular surface and edge flaking. The remaining example (Pl. 24a) is characterized by much finer oblique flaking on both the dorsal and ventral surfaces (below the flute hinge scars). Two specimens exhibit minimal basal thinning on the ventral (Pl. 24d) or dorsal (Pl. 24b) surfaces. All these examples range in length from 48 to 61 mm, in width from 21 to 26 mm and in thickness from 9 to 14 mm.

Both examples in the second group are characterized by blunted proximal and distal ends and irregular surface and edge flaking. One example (Pl. 24g) does not exhibit any flaking on the ventral surface, thereby appearing plano-convex in cross section. The second example (Pl. 24f) is asymmetrically biconvex in cross section. These specimens range in length from 57 to 58 mm, in thickness from 7 to 8 mm and both are 8 mm wide.

Sandy Cove Site

In 1979 (Tuck 1980), the only artifact recovered at this site was a fragment of an asymmetric knife. The number of artifacts has been increased with the addition of fifty-three specimens collected by Mr. Peter Milord of St. John's, Newfoundland. These artifacts were recovered from the eroding bank and were loaned to the author for analysis.

The most common types of artifacts are preforms, endblades, scrapers and microblades (Table 7a). The majority of specimens are made from locally available coarse-grained cherts and rhyolites that vary in colour from light grey to black. Minor materials include fine-grained cherts, quartz crystal and patinated chert (Table 7b).

Endblades (Pl. 25a-n, Table 12)

This category comprises fourteen examples. Only three are complete (Pl. 25a, b, d). The remaining specimens include four basal fragments, two tip fragments, three fragments that are missing the very distal end and one example that is missing a portion of the base. Lengths of complete examples range from 23 to 33 mm; maximum widths from 9 to 15 mm; and maximum thicknesses from 3 to 4 mm. The majority of specimens exhibit basal thinning and the bases are straight (3) or vary from markedly to slightly concave (6). Blade egdes are straight or slightly convex.

In overall retouch characteristics, the majority of examples exhibit varying degrees of retouch on the dorsal surface. However, due most certainly to the presence of

Table 7a
Distribution of Artifact Categories
Sandy Cove Site

CATEGORY	TOTAL	%
Endblades	14	25.9
Scrapers	6	11.1
Microblades	6	11.1
Sideblades		
Burins		
Burin-like Tools		
Knives	4	7.4
Ground Stone		
Soapstone Vessels		
Tip-fluting Flakes	2	3.7
Preforms	15	27.7
Retouched Flakes	3	5.5
Ridge Flakes	1	1.8
Thinning Flakes		
Undetermined		
Miscellaneous a) Ground		
b) Flaked		
c) Cores	1	1.8
d) Quartz Crsytal Chunks	2	3.7
TOTAL	54	99.7

Table 7b
Frequency of Raw Materials used for Artifacts
Sandy Cove Site

RAW MATERIALS	TOTAL	%
Coarse-grained Cherts and Rhyolites	33	61.1
Fine-grained Cherts	9	16.6
Quartz Crystal	8	14.8
Patinated Chert	4	7.4
TOTAL	54	99.9

tip-fluting or thinning on many examples, the ventral surface is not retouched. On the two examples where ventral retouch is present, neither is tip-fluted and one is partially ground (Pl. 25a). The majority of examples possess retouch only along the lateral edges (dorsal) and this again is due to the presence of tip-fluting on the ventral surface.

Special surface treatment, such as surface or basal grinding, does not appear to be of major importance. Unfortunately, over half the specimens are fragmentary and it is difficult to determine the presence or absence of surface grinding. The majority of examples are made from coarse-grained raw materials.

Scrapers (Pl. 25o-t, Table 13)

Of the six specimens recovered, only three are complete. All, with the exception of one (25t), are end-scrapers. Complete examples range in length from 25 to 27 mm, in maximum width between 15 and 19 mm and in maximum thickness from 4 to 7 mm. The angle of the working edge ranges between 40° and 80° and the working edges are slightly convex (5) or straight (1). The working edges show slight crushing. On one specimen, the distal corners are slightly flared, forming sharp ears or spurs (Pl. 25r). Another example exhibits slight flaring and a possible spur at one distal corner (25q).

All examples, with the exception of one (25q), are

characterized by the absence of ventral retouch along the lateral edges and ventral surface retouch. Retouch on both the dorsal surface and lateral edges varies from partial to complete. The majority of specimens are made from fine-grained raw materials.

Microblades (Pl. 26a-f, Table 14)

Of a total of six specimens found, only one is complete (Pl. 26f). The remaining examples comprise three medial and two proximal segments. The complete example is wider than the others and it appears that previous blades had been struck from both ends. As a result, the striking platform is not visible and the angle cannot be measured. However, the bulb of percussion is intact. Complete and proximal segments range in width, below the bulb of percussion, from 4 to 7 mm and thickness from 2 to 4 mm. Segments range in length from 11 to 22 mm.

Only three examples exhibit purposeful edge retouch, although not necessarily bilateral. One example (Pl. 26a) is steeply retouched along a portion of the right lateral edge which may define it as a concave sidescraper. Two of the remaining examples (Pl. 26c, e) exhibit "nicks" along their lateral edges. This may have resulted from post-depositional damage or from use. The majority of specimens are made from fine-grained raw materials.

Knives (Pl. 26g-j, Table 17)

All four examples recovered are made from a coarse-

grained raw material. Only one specimen in this category is complete (Pl. 26h). Two examples which are smaller in overall size may have functioned as endblades (Pl. 26h, i). All appear to be slightly asymmetric in outline and at least three exhibit bilateral notches close to the base (Pl. 26g-i). The largest of these, a basal fragment, retains portions of both edges, with one edge (A) displaying a broad and shallow constriction rather than a notch (Pl. 26g). The other edge (B) exhibits a smaller but well-defined notch. A similar situation occurs in the complete specimen, although the notch is located along Edge B.

In cross section, two examples are characterized by flat, biconvex shapes (Pl. 26i, j). The third example, which is plano-convex in shape, is characterized by a pronounced median ridge and the absence of flaking on the dorsal surface (Pl. 26h).

Tip-fluting Flakes (Pl. 26k, l)

Two examples were recovered at the site. Both are made from coarse-grained rhyolite. The first (Pl. 26k) is a primary flake which has been removed from the right side of an endblade. It measures 24 x 11 3 mm. The second specimen (Pl. 26l) is a secondary flake which has been removed from the left side. It measures 20 x 10 x 2 mm.

Preforms (Pl. 27)

Fifteen examples were recovered at the site. These

include thirteen made from coarse-grained rhyolite, one green chert example (fine-grained), and a single patinated chert specimen. With the exception of two examples (Pl. 27a, o) which may be preforms for another functional category (e. g., knives), all are preforms for tip-fluted endblades. Dimensions range from 18 to 42 mm in length ($\bar{x}$ = 26.26 mm), 13 to 31 mm in width ($\bar{x}$ = 18.33 mm) and 4 to 13 mm in thickness ($\bar{x}$ = 6.2 mm).

The fragmentary nature of all examples is due possibly to post-depositional damage or more than likely, results from a number of techniques in the manufacturing process such as tip-fluting and/or basal thinning. These examples are represented by seven tip and five basal fragments, two mid-sections and one almost complete specimen (Pl. 27n). Although it is difficult to assess the form of these specimens, all, with the exception of the basal fragments, are considered to be roughly triangular in shape.

The important criterion for the identification of these examples as preforms for tip-fluted endblades is the presence of tip-fluting. Thirteen specimens exhibit this technique. Eight of these have at least two flutes removed and five have only one flute struck from the ventral surface. Tip shapes vary from concave (3) to rounded (3) or straight (1). The majority of basal fragments and the intact specimen possess roughly straight bases and exhibit minimal thinning on the dorsal (2) and ventral (2) surfaces.

Retouch characteristics, both surface and edge, are considered to be irregular and minimal. With this in mind, nine examples exhibit surface retouch on the dorsal side and five possess retouch on both surfaces. Ventral retouch on the latter examples is predominantly concentrated near the base. Ventral retouch along the edges is restricted to one example. Thirteen specimens are characterized by edge retouch on the dorsal surface.

Retouched Flakes (Pl. 26n, o, q)

Three specimens are included in this category. The first appears to be triangular in shape. Measuring 21 x 14 x 5 mm, it is made from a coarse-grained black chert (Pl. 26n). It is characterized by irregular unifacial retouch along the two longest edges; a pronounced median ridge on its dorsal surface; and it is broken at both ends. In addition, this example appears to be water-rolled. A roughly triangular flake (14 x 9 x 2 mm) exhibits irregular unifacial retouch along both lateral edges. The proximal end, where the bulb of percussion is still visible, is characterized by irregular bifacial retouch and thinning on the dorsal surface. This example (PL. 26o) is broken at the distal end and is made from patinated chert. The final example is irregular in shape and is characterized by unifacial retouch along two adjacent edges. It measures 19 x 15 x 6 mm and is made from quartz crystal (Pl. 26q).

Ridge Flake (Pl. 26m)

A single primary flake was recovered. It exhibits a pronounced ridge and minimal transverse flaking on the dorsal surface. Measuring 23 x 8 x 2 mm, this specimen is made from a fine-grained green chert.

Miscellaneous (Pl. 26p, r, s)

This category includes three examples. The first is a rectangular-shaped expended core (Pl. 26p). The thickest portion of this specimen appears to be the platform but it has been badly battered. Only one blade scar is visible and it measures 6 mm wide and 16 mm long. The specimen itself measures 21 x 12 x 7 mm and is made from quartz crystal.

The two remaining examples are quartz crystal chunks (Pl. 26r, s). Neither exhibits blade or flake scars nor retouching of any kind. These examples vary in length from 18 to 42 mm, in width from 15 to 16 mm and in thickness from 2 to 7 mm.

Bank Site

Two artifacts and 98 flakes were recovered from the eroding bank during the 1979 survey (Pl. 21). Test pits dug on the top of the bank, about two metres above sea level, showed that the site was almost completely eroded. During the 1980 field season, the site was re-visited in order to determine whether further erosion had occurred. Six artifacts and 43 unmodified flakes were recovered,

suggesting that erosion was on-going.

In total then, eight artifacts (Table 8a), made predominantly from coarse-grained raw materials (Table 8b), was collected at the site. Except for single examples of white quartz and red felsite and a small number of colourful cherts, the majority of flakes consisted of various low-quality grey and patinated cherts and rhyolites.

Endblades (Pl. 22a-c, Table 12)

Endblades and fragments of endblades comprise three examples. The almsot intact specimen (Pl. 22b), calculated to measure approximately 31 mm in length, is missing the very tip. This may have been a result of the tip-fluting process. The two remaining specimens are represented by a basal fragment (Pl. 22a) and a medial fragment (Pl. 22c).

On two examples, edge retouch on the ventral surface is restricted to the extreme base. The remaining example (Pl. 22c) exhibits retouch along the lateral edges of the dorsal surface. Transverse cross sections, which are triangular in shape, are asymmetric.

Scraper (Pl. 22d, Table 13)

A single distal fragment of an endscraper was recovered at the site. It is made from a fine-grained banded chert.

Microblade (Pl. 22e, Table 14)

This category is represented by a large example which is missing its very distal end. The striking platform

Table 8a
Distribution of Artifact Categories
Bank Site

CATEGORY	TOTAL	%
Endblades	3	37.5
Scrapers	1	12.5
Microblades	1	12.5
Sideblades		
Burins		
Burin-like Tools		
Knives	2	25.0
Ground Stone		
Soapstone Vessels		
Tip-fluting Flakes		
Preforms		
Retouched Flakes	1	12.5
Ridge Flakes		
Thinning Flakes		
Undetermined		
Miscellaneous a) Ground		
b) Flaked		
c) Cores		
d) Quartz Crystal Chunks		
TOTAL	8	100.0

Table 8b
Frequency of Raw Materials used for Artifacts
Bank Site

RAW MATERIALS	TOTAL	%
Coarse-grained Cherts and Rhyolites	4	50.0
Fine-grained Cherts	3	37.5
Patinated Chert	1	12.5
TOTAL	8	100.0

shows battering on the dorsal edge and there are some "nicks" along the lateral edges. These "nicks" are as likely due to post-depositional damage as from use.

Knives (Pl. 22f, g, Table 17)

Two specimens were recovered at the site. The complete example (Pl. 22f) is characterized by small and shallow notches and irregular surface and edge retouch. The second example (Pl. 22g) is represented by a distal fragment. It is water-rolled and it is difficult to assess the degree of purposeful retouch. Both examples possess a flat, biconvex cross section.

Retouched Flake

A single fragment, made from a fine-grained grey chert, was found. It is characterized by an irregular shape and it exhibits partially bifacial edge retouch along two of the longest edges. Surface retouch is irregular and minimal. This example measures 34 x 15 x 4 mm.

The artifact analysis presented in this chapter not only reflects the differences in the size of assemblages but also, that particular cultural patterns do emerge in the form of technological distinctions. The following chapter attempts to interpret these differences at a local level and, on a broader front, the assemblages are compared to other Palaeo-Eskimo manifestations from Newfoundland and Labrador.

CHAPTER 5 - OCCUPATION SUMMARIES AND COMPARISONS

Introduction

This chapter is divided into three sections. First, summaries of Palaeo-Eskimo occupation(s) will be presented for each of the eight sites described in Chapter 4. If more than one occupation is indicated, each is identified according to differences manifested in artifact categories and manufacturing techniques; the presence or absence of certain artifact categories; and differences in the use of raw materials. Interpretations are supplemented by radiocarbon determinations. Only limited remarks are made concerning the nature of occupations because the poor preservation of faunal refuse and the lack of evidence for structures preclude interpretation of subsistence activities and settlement patterns.

Second, in order to achieve a perspective on the differences between Palaeo-Eskimo occupations in Bonavista Bay, relavent comparisons between gross artifact categories and styles will be discussed. In other words, does archaeological and/or typological variation suggest distinct occupations or does the evidence suggest that later Palaeo-Eskimo occupations developed from earlier Palaeo-Eskimo occupations?

Finally, the Palaeo-Eskimo assemblages represented in Bonavista Bay will be compared to similar material from known

Palaeo-Eskimo sites in Newfoundland. Additional external comparisons with a selection of complexes in Labrador will conclude this chapter.

Ashley Baker Island Site

Because of the limited excavations, the small artifact assemblage, and the lack of features and associated radiocarbon dates at this site, only limited interpretations are permitted. Also, we are dealing with a mixed site which further frustrates efforts in determining the temporal position(s) of the assemblage(s). However, certain suggestions are made.

The presence of a broadly side-notched endblade (Pl. 2d) and a small, thin endblade characterized by a contracting stem (Pl. 2a) may indicate an early Palaeo-Eskimo component at the site. Both specimens are made from fine-grained chert and could in fact be associated with the assemblage from Moose Pasture. They have been provisionally labelled as Early Palaeo-Eskimo in origin.

A somewhat more recent Middle Dorset component is suggested by the presence of a fragmentary tip-fluted endblade (Pl. 2c), a concave-based endblade fragment (Pl. 2b) and three tip-fluting flakes (Pl. 2k-m). These examples are made from coarse-grained chert (4) and rhyolite (1).

Unfortunately, it is difficult to make a positive statement about the chronological position(s) of the assemblage. If the components represent separate occupations,

then the Early Palaeo-Eskimo specimens could be dated ca. 2700-2200 B.P. and the Middle Dorset material would pertain to a period within the first centuries of the Christian Era.

Moose Pasture Site

The Palaeo-Eskimo occupation at Moose Pasture appears to represent a potentially large and productive single component. Although limited excavations revealed little information on subsistence and settlement patterns, the artifact assemblage, which consists entirely of stone, is characterized by hunting gear, butchering, scraping and cutting implements and specialized tools for carving and engraving.

Endblades include side-notched and triangular examples characterized by extremely fine bifacial flaking; straight bases; and plano-convex transverse cross sections. The majority of these are made from fine-grained cherts. All are small in overall size and the side-notched examples possess fairly shallow and narrow notches close to the base. Notably absent are such attributes as surface grinding, tip-fluting, edge serration or basal thinning.

Triangular endscrapers are the most common and possess no observable hafting modification. They are characterized by fine surface and edge retouch; sharp working edge corners without distinctive spurs or flaring; slight crushing along the convex working edges; and chord angles which correspond to the maximum width. All examples are made from fine-grained, colourful cherts and most are small in size.

Microblades are so fragmentary that general trends are difficult to assess. Segments do not indicate any breakage pattern, but they are all relatively small in overall size. Regardless of the segment represented, the majority of specimens do not possess lateral edge retouch. Most examples are made from high quality raw materials.

The knives are larger than the endblades, slightly asymmetric in outline and made predominantly from coarse-grained raw materials. In general, they are side-notched; have rounded tips; possess irregular surface and edge retouch; and have a flat biconvex or biplano transverse cross section.

Sideblades exhibit extremely fine surface and edge retouch. They are small in size and predominantly semi-lunate in form. All are made from fine-grained cherts.

All the burin-like tools are chipped and ground and made from fine-grained cherts. They are predominantly right-handed and possess asymmetrically bevelled distal ends. The two side-notched examples are characterized by broad bilateral notches. What is interesting to note is that the total number of burin-like tools found is relatively large, given the small area excavated.

Perhaps the most interesting artifacts at Moose Pasture are those listed in the undetermined and miscellaneous categories. The presence of a fragmentary, straight stemmed point (Pl. 10b), stemmed flake points (Pl. 10e,f) and the fragment of a contracting stem for a knife or biface (Pl. 10d)

suggest the presence of an earlier component but this is uncertain. Although all four are unique specimens, no other indications within the assemblage suggest the presence of more than a single Palaeo-Eskimo component.

In conclusion, a number of factors indicate that the assemblage recovered at Moose Pasture represents an Early Palaeo-Eskimo occupation. These include the relative homogeneity of the collection; the preference for fine-grained raw materials, especially chert; the minute size of the majority of artifacts; and three radiocarbon dates ranging between 2480±80 and 2140±90 B.P. Unfortunately, the lack of faunal remains or bone, ivory or antler implements such as harpoon heads or foreshafts, does not allow us to interpret subsistence activities.

Zodiac Site

The Zodiac site is another mixed multi-component site. In analyzing the artifact assemblage, two Palaeo-Eskimo occupations are present. Unfortunately, only a small percentage of the site remains, thereby making it difficult to determine the size, duration or nature of the occupations.

An Early Palaeo-Eskimo component is represented by two side-notched endblades (Pl. 12a, f) and a small side-notched burin-like tool (Pl. 13o). All are small in size and made from fine-grained cherts. The endblades are characterized by extremely fine bifacial flaking and small notches close to the straight base. There is a notable absence of

tip-fluting, basal thinning and surface grinding. The burin-like tool is chipped and ground and the distal end is asymmetrically bevelled. A radiocarbon date of 2490±80 B.P., on scattered charcoal, is ascribed to this Early Palaeo-Eskimo occupation.

The artifact assemblage from a later Palaeo-Eskimo occupation is comprised of three tip-fluted endblades (Pl. 12b, d, i) and at least three other endblades (Pl. 12c, e, g) characterized by concave and bifacially thinned bases; a fragmentary preform for a tip-fluted endblade; and a tip-fluting flake. Three of the endblades (Pl. 12b, c, g) exhibit partial grinding on the ventral surface and one example (Pl. 12d) possesses partial bifacial grinding. All of these specimens, with the exception of the Ramah chert tip-fluting flake, are made from coarse-grained raw materials. The presence of these particular artifacts strongly suggests a Middle Dorset affiliation, probably dating some time in the early centuries A.D.

Analysis of the remaining specimens is not particularly instructive in determining affiliation, especially since the majority are represented by fragments of artifacts. Because of the mixing of cultural material, the absence of definite structures or features and faunal remains and the obvious on-going destruction occurring at the site, little more can be said about the Palaeo-Eskimo occupations at the Zodiac site.

The Beaches Site

To date, the Palaeo-Eskimo assemblage at The Beaches site represents the largest, albeit mixed, assemblage within Bonavista Bay. It appears that two occupations are represented at the site. The problems in interpreting Palaeo-Eskimo occupations at this multi-component site are twofold. First, stratigraphic control is difficult to achieve. Second, it is often difficult to assign particular specimens to any one occupation, particularly in cases where morphological traits or attributes are impossible to discern.

An Early Palaeo-Eskimo occupation is indicated by at least eight artifacts. All are clearly distinguishable from a later Palaeo-Eskimo occupation by virtue of morphological characteristics; fine bifacial flaking; and the use of particular raw materials. These include: a ground and chipped spalled burin (Pl. 16l); the base of a side-notched endblade (Pl. 14g); the midsection of a plano-convex end-blade (Pl. 14m); and five side-notched knives (Pl. 17d-h). All of these examples are made from fine-grained, colourful cherts.

The presence of the spalled and side-notched burin may suggest an even earlier Palaeo-Eskimo occupation at the site. However, it is a single example and no other associated artifacts such as burin spalls were found. Although the duration or extent of an Early Palaeo-Eskimo occupation(s) is uncertain, it does represent an initial Palaeo-Eskimo population movement into Bonavista Bay, probably consisting

of small groups of people.

By virtue of typological differences in artifact styles, techniques of manufacture and the predominant use of coarse-grained raw materials, the major portion of the lithic assemblage at The Beaches is attributed to a later Palaeo-Eskimo occupation, identified as Middle Dorset. Despite a firm association with the Middle Dorset material, a date of 1650±95 B.P. suggests that this occupation was well within the known range of the Middle Dorset period for Newfoundland.

Endblades, and fragments thereof, constitute 16.4% of the total lithic assemblage. The most common form is the tip-fluted variety, characterized by unifacial surface and edge retouch (dorsal) and a slightly to markedly concave base, which is bifacially thinned. Only a few examples (11) possess straight bases. There is a notable scarcity of examples that exhibit notching or surface grinding. Of the former, one specimen is characterized by multiple notches (3) along both lateral edges (Pl. 14i) and the second example possesses single bilateral notches (Pl. 14f). Although side-notching appears to be distinctive of an Early Palaeo-Eskimo tradition, these two examples are probably of Middle Dorset affiliation, primarily because of differences in flaking, the shape of the notches, and the coarser grained nature of the raw materials used in their manufacture. Surface grinding does not appear to be an important technique utilized, since only one example is completely ground and the second specimen exhibits only partial grinding on both surfaces.

Knives exhibit bifacial edge retouch, shallow bilateral

notches varying in shape from rounded to nearly square, rounded tips, and have predominantly concave bases. All are made from coarse-grained raw materials. They vary in outline from slightly to markedly asymmetric and, in general, are larger than their fine-grained counterparts. In addition, surface retouch is less regular than the fine-grained examples.

Other categories which are represented by a few examples, but are attributable to the Middle Dorset occupation, include: rounded (?) and rectangular soapstone vessels; ridge-flakes; and ground stone implements. This latter group includes a partially ground rectangular vessel made from a green schist material; a slate adze; flat-bladed chisels (?); a large, thin rectangular knife; and a partially ground specimen which may have functioned as a knife or endblade (Pl. 20a).

With the exception of four end-of-blade scrapers and a single concave sidescraper made on a coarse-grained rhyolite blade, the predominant scraper recovered at the site is the triangular type. The majority of these tools possess no observable hafting modification, but there are examples which exhibit either flaring at the working edge (5), a stem (7), or notches (1). Most of the flared examples are made from fine-grained cherts, whereas the majority of the latter specimens are made from coarse-grained raw materials. In general, approximately equal numbers of examples are

characterized by either partial dorsal retouch or the absence of dorsal retouch. Many of the specimens exhibit dorsal lateral retouch in conjunction with slight crushing. Only twelve examples exhibit ventral lateral retouch. Most of these are made from fine-grained raw materials. More than half of the scrapers are made from fine-grained raw materials: colourful cherts, quartz crystal and Ramah chert. Although these examples tend to be smaller in overall size than their coarse-grained counterparts, this may be due to the nature of the raw material. It is possible that the fine-grained examples could correspond to an earlier Palaeo-Eskimo occupation, given their overall size, but at this time it is difficult to be certain whether they are clearly attributable to the Early Palaeo-Eskimo or Middle Dorset occupation.

Microblades comprise the second largest category of tools in The Beaches assemblage. Most are represented by segments (82.2%). The predominant raw materials are coarse-grained cherts or rhyolites (28) and fine-grained, colourful cherts (26). Minor raw materials include quartz crystal (5) and Ramah chert (3). The finer grained examples are slightly smaller indicating perhaps, greater technological control in manufacture. With exception of two stemmed (?) specimens made from quartz crystal, only five examples exhibit purposeful retouch. All but one of these are made from fine-grained raw materials. Because of cultural mixture

at the site, it is difficult to assign microblades to a particular occupation.

The category of burin-like tools is represented by a single fragmentary example. It is characterized by bilateral notches and it is made from fine-grained chert. Although it is chipped and ground, it is not possible to determine to what degree.

The largest tool category represented is that of preforms (27.9%). All appear to be preforms for tip-fluted endblades and are made from coarse-grained raw materials. Associated with these specimens are tip-fluting flakes, indicating the importance of manufacturing activities at the site. Both these categories are associated with the Middle Dorset occupation.

Finally, the large number of quartz crystal chunks (24) is surprising since only eleven artifacts (scrapers and microblades) are made from this raw material. As with many examples from other categories, it is not possible to assign these specimens to either one of the occupations present at the site.

Judging by the amount recovered, the Middle Dorset occupation at The Beaches reflects a wide range of hunting, domestic and manufacturing activities related to a major work-shop/habitation site and not merely a brief encampment. Because all the seal bone fragments were recovered from a culturally mixed layer, it is difficult to determine the cultural affinity of these specimens.

Although Carignan was unable to delimit the extent of the Palaeo-Eskimo occupation, The Beaches collection provided, and continues to provide, the largest sample of Middle Dorset material from Bonavista Bay, albeit in a mixed context. It is conceivable that further excavations could yield additional or new information on subsistence and settlement patterns. Additional excavations may increase the numbers of artifacts within any given category, but it is likely that the frequency distribution of artifact categories would remain relatively unchanged, with preforms, endblades and scrapers dominating the assemblage.

Fox Bar Site

The assemblage from this site is comprised of six artifacts which represent four artifact categories. The two burin-like tools rae characterized by symmetrically bilateral notches and chipped and ground surfaces and edges. Both are left-handed implements made from fine-grained cherts. The side-notched knife is characterized by a blunted tip, irregular surface and edge retouch, and a bi-convex (flat) cross section. It is made from coarse-grained rhyolite. Blades are represented by two examples made from fine-grained chert. Neither specimen exhibits lateral retouch. The final category consists of a preform for a tip-fluted endblade. It is made from coarse-grained rhyolite.

Given the small sample size, it is suggested, with

caution, that the large blades, the asymmetric knife and the preform are affiliated with a Middle Dorset occupation, dated to within the first centuries of the Christian Era. The burin-like tools are a little more difficult to interpret with regard to chronological placement. Unlike the tabular forms associated with Middle Dorset in Newfoundland (Fitzhugh 1980a:26), these examples may be attributed to an Early Palaeo-Eskimo occupation.

Bloody Bay Cove Site

Although little can be said about the nature or duration of occupation at this site, the lithic assemblage is Palaeo-Eskimo in origin and represents a single component. The collection includes triangular endblades of considerable variety, including side-notched, tip-fluted and stemmed examples; microblades; preforms for tip-fluted, stemmed or side-notched endblades; an asymmetric knife; and a tip-fluting flake. All of these specimens are made from coarse-grained raw materials. The metric and morphological characteristics of these artifacts suggest that a Middle Dorset population occupied the site during the first centuries of the Christian Era.

Sandy Cove Site

Due to the considerable amount of destruction at Sandy Cove, there is little or no way of telling the size, duration or nature of occupation at the site. However, surface collecting yielded a total of fifty-four artifacts

of Palaeo-Eskimo affiliation. The collection includes endblades and endblade fragments, most of which are tip-fluted and are characterized by concave bases; scrapers which are predominantly triangular endscrapers; knives; tip-fluting flakes; preforms, the majority of which exhibit tip-fluting scars on the ventral surface; retouched flakes; a ridge flake; and two quartz crystal chunks. Most of these artifacts are made from coarse-grained cherts and rhyolites.

Analysis of the majority of categories is not particularly instructive. However, the presence of tip-fluted andblades, preforms and tip-fluting flakes, which account for 55% of the entire collection, suggest a Middle Dorset occupation dated to the first centuries A.D.

Bank Site

Because of continual erosion destroying the site, very little can be said about the nature of occupation. Only limited remarks can be made concerning the small number of artifacts recovered. They include tip-fluted and basally thinned endblades; an incomplete endscraper; a large blade; a large side-notched knife and a tip fragment of the same; and a retouched flake. Many of these specimens are made from coarse-grained raw materials and represent tools of a Middle Dorset occupation.

Internal Comparisons

The analysis of the Palaeo-Eskimo assemblages described above suggests that Bonavista Bay supported occupations by two culturally distinct groups. The first dates between 2500 and 2100 B.P. and is typified by the single component assemblages from Moose Pasture. Lesser representations occur at The Beaches, Ashley Baker Island, Zodiac and perhaps Fox Bar. A later occupation, which is strongly represented by The Beaches assemblage and chronometrically dated to the third century A.D., corresponds to the Middle Dorset period. With the exception of Moose Pasture, the remaining assemblages yielded variable numbers and styles of artifacts pertaining to this occupation.

A comparison of the assemblages from these two occupations indicates differences in artifact styles and attributes, techniques of manufacture and preference of raw materials. Because the number of artifacts and categories within each of the eight assemblages are extremely diverse (Table 9), the following comparisons of the two occupations is based upon the material from Moose Pasture and The Beaches. A more detailed comparison of artifact categories and attributes is shown in Appendix B, Table 1.

In general, differences are manifested in certain artifact categories. For example, sideblades and ground and chipped burin-like tools represent a relatively substantial portion of the earlier Palaeo-Eskimo artifact complex. Preforms, specifically for tip-fluted endblades, and tip-fluting flakes, soapstone vessels and ground stone implements

Table 9. Distribution of Artifact Categories

CATEGORY	ASHLEY BAKER ISLAND	MOOSE PASTURE	ZODIAC	THE BEACHES	FOX BAR	BLOODY BAY COVE	SANDY COVE	BANK
Endblades	4	16	10	50		4	14	3
Scrapers	3	18	6	42			6	1
Microblades	3	23	14	62	2	5	6	1
Sideblades		7						
Burins				1				
Burin-like Tools		8	1	1	2			
Knives		12		13	1	1	4	2
Ground Stone				2				
Soapstone Vessels				3				
Tip-fluting Flakes	3		1	15		1	2	
Preforms			1	85	1	7	15	1
Retouched Flakes	4	19	5				3	
Ridge Flakes				2			1	
Thinning Flakes	1	3						
Undetermined		3	5					
Miscellaneous a) Ground		1		4				
b) Flaked	1	2						
c) Cores		1	2				1	
d) Quartz Crystal Chunks			1	24			2	
TOTAL	19	113	46	304	6	18	54	8

are elements of the Middle Dorset artifact complex.

Differences in artifact morphology and raw material preference are also evident. As a general rule, earlier tools are smaller than comparable Middle Dorset examples. This may be due to differences in the function of tools, the function of the properties of the raw materials and/or the result of re-sharpening and re-use. Coarse-grained cherts and rhyolites appear to be the preferred raw materials for Middle Dorset tools (Table 10). Although these materials are found locally, they do not possess the physical properties which enable them to be worked with the same facility as fine-grained cherts. This factor may not necessarily account for the larger size of artifacts, but a comparison of manufacturing techniques indicates substantial differences.

From the preceding discussion, it is evident that fine-grained cherts were utilized during the earlier Palaeo-Eskimo occupation of Bonavista Bay (Table 10). These cherts bear a close resemblance to those found in deposits at Cow Head on the west coast of the Island. Perhaps the earlier Palaeo-Eskimo peoples of Bonavista Bay obtained these cherts through trade. The Middle Dorset people may not have known about the Cow Head quarry and therefore, utilized the coarse-grained raw materials.

A number of differences also appear in attributes of artifacts. Early Palaeo-Eskimo endblades are characterized by notches, plano-convex cross sections (transverse), straight bases and predominantly complete

Table 10. Distribution of Raw Material Frequencies

RAW MATERIALS	ASHLEY BAKER ISLAND	MOOSE PASTURE	ZODIAC	THE BEACHES	FOX BAR	BLOODY BAY COVE	SANDY COVE	BANK
Coarse-grained Cherts and Rhyolites	10 (52.6%)	25 (22.1%)	15 (32.6%)	182 (55.3%)	2 (33.3%)	16 (88.8%)	33 (61.1%)	4 (50.0%)
Fine-grained Cherts	6 (31.5%)	76 (67.2%)	10 (21.7%)	60 (18.2%)	4 (66.6%)		9 (16.6%)	3 (37.5%)
Quartz Crystal	2 (10.5%)	9 (7.9%)	13 (28.2%)	35 (10.6%)			8 (14.8%)	
Patinated Cherts	1 (5.2%)	3 (2.6%)	3 (6.5%)	8 (2.4%)		2 (11.1%)	4 (7.4%)	1 (12.5%)
Ramah Chert			2 (4.3%)	6 (1.8%)				
Quartzite				4 (1.2%)				
White Quartz			2 (4.3%)					
Slate				5 (1.5%)				
Felsite			1 (2.1%)					
Schist				1 (.3%)				
Soapstone Fragments				28 (8.5%)				
TOTAL	19	113	46	329	6	18	54	8

and fine bifacial flaking. The most common Middle Dorset endblade is the tip-fluted variety. Specimens are larger than earlier examples and are characterized by concave, bifacially thinned bases. The majority show retouch restricted to the dorsal surface. Side-notched endblades are made from coarse-grained raw materials and tend to be larger than earlier examples. Differences are also manifested in flaking techniques, notch size and outline.

The variety and size of scrapers appear to increase over time. Triangular endscrapers are the most common type in both artifact complexes but flared, stemmed and rectangular forms are also found in the Middle Dorset assemblage. End-of-blade scrapers, although relatively rare, are utilized during both occupations.

Although microblades do not show significant changes over time, earlier examples tend to be slightly smaller. This factor appears to be a function of the raw material used, with fine-grained examples tending to be smaller. In addition, retouching does not appear to be an important characteristic of microblades.

Knives are characterized by single notches close to the base and in general, are symmetric in outline. Those specimens attributed to the earlier occupation are smaller in size regardless of the raw materials used.

Most of the remaining categories do not lend themselves to comparisons because of low frequency, apparent lack of change over time, sampling error and/or difficulty

in determining temporal affiliation. It is interesting to note that during the Middle Dorset period we can see the introduction of new artifact styles and raw materials. Although the specific significance of these factors cannot be substantiated, they may be an indication of new hunting conditions and/or new resources in Bonavista Bay.

External Comparisons

As discussed in Chapter 1, Palaeo-Eskimo prehistory on the Island and in Labrador can be separated into two distinct traditions: Early and Late Palaeo-Eskimo. Each tradition can be divided into a number of sequential phases or periods with well-defined spatial and temporal limits. Furthermore, comparisons within each tradition suggest continuity, whereas sufficient differences exist between traditions to indicate lack of continuity.

On the Island, although there appears to be an early manifestation of the Early Palaeo-Eskimo tradition, referred to as Pre-Dorset/Groswater (previously known as Transitional Pre-Dorset), the major phase represented is the Groswater phase. In order to avoid confusion and at the same time indicate a close relationship between Palaeo-Eskimo cultures in Newfoundland and Labrador, "Groswater" replaces "Early Dorset" in Newfoundland terminology and "Groswater Dorset" (Fitzhugh 1972) in Labrador. In Labrador, the Late Palaeo-Eskimo tradition is divided into three phases: Early, Middle and Late Dorset. The only phase of the Late Palaeo-

Eskimo tradition represented on the Island is Middle Dorset.

The following discussion presents a comparison of Early and Late Palaeo-Eskimo phases on the Island. A summary comparison of Newfoundland Early and Late Palaeo-Eskimo artifact categories and attributes can be found in Appendix B, Table 2.

Although no Pre-Dorset/Groswater sites have been located on the Island, there is some artifactual evidence from Bonavista Bay and other regions to suggest a movement of Early Palaeo-Eskimo peoples to Newfoundland around 3000 years ago. In Bonavista Bay, this evidence includes a ground and spalled burin (Pl. 16l), a contracting stemmed endblade (Pl. 2a), stemmed (?) flake points (Pl. 10e, f) and transversally flaked knives (Pl. 17d-f). These examples are comparable to similar specimens found elsewhere on the Island. They include unground burins (found in association with unground burin spalls) from Cow Head, which Tuck tentatively dates at ca. 3200-3000 B.P. (pers. comm. 1982); bipointed and transversally flaked bifaces from Factory Cove (Auger 1982); a ground and spalled burin from the Pittman site (Linnamae 1975); a spalled, side-notched burin from Natcher Island on the south coast (Penney 1982). These examples provide meagre evidence for a Pre-Dorset/Groswater phase and at present, more questions exist than answers regarding the initial movement of Palaeo-Eskimos to the Island. It may be that the presence of Maritime Archaic Indians in Newfoundland discouraged Palaeo-Eskimos from establishing

substantial settlements. Whatever the reason (s), the exact relationship between Pre-Dorset and Groswater continues to elude researchers, although it is believed that Pre-Dorset evolved into the Groswater phase (Cox 1978; Auger 1983). Only further surveys and excavations will resolve this question.

In terms of number of sites, the most significant Palaeo-Eskimo occupations in Newfoundland are those related to the Groswater and the Middle Dorset phases. Although the latter was previously labelled as "Newfoundland Dorset" (Harp 1964; Linnamae 1975) and has long been recognized as an established occupation, evidence now indicates that the Groswater phase was much more widespread than previously believed (cf. Carignan 1975; Linnamae 1975). Taking into consideration that many Groswater assemblages may represent regional variants, the Island appears to have supported a relatively homogeneous population between ca. 2700 and 2100 B.P. (Table 11).

The Groswater phase in Bonavista Bay, which is dated by four radiocarbon results between 2490±80 and 2140± B.P., is characterized by the following lithic assemblage: side-notched, plano-convex endblades, semi-lunate sideblades, ground and chipped burin-like tools, side-notched knives and the predominance of triangular endscrapers and non-retouched microblades. Notably absent are the tip-fluted

Table 11

Radiocarbon dates for Palaeo-Eskimo sites in Newfoundland

CARBON-14 DATE	LAB NUMBER	SITE
1280±60	BETA-4062, 4065	STOCK COVE
1321±49	P-737	PORT AU CHOIX-2
1335±115	S-1977	L'ANSE A FLAMME
1349±100	GAK-1904	PITTMAN
1345±115	I-11076	ISLE GALET
1360±90	GAK-1907	CAPE RAY
1465±51	P-734	PORT AU CHOIX-2
1502±49	P-676	PORT AU CHOIX-2
1509±47	P-696	PORT AU CHOIX-2
1560±60	BETA-4064	STOCK COVE
1565±95	GX-1198	CAPE RAY
1585±95	I-4379	ENGLEE
1600±85	I-11075	EAGLE HEAD
1650±95	SI-1383	THE BEACHES
1730±80	GAK-3726	NEW GROVE
1736±48	P-692	PORT AU CHOIX-2
1780±90	GAK-1482	PITTMAN
1810±100	GAK-1906	CAPE RAY
1870±180	BETA-2142	FRENCHMAN'S ISLAND
2140±90	BETA-2405	MOOSE PASTURE (S 2)
2160±90	BETA-2263	MOOSE PASTURE (S 1)
2100±60	BETA-4046	FACTORY COVE
2240±210	GAK-3274	LONG ISLAND NECK
2270±100*	UQ-409	FACTORY COVE (AREA III)
2370±85	GX-1199	CAPE RAY
2480±80	BETA-2265	MOOSE PASTURE (S 1)
2480±110	DAL-276	COW HEAD (BAND 5)
2490±80	BETA-2262	ZODIAC (S 1)
2530±280*	UQ-413	FACTORY COVE (AREA II)
2700±115	DAL-341	COW HEAD (BAND 7)
2700±140	BETA-4707	FACTORY COVE (AREA I)
2780±100	GAK-1903	PITTMAN
2805±130	DAL-277	COW HEAD (BAND 6)
2845±120	DAL-274	COW HEAD (BAND 5)

* NOTE: Based on Libby half-life of 5570 years

endblades, tip-fluting flakes, tabular burin-like tools, soapstone vessels and ground stone implements which characterize later Palaeo-Eskimo assemblages.

An examination of a number of collections from the Island indicates that the Groswater component in Bonavista Bay compares favourably with other Groswater sites in terms of artifact types, specific attributes, radiocarbon dates and raw materials utilized. These sites include Factory Cove, dated between 2700±140 and 2160±60 B.P., Norris Point-1, which is dated between ca. 2650 and 2450 B.P. (Bishop 1973), and Cow Head, dated between 2845±120 and 2480±110 B.P. All of these sites are located on the west coast of Newfoundland.

A comparison of the endblades and the burin-like tools from Bonavista Bay and elsewhere on the Island confirms the chronological placement of the Bonavista Bay Groswater occupation. Differences may be due to regional variation, the function of the sites, small sample size and/or the lack of locally available fine-grained cherts in Bonavista Bay. In addition, the examples from the west coast are larger and they differ in certain attributes such as placement, shape and size of notches on endblades.

Burin-like tools from Bonavista Bay are smaller in size and tend to be triangular or roughly rectangular in form. Some examples from Factory Cove and Norris Point-1 are characterized by a chipped, concave edge, perhaps indicating a double function - that of a combination scraping

and engraving tool (cf. Auger 1982: Pl. 4, No. 6).

Some of the triangular endscrapers and semi-lunate sideblades from Band 5 at Cow Head and a semi-lunate sideblade from Band 4 at the same site are metrically and morphologically comparable to the examples from Bonavista Bay. Band 5 is dated between 2845±120 and 2480±110 B.P. and Tuck suggests that Band 4 dates somewhere in the third millennium B.P. (pers. comm. 1981). What is strikingly consistent about these examples and other tools from both regions is the predominant use of fine-grained cherts found in the Cow Head region.

There are also a number of other sites on the Island which have yielded artifacts comparable to the Bonavista Bay material. These include examples from Port au Choix-2 (Harp 1964), notably the sideblades which Harp refers to as "Inset Side Knives, Plano Convex" (ibid.: Pl. VII, 4 and 6) and the burin-like tools or "Bevelled Knives, Type 1" (ibid.: Pl. XVI, 1-5); the side-notched endblades and the side-notched burin-like tool from L'Anse a Flamme (Penney 1981: Pl. II, d, l, p); the side-notched endblades from the Pittman site (Linnamae 1975: Fig. 28k-n); the chipped and ground burin-like tools from Vatcher Island (Penney 1982); and the sideblade and triangular endscraper from Frenchman's Island, Trinity Bay (Evans 1982: Pl. 3a-c).

At the present time, Middle Dorset appears to be the most prolific Palaeo-Eskimo phase in Bonavista Bay. The assemblage is characterized by tip-fluted endblades, soap-

stone vessels, various forms of endscrapers including flared and stemmed examples, ground stone implements and the predominance of coarse-grained cherts and rhyolites. Although the majority of these elements are found at a number of sites throughout the Island, they all share a commonality in the form of the tip-fluted endblade. There are regional and temporal differences (cf. Robbins 1982, 1983), however, the Middle Dorset phase reflects a technologically and chronologically different phase from those phases of the Early Palaeo-Eskimo tradition. Chronologically, the Middle Dorset phase dates between 2000 and 1200 B.P. with the majority of dates falling into the centuries between ca. 1700 and 1500 B.P. (Table 11). The single date available for Bonavista Bay (1650±95 B.P.) is consistent with the Middle Dorset phase elsewhere on the Island.

Given the regional and temporal variations of assemblages throughout Newfoundland, the Bonavista Bay collection is similar, in most artifact forms, to those at several sites. These include Port au Choix-2 which, ignoring the fat dates, is dated by fifteen radiocarbon results between 1763±48 and 1321±49 B.P. (McGhee and Tuck 1976); Englee on the east coast of the Great Northern Peninsula (1585±95 B.P.); the Cape Ray Light and Pittman sites, which Linnamae (1975) places within the first half of the first millennium A.D.; a number of sites along the south coast dated between 1600±85 and 1335±115 B.P. (Penney 1981, 1982); and sites in Notre Dame Bay (Pastore 1982). Some of the tip-fluted

endblades recovered at Stock Cove, Trinity Bay (Robbins 1982) are also comparable to the Bonavista Bay examples but there is also a high frequency of ground and bifacially flaked specimens at the site. These examples probably represent a late technological variation. A radiocarbon determination of 1280±60 B.P. appears to reflect this situation.

Throughout Newfoundland, comparisons between the Groswater and Middle Dorset phases point out differences in technology, use of raw materials and time. Radiocarbon dates available for the Island (Table 11) indicate a clustering between 2700 and 2100 B.P. (Groswater) and 2000 and 1200 B.P. (Middle Dorset). All these factors suggest two distinct phases related to separate Palaeo-Eskimo traditions. How then, do these developments compare with those in Labrador?

With the recent discoveries, the relationship between Palaeo-Eskimo phases in Labrador and those from the Island is becoming increasingly clear. Unfortunately, many of the collections are unavailable for visual inspection. In addition, the methods of artifact analysis differ for each investigator and relying on descriptions and photographs from publications makes comparisons difficult.

It has already been mentioned that few artifacts of the transitional phase have been noted in Newfoundland. A few artifacts recovered in Bonavista Bay, notably a burin and a contracting stemmed endblade, appear to be somewhat similar to Labrador examples.

The side-notched burin found at The Beaches site appears to be a transitional form between the true Pre-Dorset spalled examples (un-notched) from Labrador and the ground and chipped burin-like tools (notched) found in Groswater assemblages in Labrador and Newfoundland. Typologically, it could be placed between the Nukasusutok-2 types (Cox 1978, Fig. 41) and Groswater forms from the Buxhall site (ibid., Fig. 4ee, ff) and Ticoralak-2 (Fitzhugh 1972: Pl. 64d). The Beaches example is also similar to one recovered from a transitional phase assemblage at Red Bay, southern Labrador (Tuck 1982). Available radiocarbon results for the Labrador sites include 3005±85 B.P. (corrected, SI-2988) for Nukasusutok-2, 2720±125 B.P. (SI-930) for Buxhall and 2690±140 B.P. (GSC-1179) for Ticoralak-2.

Although contracting stemmed endblades are known from Early Palaeo-Eskimo sites in Labrador (Tuck 1975; Fitzhugh 1976), the example from Ashley Baker Island may represent a later form because it does not exhibit serrated edges or bifacial flaking which characterizes the Labrador specimens. These latter examples are found at Thalia Point-2 (3660±140 B.P., GSC-1264) and Upernavik Island, Site K, which Tuck (1976a:92) tentatively dates at ca. 3800 B.P. These dates seem much too early for such an occupation on the Island, especially in the northeast. It would require a rapid migration from northern Labrador to Newfoundland and evidence indicates that the Island was inhabited, although not exclusively, by late Maritime Archaic Indians

until at least 3200 B.P. (Tuck 1976b). Any suggestions of an transitional phase occupation are extremely tentative since the artifact sample for the Island, thus far, is small. Further investigations and excavations of uncontaminated transitional phase sites in Newfoundland are needed in order to determine the temporal and spatial distribution of this occupation.

Groswater assemblages in Bonavista Bay appear to be closely comparable in most artifact forms with Groswater in central Labrador. The latter assemblages are dated by radiocarbon results between 2720±125 (SI-930) and 2200±120 (SI-875) B.P. and are characterized by side-notched plano-convex endblades, circular and oval sideblades, notched and ground burins and burin-like tools, eared scrapers, microblades which are frequently notched or stemmed, and occasional round or oval soapstone lamps (Cox 1978).

In terms of specific artifact similarities, a comparison of the side-notched endblades and ground and chipped burin-like tools suggest close affinities. Although Labrador endblades show variation in overall size, the Groswater examples from Bonavista Bay are typologically similar to those in the East Pompey Island-1 assemblage (Fitzhugh 1972: Pl. 82). The burin-like tools from Bonavista Bay are comparable to examples from Ticoralak-5 (ibid.: Pl. 68l, m) and East Pompey Island-1 (ibid.: Pl. 82o).

Other significant similarities between Bonavista Bay and Labrador Groswater assemblages include the age range of this phase (ca. 2700-2100 B.P.) and the use of remarkably similar raw materials. The fine-grained cherts utilized on the Island and in Labrador resemble those from known deposits at Cow Head on the west coast of Newfoundland. These factors further suggest a close relationship between Groswater in both regions.

Evidence of the Groswater phase as a cultural entity after 2200 B.P. in Labrador and 2100 B.P. in Newfoundland is absent from the archaeological record. The reasons for the disappearance of Groswater populations continue to elude researchers. More surveys and excavations may provide the answers, but it appears that these populations became extinct. Apparent extinction may have been precipitated by the arrival of new populations. In Labrador, for example, evidence of an Indian population entering Groswater Bay before 2000 B.P. is well-documented (Fitzhugh 1972, 1976, 1980b). Similar evidence is not available for Newfoundland.

Around 2500 B.P., during the florescence of the Groswater phase, the first people of the Late Palaeo-Eskimo tradition appeared in northern Labrador. The Early Dorset (Fitzhugh 1976;Cox 1978) brought with them a new technology characterized by tip-fluted endblades, multiple side-notched bifaces, tabular burin-like tools, angular soapstone vessels, semi-subterranean houses (Cox 1978) and extensive use of Ramah chert. To date, all the Early Dorset

north of Nain (Fitzhugh 1980a) and a few dates place this phase between ca. 2500 and 2000 B.P.

Evidence from the central and northern coasts of Labrador (Cox 1978; Fitzhugh 1980b) suggests that Early Dorset gradually evolved into Middle Dorset about 2000 B.P. Many of the artifact forms in Middle Dorset assemblages are similar to those of the Early Dorset phase, although there is a greater variety of artifact types and an introduction of new ones. Ramah chert continues to be used as the primary lithic material. The Middle Dorset phase in Labrador dates between ca. 2000 and 1400 B.P., although recent evidence from Shuldam-9 in northern Labrador, including a date of 1200±80 B.P. (SI-3354) and a Late Dorset tip-fluted endblade, suggests a transition from Middle Dorset to Late Dorset (Thomson, pers. comm. 1983).

In Newfoundland, the Middle Dorset phase (ca. 2000-1200 B.P.) is typified by such large assemblages from The Beaches, Port au Choix-2, Englee, Pittman and Cape Ray Light sites. Artifact forms from these sites compare favourably with those from Middle Dorset assemblages in Labrador. These forms include tip-fluted endblades, bifacial knives, triangular endscrapers, soapstone vessels and tabular burin-like tools.

After 1200 B.P., evidence for a Middle Dorset occupation on the Island is sparse. The reasons for the disappearance of the Middle Dorset culture may vary according to time and geographic location. There is evidence, for

example, that an Indian population entered Bonavista Bay around 1700 B.P. (Carignan 1977). The resident population may have been forced to abandon the region and move elsewhere, possibly to the south. It is interesting to note that the most recent dates for a Middle Dorset occupation on the Island come from Trinity Bay and the south coast where harp sealing was not important (Tuck 1982). As a result, populations would have had to adapt to exploiting other resources. Evidence from Trinity Bay (Robbins 1982, 1983) indicates that this adaptation resulted in the development of a regional variant of the Middle Dorset culture in terms of technology, subsistence and settlement patterns.

Until evidence points to the contrary, it appears that southern Newfoundland supported the last vestiges of the Middle Dorset phase. A final assault on the Middle Dorset population may have come from an Indian population, identified as the "Little Passage Complex" (Penney 1981), which appeared along the south coast around ca. 1300 B.P. It appears that shortly thereafter, the Middle Dorset culture became extinct either due to outside pressures from Indian populations or due to the Eskimos' inability to adapt to successfully to changes in location and/or resources.

In summarizing the evidence presented in this chapter, it appears that sufficient differences exist between the Groswater and Middle Dorset phases of Newfoundland and Labrador. Specifically, differences in technology, time and use of raw materials suggest that Groswater bears no ancestral relationship to Middle Dorset.

CHAPTER 6 - CONCLUSIONS

As outlined in Chapter 1, the primary objectives of this thesis have been to identify and examine the Palaeo-Eskimo manifestations in Bonavista Bay and to determine if the differences between these manifestations - in technology, time and use of raw materials - suggest distinctly different occupations. These objectives have, I believe, been realized. A comparison of artifact attributes, tool categories, radiocarbon results and utilization of raw materials indicates that there were two Palaeo-Eskimo occupations in Bonavista Bay: Groswater and Middle Dorset. Furthermore, these occupations represent phases of temporally and technologically distinct traditions: Early and Late Palaeo-Eskimo.

The current evidence from Bonavista Bay indicates that the Groswater phase dates between ca. 2500 and 2100 B.P. In fact, the most recent radiocarbon result from Newfoundland and Labrador comes from this region (2140±60 B.P.). The Middle Dorset phase can be placed within the temporal range of Middle Dorset occupation for the Island (ca. 2000-1200 B.P.) and is well-represented by numerous assemblages throughout Bonavista Bay.

Differences between the Groswater and Middle Dorset phases are found elsewhere on the Island and in Labrador. Although there appears to be continuity in site locations

and some tool categories, perhaps indicating similar subsistence patterns, it is suggested that separate migrations of people were responsible for the differences. Further analysis of the data suggests that the Late Palaeo-Eskimo tradition did not develop into the Late Palaeo-Eskimo tradition. Both traditions appear to represent migrations of new people from northern Labrador to the Island.

The Early tradition began shortly after 4000 years ago and lasted until about 2000 B.P. The sequential phases which comprise this tradition include Pre-Dorset, late Pre-Dorset, transitional Pre-Dorset and Groswater. No Pre-Dorset sites have been found in southern Labrador or Newfoundland. The absence of Pre-Dorset is probably due to the fact that Indians occupied these areas (Madden 1976; Tuck 1976a). However, the artifacts recovered at Red Bay in southern Labrador and at the Cow Head site on Newfoundland's west coast suggest an initial Palaeo-Eskimo movement to the Island probably occurring around 3000 B.P.

Shortly after 2000 years ago, there appears to have been an Early Palaeo-Eskimo florescence. Evidence of this, the Groswater phase (Fitzhugh and Tuck 1983), can be found in the increased number of sites in central Labrador (Fitzhugh 1972) and a rapid expansion to the Island of Newfoundland via southern Labrador (McGhee and Tuck 1975). With the re-examination of Newfoundland and Labrador Palaeo-Eskimo prehistory, the term "Dorset" has been eliminated from this phase because it no longer seems appropriate in

identifying essentially similar complexes dated between ca. 2700 and 2100 B.P. (cf. Fitzhugh 1972; Bishop 1973). "Dorset" also implies a continuity between Groswater and succeeding phases of the Late Palaeo-Eskimo tradition, but this continuity does not appear to exist. What was initially proposed by Diamond Jenness (1925) for the Cape Dorset complex, would now be considered a Middle or Late Dorset phase of the Late Palaeo-Eskimo tradition.

Groswater also appears to represent the terminal manifestation of the Early Palaeo-Eskimo tradition in Newfoundland and Labrador. Shortly before 2000 years ago, it disappears as a cultural entity.

During the period when Groswater was established in Labrador and Newfoundland, the first phase of the Late Palaeo-Eskimo (Dorset) tradition appeared. The Early Dorset people brought with them a different technology from that of the earlier Palaeo-Eskimo phases. Although this phase was restricted to northern Labrador between ca. 2500 and 2000 B.P., much of its artifact complex eventually formed the core elements of the Middle Dorset phase in Labrador (ca. 2000-1400 B.P.) and the Island (ca. 2000-1200 B.P.)

The appearance of the Middle Dorset presents us with the question of what happened to the Groswater peoples. For reasons that have already been mentioned, combined with the apparent temporal gap between the most recent Groswater dates and the cluster of dates for the Middle Dorset phase, it is unlikely that the two amalgamated. The overall impression is that Groswater bears no ancestral relationship to Early,

Middle or Late (northern Labrador) Dorset. Although a remnant population in Labrador may have migrated to Newfoundland because of pressures from a Middle Dorset migration or because of an Indian movement into Groswater Bay, shortly before 2000 B.P. (Fitzhugh 1972, 1976, 1980b), a more reasonable hypothesis is that Groswater populations became extinct. With the elimination of Groswater from the mainland and Newfoundland, a new wave of people re-populated many areas formerly occupied by Early Palaeo-Eskimo populations.

The Middle Dorset phase can be seen as a period of Late Palaeo-Eskimo florescence, particularly in northern Labrador and the Island of Newfoundland. Previous research had indicated that Newfoundland Middle Dorset developed in isolation from the rest of the Dorset world (cf. Linnamae 1975) and had little or no communication with mainland groups after the initial movement to the Island (cf. Cox 1978; Fitzhugh 1980a). Since Groswater elements can now be identified in Newfoundland assemblages and recent comparisons between Newfoundland and Labrador tool categories have been made (Jordan 1983), Newfoundland Dorset no longer appears so unique.

Towards the end of the Middle Dorset phase in Newfoundland and Labrador, increasing regionalism becomes apparent on the Island and communication with Labrador may have become reduced. In northern and central Labrador, reduced communication may have been due to the presence of Indians (Fitzhugh 1978). Although there is little information available on a Labrador Middle Dorset occupation after 1400

B.P., a gradual transformation to Late Dorset in northern Labrador is suggested by the presence of a possible transitional phase. A similar transformation is not indicated in Newfoundland.

On the Island, excavations have revealed that Indians occupied Bonavista Bay by 1700 B.P. (Carignan 1977). Additional evidence from the south coast indicates that another Indian population was present in the area around 1300 B.P. (Penney 1981). To date, there is little evidence for Eskimo/Indian contacts and it is possible that competition for resources and/or space forced the resident population to move. The most recent date for a Middle Dorset occupation comes from Trinity Bay (1280±60 B.P.), where excavations have revealed evidence of a distinct Middle Dorset variant with respect to technology, subsistence and settlement patterns. Given the distinctive nature of the Trinity Bay component and its late temporal position in Palaeo-Eskimo prehistory, it appears that southern Newfoundland supported the terminal phase of the Late Palaeo-Eskimo tradition.

Current evidence from the Island indicates that the Middle Dorset phase disappears as a cultural entity shortly after 1200 B.P. Although the reasons for this are unclear, it is suggested that a change in an economy based on migratory species of animals may have led to the demise of the Middle Dorset people. Harp seals would have been a major resource and their absence in coastal regions of southern Newfoundland would have led to drastic consequences for a

resident population. However, the same would hold true if migration patterns of other species were altered.

In conclusion, analysis of the Palaeo-Eskimo occupations in Bonavista Bay has firmly established the significance of the Groswater phase in Newfoundland. Furthermore, specific comparisons of Groswater and Middle Dorset technologies have shown that each represents a distinctly different cultural entity in Palaeo-Eskimo prehistory. However, continued investigations in Newfoundland, Labrador and the eastern Arctic are needed in order to determine the degree of dissimilarity (discontinuity) between the Groswater and Middle Dorset phases and ultimately, between the Early and Late Palaeo-Eskimo traditions.

BIBLIOGRAPHY

AUGER, Reginald

1982 A preliminary report on Early Dorset occupations on the west coast of Newfoundland, In Archaeology in Newfoundland and Labrador, 1981, edited by Jane Sproull-Thomson and Callum Thomson, pp. 130-151. Historic Resources Division, Department of Culture, Recreation and Youth, St. John's.

1983 Factory Cove, an Early Palaeo-Eskimo component from the west coast of Newfoundland. Paper presented at the 16th annual Canadian Archaeological Association meetings, Halifax.

AUSTIN, Shaun

1981 Cape Cove Beach (DhAl-5, 6, 7) Newfoundland: prehistoric cultures. Unpublished M.A. thesis. Department of Anthropology, Memorial University of Newfoundland, St. John's.

BANFIELD, Colin

1981 The climatic environment of Newfoundland, In The natural environment of Newfoundland past and present, edited by A.G. Macpherson and J.B. Macpherson, pp. 83-153. Department of Geography, Memorial University of Newfoundland, St. John's.

BISHOP, Paul

1973 Final report 1973 excavations at Norris Point, Gros Morne National Park. On file, Department of Anthropology, Memorial University of Newfoundland, St. John's.

BURROWS, Roger

1981 Avifauna study: field season on 1980, Terra Nova National Park. On file, Nature and Interpretation Section, Terra Nova National Park, Glovertown.

CAMERON, A.W.

1958 Mammals of the islands in the Gulf of St. Lawrence. National Museum Bulletin 154.

CARIGNAN, Paul

1973 Salvage archaeology in Bonavista Bay, Newfoundland. National Museum of Man, Mercury Series, Archaeological Survey of Canada Paper, 26:30-34.

1974 Archaeological investigations at four multi-component sites in Bonavista Bay, Newfoundland. On file, Archaeological Survey of Canada, Ottawa.

1975 The Beaches; a multi-component habitation site in Bonavista Bay. National Museum of Man, Mercury Series, Archaeological Survey of Canada Paper 39.

1977 Beothuck archaeology in Bonavista Bay. National Museum of Man, Mercury Series, Archaeological Survey of Canada Paper 69.

CLARKE, David

1978 Analytical archaeology (2nd edition). Metheun and Company Limited. London.

COX, Steven L.

1978 Palaeo-Eskimo occupations of the north Labrador coast. Arctic Anthropology XV(2):96-118.

DEVEREUX, Helen

1969 Five archaeological sites in Newfoundland. On file, Newfoundland Provincial Museum, St. John's.

ENVIRONMENT CANADA

1980a Canadian Weather Review. May 1980, Volume 18, Number 5.

1980b Canadian Weather Review. June 1980, Volume 18. Number 6.

1982 Canada Climate Normals, 1951-1980. Temperatures and Precipitation for the Atlantic Provinces, UDC 551.582 (715/9).

EVANS, Clifford O.

1981 1980 field report of Frenchman's Island Project, In Archaeology in Newfoundland and Labrador, 1980, edited by Jane Sproull-Thomson and Bernard Ransom, pp. 88-94. Historic Resources Division, Department of Culture, Recreation and Youth, St. John's.

1982 Frenchman's Island site (ClAl-1), preliminary field report, In Archaeology in Newfoundland and Labrador, 1981, edited by Jane Sproull-Thomson and Callum Thomson, pp. 210-235. Historic Resources Division, Department of Culture, Recreation and Youth, St. John's.

FITZHUGH, W.W.

1972 Environmental archaeology and cultural systems in Hamilton Inlet, Labrador. Smithsonian Contributions to Anthropology 16.

1975 A Maritime Archaic sequence from Hamilton Inlet, Labrador. Arctic Anthropology 12(2):117-138.

1976 Palaeo-Eskimo occupations of the Labrador coast, In Eastern Arctic prehistory: Palaeo-Eskimo problems, edited by Moreau Maxwell. Society for American Archaeology, Memoir 31:103-118.

1978 Winter Cove 4 and the Point Revenge occupation of the central Labrador coast. Arctic Anthropology 15(2):146-174.

1980a A review of Palaeo-Eskimo culture history in southern Quebec-Labrador and Newfoundland. Etudes/Inuit/Studies 1980 Vol. 4(1-2):21-31.

1980b Preliminary report on the Torngat Archaeological Project. Arctic Vol. 33(3):585-606.

FITZHUGH, W.W. and James A. TUCK

1983 Taxonomy and nomenclature of Palaeo-Eskimo cultures in Newfoundland and Labrador. Paper presented at the 16th annual Canadian Archaeological Association meetings, Halifax.

GIDDINGS, J.L. Jr.

1964 The archaeology of Cape Denbigh. Brown University Press. Providence.

HARE, K.E.

1952 The climate of the Island of Newfoundland. Department of Mines and Technological Surveys, Geographic Bulletin Number 2:36-87, Ottawa.

HARP, Elmer Jr.

1964 The cultural affinities of the Newfoundland Dorset Eskimo. National Museum of Man Bulletin 200.

HUSSEY, E.M.

1979 The stratigraphy, structure and petrochemistry of the Clode Sound map area, northwestern Avalon Zone, Newfoundland. Unpublished MSc thesis. Department of Geology, Memorial University of Newfoundland, St. John's.

JENNESS, Diamond

1925 A new Eskimo culture in Hudson Bay. The Geographical Review Vol. 15(3):428-437.

JENNESS, S.E.

1963 Terra Nova and Bonavista Bay map areas, Newfoundland. Geological Survey of Canada, Memoir 327.

JORDAN, Richard H.

1983 Palaeo-Eskimo in the Maritimes: a comparison of Newfoundland Dorset and Labrador Middle Dorset. Paper presented at the 16th annual Canadian Archaeological Association meetings, Halifax.

LINNAMAE, Urve

1975 The Dorset culture: a comparative study in Newfoundland and the Arctic. Technical Paper, Number 1. Newfoundland Provincial Museum, St. John's.

LEAHEY, A.

1969 The soils of Canada from a pedological viewpoint, In Vegetation, soils and wildlife, edited by J.G. Nelsons and M.J. Chambers, pp. 113-124. Metheun and Company Limited. Toronto.

LeBLANC, Raymond

1974 A faunal analysis of the Englee site. On file, Department of Anthropology, Memorial University of Newfoundland, St. John's.

MADDEN, Marcie M.

1976 A late Archaic sequence in southern Labrador. Unpublished M.A. thesis. Department of Anthropology, Memorial University of Newfoundland, St. John's.

MANSFIELD, A.W.

1967 Seals of the Arctic and eastern Canada. Fisheries Research Board of Canada Bulletin 137.

MARSH, Gaileen and Roger BURROWS

1981 Annotated checklist of the wildflowers of Terra Nova National Park, Bonavista Bay. On file, Nature Interpretation Section, Terra Nova National Park, Glovertown.

McGHEE, Robert and James A. TUCK

1975 An Archaic sequence from the Strait of Belle Isle. National Museum of Man, Mercury Series, Archaeological Survey of Canada Paper 34.

1976 Un-dating the Canadian Arctic, In Eastern Arctic prehistory: Palaeo-Eskimo problems, edited by Moreau Maxwell, Society for American Archaeology, Memoir 31, 6-14.

PASTORE, Ralph

1982 Preliminary report of a survey of eastern Notre Dame Bay, In Archaeology in Newfoundland and Labrador, 1981, edited by Jane Sproull-Thomson and Callum Thomson, pp. 152-173. Historic Resources Division, Department of Culture, Recreation and Youth, St. John's.

PENNEY, Gerald

1980 A report on an archaeological survey of Bay d'Espoir. On file, Department of Anthropology, Memorial University of Newfoundland, St. John's.

PENNEY, Gerald

1981 A preliminary report on the excavation of the L'Anse a Flamme site (CjAx-1), In Archaeology in Newfoundland and Labrador, 1980, edited by Jane Sproull-Thomson and Bernard Ransom, pp. 95-110. Historic Resources Division, Department of Culture, Recreation and Youth, St. John's.

1982 Archaeological investigations on the south coast of Newfoundland, 1980, In Archaeology in Newfoundland and Labrador, 1981, edited by Jane Sproull-Thomson and Callum Thomson, pp. 226-237. Historic Resources Division, Department of Culture, Recreation and Youth, St. John's.

PETERS, S.R.

1967 Our land and sea mammals. The Book of Newfoundland, Volume III, edited by J.R. Smallwood, pp. 317-331. Newfoundland Book Publishers, Limited. St. John's.

PINHORN, A.T. (editor)

1976 Living marine resources of Newfoundland-Labrador. Department of the Environment, Fisheries and Marine Service Bulletin 194.

POLLETT, F.C.

1968 Ecology and utilization of peatlands in Newfoundland. Department of Forestry and Rural Development, Government of Newfoundland and Labrador, Internal Report 6.

ROBBINS, Douglas

1982 Preliminary report on the Stock Cove site, (CkAl-3), In Archaeology in Newfoundland and Labrador, 1981, edited by Jane Sproull-Thomson and Callum Thomson, pp. 190-209. Historic Resources Division, Department of Culture, Recreation and Youth, St. John's.

1983 A variant of Middle Dorset culture in Newfoundland. Paper presented at the 16th annual Canadian Archaeological Association meetings, Halifax.

ROULEAU, Ernest

1956 Studies on the vascular flora of the province of Newfoundland (Canada). Contributions de l'Institut Botanique de l'Universite de Montreal 69. On file, Nature and Interpretation Section, Terra Nova National Park, Glovertown.

ROWE, J.S.

1959 Forest regions of Canada. Department of Northern Affairs and Natural Resources Bulletin 123.

SANGER, David, Robert McGHEE and David WYATT

1970 Blade description, Appendix 1. Arctic Anthropology Vol. 8(2):115-117.

SAWICKI, Anna

1981 Archaeological excavations in Terra Nova National Park - Final report. On file, Parks Canada, Halifax.

SAWICKI, Anna and James A. TUCK

1981 1980 excavations in Terra Nova National Park. Prepared for Parks Canada, Atlantic Region. On file, Department of Anthropology, Memorial University of Newfoundland, St. John's.

SERGEANT, D.E.

1963 Harp seals and the sealing industry. Canadian Audubon Vol. 25(2):29-35.

STEWART, Frances L.

1979 Faunal remains from the Factory Cove site (DlBk-3), Newfoundland. On file, Department of Anthropology, Memorial University of Newfoundland, St. John's.

TAYLOR, William E. Jr.

1968 The Arnapik and Tyara sites: an archaeological study of Dorset culture origins. American Antiquity Vol. 33(4), Part 2.

TBRASMAE, Jean

1963 Three C-14 dated pollen diagrams from Newfoundland, Canada. Advancing frontiers in plant science Vol. 6:149-162.

TUCK, James A.

1975 Prehistory of Saglek Bay, Labrador: Archaic and Palaeo-Eskimo occupations. National Museum of Man, Mercury Series, Archaeological Survey of Canada Paper 32.

1976a Palaeo-Eskimo cultures of northern Labrador, In Eastern Arctic prehistory: Palaeo-Eskimo problems, edited by Moreau Maxwell. Society for American Archaeology, Memoir 31:82-102.

1976b Ancient people of Port au Choix; the excavation of an Archaic Indian cemetery in Newfoundland. Newfoundland Social and Economic Studies, Number 17. Memorial University of Newfoundland, St. John's.

1977 Population movements and culture contacts in Newfoundland and Labrador, 4000-1000 B.P. Paper presented at the 10th annual Chacmool Conference, University of Calgary, Calgary.

1980 An archaeological survey of Terra Nova National Park. Prepared for Parks Canada, Atlantic Region. On file, Department of Anthropology, Memorial University of Newfoundland, St. John's.

1982 Prehistoric archaeology in Atlantic Canada since 1975. Paper presented at the 15th annual Canadian Archaeological Association meetings, Edmonton.

TUCK, Leslie M.

1967 The birds of Newfoundland. The Book of Newfoundland, Volume III, edited by J.R. Smallwood, pp. 265-316. Newfoundland Book Publishers, Limited.St. John's.

YOUNCE, G.

1970 Structural geology and stratigraphy of the Bonavista Bay region, Newfoundland. Unpublished Ph. D. dissertation, Cornell University.

APPENDIX A

DESCRIPTION OF ARTIFACT ATTRIBUTES

In the following section, artifacts from six of the most prominent categories are presented in table forms. The categories include endblades, scrapers, microblades, sideblades, burin-like tools and knives. Since one of the objectives of this thesis is a physical comparison of artifact categories, artifacts from the eight sites will be presented under each of the categories.

As a preface to the information presented in the key, there are a number of terms of reference that should be mentioned. All artifacts are oriented in the following manner: the proximal end (location of the striking platform) towards the examiner with the more convex surface (dorsal) up. Therefore, Edge A corresponds to the left lateral edge and Edge B is the right lateral edge. For scrapers, lateral edges of the ventral surface correspond to the same edges of the dorsal surface.

Surface retouch is judged to be exclusive of retouch which forms the lateral edges. Edge serration is considered to be regular and/or purposeful serration or denticulation of the blade edges.

For notch types, side-notched examples are those with the width of the base equal to or greater than the width at the shoulder above the notch. Corner-notched examples are those with the width of the base less than the width spanning the shoulders above the notches.

All edge angles are measured to the nearest 10°, using a card goniometer. All metric measurements are given to the nearest 1.0 mm. With the exception of microblades, metric measurements are maximum values. Width and thickness measurements for microblades are adapted from the Blade-Core Conference (Sanger, McGhee and Wyatt 1970) and only the length measurement for complete specimens is noted. The range of lengths for broken specimens is noted in the text.

Of the remaining categories, descriptions are presented in two ways. For categories that comprise of few examples, each specimen is described individually. In categories that have a large number of examples, descriptions are based on general trends. Unless otherwise noted in the text, the artifacts are measured regardless of whether they are complete or incomplete.

Finally, a dash "-" indicates an undetermined attribute. In most cases, this is due to the fragmentary nature of the specimen. The number of dashes will determine the completeness of individual examples.

COMMON ABBREVIATIONS

- refers to the catalogue number of the artifact
NOTE: Reference to the stratigraphical position of individual specimens recovered at Ashley Baker Island, Moose Pasture and Zodiac sites is presented in the following manner: Sod (S); Stratum 1 (1); Stratum 1a (1a); Stratum 2 (2); Surface (s).

COMMON ABBREVIATIONS (cont'd)

C - condition of the artifact

SY - symmetry of the artifact

HM - hafting modification

NT - notch type

TX-S - transverse cross section

LX-S - longitudinal cross section

L - maximum length

W - maximum width (cf. microblades)

T - maximum thickness (cf. microblades)

RM - raw material (see below)

PL - plate number

COMMON ATTRIBUTE ABBREVIATIONS

ab - absent	cv - concave
pr - present	cx - convex
c - complete	ir - irregular
i - incomplete	par - partial
co - complete	tr - triangular
b - bifacial	re - rectangular
u - unifacial	sn - side-notched
pb - partially bifacial	cn - corner-notched
pu - partially unifacial	st - straight
s - symmetric	ste - stemmed
as - asymmetric	no - notched

ATTRIBUTES OF SPECIFIC ARTIFACT CATEGORIES

ENDBLADES

BS - base shape

EAS - Edge A shape

EBS - Edge B shape

SRD - retouch of the more convex blade surface (dorsal)

SRV - retouch of the less convex blade surface (ventral)

ER - retouch of the blade egdes

SGD - grinding of the more convex blade surface (dorsal)

SGV - grinding of the less convex blade surface (ventral)

TF - tip-fluting on the ventral surface

ES - edge serration

#N - number of notches per lateral edge

NH - notch height (mm)

ST - stem type: co - contracting

BTD - basal thinning of the dorsal surface
f - flaked
g - ground
f/g - flaked and ground
NOTE: Flaked refers to the removal of one or more thinning flakes. These flakes are considered to be larger than those retouching the blade edges.

BTV - basal thinning of the ventral surface (same as BTD)

TX-S and LX-S

bicx - biconvex	trap - trapezoidal
plcx - plano-convex	fd - flattened diamond
trcx - triangular-convex	cvcx - concave-convex

SCRAPERS

F - form

T - type of scraper

es - endscraper	ebs - end-of-blade scraper
ss - sidescraper	(also an endscraper)

SCRAPERS (cont'd)

WES - working edge shape (the portion of the specimen that exhibits steep unifacial retouch)

ESY - working edge symmetry
bl - bevelled left
br - bevelled right

VLRA - ventral lateral edge retouch, Edge A

VLRB - ventral lateral edge retouch, Edge B

GS - graving spurs (distinct projections at the corner(s) of the working edge
le - left
ri - right
bo - both

EC - expanded corner or flaring regarded as the gradual expansion of one or both lateral edges thereby producing sides with a concave shape
le - left
ri - right
bo - both

EA - working edge angle

ECH - edge chord (the length of the chord across the working edge - only noted if the measurement is different from the maximum width).

MICROBLADES

SEG - segment represented
co - complete
pro - proximal
med - medial
dis - distal

ERA - edge retouch, Edge A
d - dorsal
v - ventral
d/v - dorsal and ventral

PA - platform angle (angle formed by the striking platform and the dorsal surface)

#A - number of arrises on the dorsal surface

L - length of complete specimens

MICROBLADES (cont'd)

W - maximum width measured just below the bulb of percussion

T - maximum thickness measured at the same point as the width

SIDEBLADES

F - form
s-l - semi-lunate

SR - surface retouch

SG - surface grinding

BURIN-LIKE TOOLS

F - form

DES - distal end shape

PES - proximal end shape

SR - surface retouch

SGD - grinding on the dorsal surface
NOTE: For fragments, if there is grinding present and the degree is uncertain, the code used is pr (present).

SGV - grinding on the ventral surface (same as SGD)

The following attributes are described the tables:

EDGE A - left lateral egde

EDGE B - right lateral edge

D END - distal end

P END - proximal end

bi-b - bifacially bevelled
bi-f bifacially flaked
db - dorsal bevel
do-f - dorsally flaked
ext - extreme
gr - ground
vb - ventral bevel

KNIVES

EAS - shape of EDGE A

EBS - shape of EDGE B

ER - edge retouch

SRD - retouch on the dorsal surface

SRV - retouch on the ventral surface

TS - tip shape
- ro - rounded
- po - pointed
- bl - blunted
- cv - concave

BS - base shape

#N - number of notches per lateral edge

NH - notch height (mm)

TX-S
- plcx - plano-convex
- bicx - biconvex
- bipl - biplano

RAW MATERIALS

C - coarse-grained
F - fine-grained
M - mottled
G - grey
Gr - green
Be - beige
T - tan
Bl - black
Br - brown
Tr - translucent
P - patinated (white)
W - white
Ch - chert
RCh - Ramah chert
QC - quartz crystal
Q - quartz
R - rhyolite
F - felsite
Qe - quartzite

Table 12. Artifact Attribute Comparisons - Endblades

ASHLEY BAKER ISLAND

#	C	SY	BS	EAS	EBS	SRD	SRV	ER	SGD	SGV	TF	ES	HM	NT	#N	NH	ST	BTD	BTV	TX-S	LX-S	L	W	T	RM	PL
2(1)	i	–	cx	–	–	ab	ab	b	ab	ab	ab	sl	ste				co	ab	ab	trap	–	–	9	2	PTCh	2a
6(1)	i	–	cv	–	–	–	–	pb	–	–	–	–	ab					ab	f	–	–	–	–	–	CBlCh	2b
23(1)	see text																								R	2c
12(2)	i	–	st	–	–	–	–	pb	–	–	–	ab	no	sn	1/1	3/3		ab	ab	bicx	–	–	17	4	FMCh	2d

MOOSE PASTURE

22(S)	c	as	st	cx	cx	ab	ab	pb	ab	ab	ab	ab	no	sn	1/1	2/2		ab	ab	trap	trap	17	10	3	R	6d
26(S)	c	s	st	cx	st	co	ab	pb	ab	ab	ab	ab	ab					ab	ab	plcx	cvcx	20	10	2	FMCh	6c
50(S)	c	as	st	ir	cx	co	co	b	ab	ab	ab	ab	ab					ab	ab	plcx	cvcx	23	9	3	PBeCh	6b
74(S)	c	s	st	cx	cx	co	co	b	ab	ab	ab	ab	no	sn	1/1	4/4		ab	ab	plcx	plcx	19	9	3	FMCh	6a
28(S)	i	–	–	–	–	co	co	b	ab	ab	ab	ab	–					–	–	bicx	–	–	–	3	PGCh	6j
38(S)	i	as	–	–	–	co	co	pb	ab	ab	ab	ab	–					–	–	bicx	–	–	–	4	FMCh	6g
62(S)	i	–	st	–	–	–	–	–	–	–	–	–	no	sn	1/1	6/6		ab	ab	–	–	–	10	–	PGCh	6f
84(S)	i	–	st	–	–	par	ab	b	ab	ab	ab	ab	no	sn	1/1	5/4		ab	ab	plcx	–	–	9	2	FMCh	6e
107(S)	i	as	–	–	–	co	co	b	ab	ab	ab	ab	–					–	–	bicx	–	–	–	–	FMCh	6h
113(S)	i	–	–	–	–	co?	co?	b?			ab	ab	–					–	–	plcx	–	–	–	–	FMCh	6i
196(1)	c	s	st	st	cx	co	co	b	ab	ab	ab	ab	no	sn	1/1	2/2		ab	ab	plcx	plcx	19	9	3	PGCh	6k
129(1)	i	s	–	st	st	co	co	b	ab	ab	ab	ab	–					–	–	plcx	–	–	–	4	FGCh	6m
123(1)	i	as	st	cx?	st?	co	par	pb	ab	ab	ab	ab	ab					f	ab	plcx	–	–	14	3	PCh	6l

Table 12. Artifact Attribute Comparisons - Endblades (cont'd)

MOOSE PASTURE (cont'd)

#	C	SY	BS	EAS	EBS	SRD	SRV	ER	SGD	SGV	TF	ES	HM	NT	IN	NH	ST	BTD	BTV	TX-S	LX-S	L	W	T	RM	PL
241(1)	i	as	–	ir	cx?	co	co	b	ab	ab	ab	ab	–					–	–	plcx	–	–	–	3	FGCh	6o
215(1)	i	–	st	–	–	–	–	–	–	–	–	–	ab					ab	ab	–	–	–	–	–	FGCh	6n
122(2)	i	s	st	cx	cx	co	par	ab	ab	ab	ab	ab	no	sn	1/1	4/3		ab	ab	plcx	cvcx	–	10	2	FBeCh	6p

ZODIAC

37(1)	i	–	st	–	–	co	–	–	ab	ab	ab	ab	no	sn	1/1	3/3		ab	ab	bicx	–	–	11	3	FGCh	12a
39(1)	c	s	cv	cx	cx	co	ab	u	ab	par	pr	sl	ab					f	f/g	trcx	bicx	33	15	4	CGCh	12b
64(1)	c	s	cv	st	st	co	par	pb	ab	par	ab	ab	ab					f/g	f/g	plcx	plcx	30	15	3	CBlCh	12c
81(1)	i	s	–	–	st	par	par	u	par	par	pr	ab	ab					f/g	g	plcx	plcx	–	–	4	PCh	12d
41(1)	i	–	cv	–	–	par	ab	b	–	–	–	ab	ab					f	f	plcx	–	–	17	4	F	12e
61(2)	c	s	st	cx	cx	co	co	b	ab	ab	ab	ab	no	sn	1/1	3/3		ab	ab	plcx	plcx	20	9	3	FGCh	12f
23(2)	c	as	cv	cx	st	co	ab	u	ab	par	ab	ab	ab					f/g	f/g	plcx	plcx	22	16	3	PCh	12g
28(2)	i	–	–	–	–	par	ab	pb	–	–	ab	ab	–					–	–	bicx	–	–	–	–	R	12h
109(2)	c	s	cv	ir	cx	co	ab	pb	ab	ab	pr	ab	ab					f	f	plcx	plcx	26	12	4	CBlCh	12i
113(2)	i	s?	st	–	–	par	ab	u	–	–	–	ab	ab					–	–	plcx	–	–	15	4	RCh	12j

THE BEACHES

674	c	s	cv	cx	cx	par	ab	u	ab	ab	pr	sl	ab					f	f	trap	cvcx	35	14	3	R	
675	c	s	cv	cx	st	co	ab	pb	ab	ab	pr	ab	ab					f	f	plcx	plcx	27	13	4	R	

Table 12. Artifact Attribute Comparisons - Endblades (cont'd)

THE BEACHES (cont'd)

#	C	SY	BS	EAS	EBS	SRD	SRV	ER	SGD	SGV	TF	ES	HM	NT	IN	NH	ST	BTD	BTV	TX-S	LX-S	L	W	T	RM	PL
676	c	s	st	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	27	12	4	GQe	
670	c	s	cv	st	st	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	cvcx	33	13	4	R	14b
668	c	s	cv	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	trap	ir	37	15	5	PCh	141
938	c	s	cv	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	33	17	5	R	14a
945	c	s	cv	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	trcx	bicx	43	14	6	R	
50	c	s	cv	cx	cx	co	ab	pb	ab	ab	pr	ab	ab					f	f	trcx	bicx	41	17	7	R	14k
672	c	s	st	cx	cx	par	ab	pb	ab	ab	pr	ab	ab					f	f	trap	bicx	39	14	4	R	
667	c	s	cv	cx	st	co	ab	pb	ab	ab	pr	ab	ab					f	f	bicx	bicx	35	13	5	R	14c
948	c	s	cv	cx	st	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	31	13	4	R	
942	c	s	cv	cx	st	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	47	14	6	R	
936	c	s	cv	st	st	co	ab	pb	ab	ab	pr	ab	ab					f	f	trap	plcx	41	17	5	CBlCh	
951	c	s	cv	cx	cx	ab	ab	u	ab	ab	ab	ab	ab					ab	f	trap	bipl	25	13	3	GQe	
939	c	s	cv	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	37	17	5	CBlCh	
952	c	s	cv	st	st	co	ab	u	ab	ab	pr	ab	ab					f	ab	plcx	plcx	30	14	5	R	
7	c	s	st	cx	cx	co	par	pb	ab	ab	pr	ab	ab					f	f	trcx	bicx	27	14	4	CBlCh	14e
669	c	s	st	st	s	co	ab	u	ab	ab	pr	ab	ab					f	f	trcx	bicx	34	14	6	GQe	
946	c	as	cv	ir	cx	co	ab	pb	ab	ab	pr	ab	ab					f	f	bicx	bicx	33	17	6	R	
662	c	s	st	cx	cx	par	ab	b	par	par	ab	ab	no	sn	3/3	4/5		ab	ab	plcx	plcx	76	29	6	CBeCh	14i
671	i	s	st	st	st	co	ab	u	ab	ab	pr	ab	ab					f	ab	plcx	cvcx	–	15	5	R	

Table 12. Artifact Attribute Comparisons - Endblades (cont'd)

THE BEACHES (cont'd)

#	C	SY	BS	EAS	EBS	SRD	SRV	ER	SGD	SGV	TP	ES	HM	NT	#N	NH	ST	BTD	BTV	TX-S	LX-S	L	W	T	RM	PL
949	i	s	cv	st	st	co	ab	u	ab	ab	pr	ab	ab					f	ab	plcx	plcx	–	13	5	R	
944	i	s	cv	cx	cx	co	ab	pb	ab	ab	pr	ab	ab					f/g	f	trcx	bicx	–	15	6	R	
937	i	s	cv	cx	st	co	ab	u	ab	ab	pr	ab	ab					f	f	trcx	bicx	–	16	6	CBeCh	14j
947	i	s	st	st	st	par	ab	pb	ab	ab	pr	ab	ab					f	ab	trap	–	–	16	5	R	14d
940	i	s	cv	st	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	–	17	7	R	
921	i	s?	–	cx	cx	co	ab	pb	ab	ab	pr	ab	ab					f	f	trcx	–	–	–	6	R	
941	i	as	cv	cx	cx	par	ab	u	ab	ab	pr	ab	ab					f	f	trcx	bicx	–	16	8	R	
943	i	s?	cv	cx	cx	par	ab	u	ab	ab	pr	ab	ab					f	f	bicx	bicx	–	18	8	CBlCh	
953	i	s	cv	cx	st?	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	–	–	–	6	R	
924	i	–	cv	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx			17	5	R	
916	i	–	–	st?	st?	par	ab	u	ab	ab	pr	ab	–					–	–	plcx	–	–	–	–	PCh	
933	i	–	–	cx	cx	co	ab	u	ab	ab	pr	ab	–					f/g	f	trcx	–	–	–	6	R	
919	i	–	–	–	–	par	ab	u?	ab	ab	pr	ab	ab					–	–	trap	–	–	–	–	R	
17	i	–	–	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	–	trcx	bicx	–	–	6	R	
934	i	–	–	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	cvcx	–	–	5	R	
45	i	s?	–	–	st	co	ab	pb	ab	ab	pr	ab	ab					f	–	plcx	plcx	–	–	5	R	
913	i	s?	–	–	st	co	ab	u	ab	ab	pr	ab	ab					f	f	trcx	bicx	–	–		CBlCh	
932	i	–	–	st	–	par	ab	u	ab	ab	pr	ab						–	–	plcx	–	–	–	–	R	
928	i	–	cv	–	–	co?	ab?	pb	–	–	pr	ab	ab					f	f	trcx	–	–	18	7	R	

Table 12. Artifact Attribute Comparisons - Endblades (cont'd)

THE BEACHES (cont'd)

#	C	SY	BS	EAS	EBS	SRD	SRV	ER	SGD	SGV	TF	ES	HM	NT	#N	NH	ST	BTD	BTV	TX-S	LX-S	L	W	T	RM	PL
922	i	–	cv	–	–	–	–	pb	–	–		ab	ab					f	f	plcx	–	–	18		PCh	
950	i	as	st	st	cx	par	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	–	15	4	GQe	
797	i	–	–	cx	–	par	ab	pb	ab	ab	pr	ab	ab					–	–	trap	–	–	–	4	R	
665	i	s	st	st	st	ab	ab	u	co	co	ab	sl	ab					g	g	fd	fd	–	16	4	PCh	14h
666	i	–	st	–	–	co	co	b	–	–	ab	ab	no	sn	1/1	8/6		ab	ab	bicx	–	–	17	5	PCh	14f
859	i	–	st	–	–	co	co	b	ab	ab	ab	ab	no	sn	1/1	6/7		ab	ab	plcx	–	–	15	5	FMCh	14q
1225	i	–	–	–	–	co	co	b	–	–	ab	ab	–	–	–	–		–	–	plcx	–	–	–	–	FGCh	14m
927	i	s	cv	–	–	par	ab	u	ab	ab	pr	ab	ab					f	ab	plcx	–	–	17	7	R	
802	i	s	st	st	–	par	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	–	16	5	R	
925	i	–	cv	–	–	ab	ab	pb	–	–	pr	ab	ab					f	f	plcx	–	–	18	6	R	

BLOODY BAY COVE

536	c	s	cv	cx	cx	par	ab	pb	par	ab	ab	ab	ste				st	f	ab	plcx	plcx	48	16	4	R	23d
542	i	s	–	cx	cx	co	ab	pb	ab	ab	pr	ab	ab					f	f	plcx	plcx	–	15	5	R	23a
545	i	as	st	cx?	st?	par	par	pb	ab	ab	ab	ab	no	sn	1/1	9/8		ab	f	bicx	bicx	–	15	4	R	23b
548	i	as	st	st?	cx?	co	par	pb	ab	ab	ab	ab	no	sn	1/1	7/6		f	ab	bicx	bicx	–	16	3	PCh	23c

SANDY COVE

1	c	s	cv	cx	cx	co	par	b	ab	par	ab	sl	ab					f/g	f/g	bicx	bicx	35	15	4	FGCh	25a

Table 12. Artifact Attribute Comparisons - Endblades (cont'd)

SANDY COVE (cont'd)

#	C	SY	BS	EAS	EBS	SRD	SRV	ER	SGD	SGV	TF	ES	HM	NT	IN	NH	ST	BTD	BTV	TX-S	LX-S	L	W	T	RM	PL
2	c	s	cv	cx	cx	co.	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	23	10	3	R	25b
3	i	as	cv	–	ir	par	ab	pb	ab	ab	pr	ab	ab					ab	f	trcx	trcx	–	11	5	PCh	25c
4	c	s	st	cx	st	co	ab	u	ab	ab	pr	ab	ab					f	f	trcx	trcx	26	9	4	R	25d
5	i	s?	cv	–	cx	par	par	pb	ab	ab	ab	ab	ab					f	f	plcx	plcx	–	17	4	R	25e
6	i	–	–	–	st	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	–	–	4	CGCh	25f
7	i	s	–	cx	cx	co	ab	u	ab	ab	pr	ab	ab					f	f	plcx	plcx	–	–	4	R	25g
8	i	–	st	–	–	–	–	–	–	–	–	ab	ab					f	f	plcx	–	–	16	–	PCh	25h
9	i	–	cv	–	–	–	–	pb	–	–	–	ab	ab					f	f	biex	–	–	16	5	R	25i
10	i	–	cv	–	–	–	–	pb	–	–	–	ab	ab					f	f	trap	–	–	18	4	R	25j
11	i	–	–	–	cx	co	ab	u	–	–	pr	ab	ab					f	f	trcx	–	–	–	5	R	25k
12	i	–	–	–	–	co	ab	u	–	–	pr	ab	–					–	–	plcx	–	–	–	6	FGrCh	25l
13	i	–	–	–	–	co	ab	u	–	–	pr	ab	–					–	–	plcx	–	–	–	3	R	25m
14	i	–	st	–	–	–	–	b	–	–	–	ab	ab					ab	f	trap	–	–	17	4	FGrCh	25n

BANK

3	i	–	st	–	–	co	par	pb	ab	ab		ab	ab					ab	f	plcx	–	–	16	5	PCh	22a
4	i	s	cv	cx	cx	co	ab	pb	ab	ab	pr	ab	ab					f	f	trcx	plcx	–	13	4	R	22b
5	i	–	–	–	–	co	ab	u	ab	ab	pr	ab	–					–	–	trcx	–	–	–	3	CGCh	22c

Table 13. Artifact Attribute Comparisons - Scrapers

ASHLEY BAKER ISLAND

#	C	F	T	WES	ESY	VLRA	VLRB	SRD	SRV	GS	EC	EA	ECH	HM	L	W	T	RM	PL
15(1)	c	re	es	cx	s	ab	pr	par	ab	ab	ab	70		ab	15	15	5	FBeCh	2e
16(1)	i	–	ebs	cx	bl	pr	ab	par	par	ab	ab	70	–	ab	–	–	2	QC	2f
1(1a)	i	–	es	cx	s	ab	ab	ab	ab	ab	ab	50		–	–	22	2	FBrCh	2g

MOOSE PASTURE

45(S)	c	tr	es	cx	s	ab	ab	par	ab	ab	ab	60		ab	16	17	4	FBrCh	7b
260(S)	c	tr	es	cx	bl	ab	ab	par	ab	ab	ab	70		ab	16	13	4	FGCh	7a
93(S)	c	tr	es	cx	br	ab	ab	ab	ab	ab	ab	70		ab	15	12	5	FGCh	7c
101(S)	i	tr	es	cx	s	ab	ab	co	ab	ab	ab	80		ab		14	5	FBrCh	7i
41(1)	c	tr?	es	cx	bl	pr	pr	co	co	ab	ab	60		ab	43	23	8	FBrCh	7d
147(1)	i	tr	es	cx	–	ab	ab	ab	ab	–	ab	70		ab	29	–	5	FGrCh	7j
110(1)	c	tr	es	cx	bl	ab	ab	co	ab	ab	ab	60		ab	14	17	4	FGCh	7g
43(1)	c	tr	es	cx	bl	ab	pr	co	ab	ab	ab	80		ab	18	16	4	FGrCh	7e
116(1)	c	tr	es	cx	br	ab	ab	co	ab	ab	ab	70		ab	11	12	4	FBeCh	7h
64(1)	c	re	es	cx	s	pr	ab	par	ab	le	ab	70		ab	14	15	4	FBrCh	7f
242(1)	i	–	es	cx	bl	pr	pr	co	ab	ab	ab	80		–	–	16	4	FGCh	7n
233(1)	i	–	es	cx	bl	ab	ab	ab	ab	ab	ab	80		ab	21	–	5	FGCh	7m
1(1)	i	re	es	cx	s	ab	ab	co	ab	ab	ab	80	21	ab	–	24	4	FMCh	7i
4(1)	i	tr	es	cx	–	–	ab	par	ab	–	–.	70		ab	16	–	4	FGrCh	7k

Table 13. Artifact Attribute Comparisons - Scrapers (cont'd)

MOOSE PASTURE (cont'd)

#	C	F	T	WES	ESY	VLRA	VLRB	SRD	SRV	GS	EC	EA	ECH	HM	L	W	T	RM	PL
148(1)	[redacted]	ir	ss	cv	–	pr	pr	co	par	–	ab	60	–	sn	–	13	3	FMCh	7o
137(2)	c	tr	es	cx	s	ab	ab	co	ab	ab	ab	70		ab	17	17	3	FMCh	7p
131(2)	c	tr	es	cx	s	ab	ab	co	ab	ab	ab	80		ab	14	16	6	FGCh	7q
36(2)	i	tr	es	cx	s	ab	ab	co	ab	ab	ab	80	–	ab	19	–	5	FGCh	7r

ZODIAC

30(1)	c	tr	es	cx	s	ab	ab	par	ab	ab	ab	70		ab	15	13	3	FBrCh	12k
70(1)	c	ir	es	cx	s	ab	pr	par	ab	ab	ab	70		ab	13	16	6	FGCh	12l
9(1)	i	–	es	–	–	–	ab	ab	ab	–	–	70	–	–	–	–	3	WQ	12n
63(1)	i	–	es	cx	–	–	–	par	ab	–	–	50	–	–	–	–	2	FGrCh	12o
23(1)	c	re	ebs	cx	s	ab	ab	co	ab	ab	ab	70		ab	14	6	2	QC	12m
34(1)	i	–	es	cx	–	–	–	–	–	–	–	70	–	–	–	–	4	WQ	12p

THE BEACHES

650	c	re	es	cx	s	ab	ab	par	ab	ab	ab	80		ab	13	12	3	QC	
641	c	re	es	cx	s	ab	ab	par	ab	ab	ab	70		ab	20	24	5	FMCH	
658	c	tr	es	cx	s	pr	pr	par	ab	ab	ab	80		ste	23	17	5	FMCh	15j
627	c	tr	es	cx	br	ab	ab	par	ab	ab	1e	80		ab	27	19	5	FMCh	
16	c	re	es	cx	s	ab	pr	par	ab	ab	ab	80		ab	16	15	5	FBlCh	15c

Table 13. Artifact Attribute Comparisons -Scrapers (cont'd)

THE BEACHES (cont'd)

#	Θ	F	T	WES	ESY	VLRA	VLRB	SRD	SRV	GS	EC	EA	ECH	HM	L	W	T	RM	PL
622	c	tr	es	cx	s	ab	pr	co	ab	ab	ab	70		ab	30	29	6	FMCh	15a
636	c	re	es	cx	s	ab	ab	ab	ab	ab	ab	70		ab	14	13	3	FGCh	
147	c	re	es	cx	s	ab	pr	par	par	ab	ab	70		ab	20	17	6	QC	15d
660	c	tr	es	cx	bl	ab	ab	ab	ab	bo	bo	70		ab	19	20	5	FMCh	15k
637	c	tr	es	cx	bl	ab	pr	par	par	ab	ab	80		ab	19	17	8	FBlCh	
631	c	tr	es	cx	s	ab	ab	par	ab	ab	ab	70		ab	21	20	6	R	
659	c	ir	es	cx	bl	ab	ab	par	par	ri	ri?	60		ab	25	20	6	FGrCh	15l
661	c	tr	es	cx	s	ab	ab	ab	ab	ab	ab	80		ab	24	18	9	FBlCh	15b
628	c	tr	es	cx	bl	ab	ab	par	ab	ab	ri	70		ab	23	19	7	FBrCh	
657	c	tr	es	cx	s	pr	ab	ab	par	ab	ri	70		ab	24	21	5	FBlCh	
653	c	tr	es	cx	s	ab	pr	ab	ab	ab	ab	70		ste	21	16	3	FMCh	15i
624	c	tr?	es	cx	bl	ab	ab	par	ab	ab	ab	80		ste	36	24	8	R	15n
656	c	re	es	st	br	ab	ab	par	ab	ab	ab	90	9	no?	15	12	3	QC	
614	c	tr	es	cx	br	pr	ab	ab	ab	ab	ab	70		ste	44	34	9	R	
611	c	tr	es	cx	s	pr	pr	par	ab	ab	ab	80		ste	42	36	7	R	15h
625	c	tr	es	cx	s	pr	ab	ab	ab	ab	ab	60		ab	33	25	4	FGrCh	
562	c	re	ebs	cx	s	ab	ab	ab	ab	ab	ab	70	10	ab	35	12	4	R	15f
613	c	tr	es	st	bl	ab	ab	ab	ab	le?	le	80	23	ste?	36	27	6	R	
100	c	tr	es	cx	s	ab	ab	par	ab	ab	ab	70		sn	26	21	6	R	15m

Table 13. Artifact Attribute Comparisons - Scrapers (cont'd)

THE BEACHES (cont'd)

#	C	P	T	WES	ESY	VLRA	VLRB	SRD	SRV	GS	EC	EA	ECH	HM	L	W	T	RM	PL
626	c	tr	es	cx	s	ab	ab	co	ab	ab	ab	80		ste	26	21	5	R	
02	c	tr	es	cx	bl	pr	ab	ab	ab	ab	ab	60		ste	45	26	7	R	
855	c	ir	ss	cv	s	ab	ab	ab	ab	ab	ab	90	27	ab	43	11	5	R	15q
589	c	re	ebs	cx	bl	ab	ab	ab	ab	ab	ab	70		ab	24	10	4	RGCh	
635	c	tr	es	cx	s	ab	ab	ab	ab	ab	ab	80		ab	27	19	7	R	
617	c	tr	es	cx	s	ab	ab	ab	ab	ab	ab	70		ab	19	16	5	R	
621	c	re	es	cx	bl	ab	ab	ab	ab	ab	ab	70		ab	31	18	8	R	
618	c	tr	es	cx	s	pr	ab	par	ab	ab	ab	80		ab	32	20	7	R	
655	i	—	es	cx	—	—	—	—	—	ab	—	70	—	—	—	—	5	QC	
605	i	re?	ebs	cx	s	ab	ab	ab	ab	ab	ab	70	12	—	—	—	3	RCh	15e
620	i	—	es	cx	s	ab	—	par?	ab?	ab	ab	60	29	—	—	—	6	FMCh	
638	i	tr	es	cx	s	ab	ab	ab	ab	ab	ab	70		—	—	20	7	R	
647	i	tr?	es	cx	bl	ab	ab	par	ab	le	le	70		—	—	29	7	FMCh	
553	i	re	ebs	cx	s	ab	ab	ab	ab	ab	ab	60	9	—	—	12	3	R	
30	i	tr	es	cx	bl	—	ab	par	ab	—	—	80		ab	14	—	5	PGrCh	
623	i	tr?	es	cx	s?	ab	—	ab	ab	—	—	80		ab	40	—	5	RCh	
1349	i	re	es	cx	s	ab	ab	par	par	bo	bo	80		—	—	28	9	QC	
649	i	tr	es	cx	s	—	ab	ab	par	—	—	60		ab	39	—	10	QC	

Table 13. Artifact Attribute Comparisons - Scrapers (cont'd)

SANDY COVE

#	C	F	T	WES	ESY	VLRA	VLRB	SRD	SRV	GS	EC	EA	MECH	HM	L	W	T	RM	PL
1	c	tr	es	cx	s	ab	ab	par	ab	ab	ab	70		ab	27	18	7	CBeCh	25o
2	c	tr	es	cx	s	ab	ab	par	ab	ab	ab	50		ab	25	19	4	R	25p
3	c	re	es	cx	s	pr	pr	co	par	le	le	60		ab	25	15	6	QC	25q
4	i	—	es	cx	s	ab	ab	par	ab	bo	bo	80		—	—	17	5	FGrCh	25r
5	i	—	ebs	cx	bl	ab	ab	par	ab	ab	ab	60		—	—	11	3	QC	25s
6	i	—	ss	st	—	ab	ab	par	ab	—	—	40		—	—	—	6	FGrCh	25t

BANK

6	i	—	es	cx	—	ab	ab	par	ab	ab	ab	40	—	—	—	—	3	FGCh	22d

Table 14. Artifact Attribute Comparisons - Microblades

ASHLEY BAKER ISLAND

#	SEG	ERA	ERB	PA	HM	#A	L	W	T	RM	PL
14(1)	med	ab	ab	–	–	1	–	–	–	QC	2h
17(1a)	med	d	d	–	–	1	–	–	–	FBeCh	2i
19(2)	pro	ab	ab	80	ab	1	–	6	2	CBlCh	2j

MOOSE PASTURE

33(S)	dis	ab	ab	–	–	1	–	–	–	QC	8b
35(S)	med	ab	ab	–	–	1	–	–	–	R	8e
63(S)	med	ab	ab	–	–	1	–	–	–	FBeCh	8d
66(S)	pro	ab	ab	70	ab	1	–	–	2	QC	8a
91(S)	pro	ab	ab	80	ab	1	–	5	1	FMCh	8c
5(1)	co	ab	ab	80	ab	1	25	6	2	FMCh	8h
30(1)	med	ab	d	–	–	1	–	–	–	QC	8n
235(1)	med	ab	ab	–	–	1	–	–	–	R	8o
27(1)	med	ab	ab	–	–	1	–	–	–	FTCh	8s
85(1)	med	ab	ab	–	–	1	–	–	–	CGCh	8r
58(1)	med	ab	ab	–	–	1	–	–	–	FMCh	8q
37(1)	med	ab	ab	–	–	2	–	–	–	FMCh	8p
48(1)	pro.	d	d	80	ab	1	–	12	3	FGrCh	8i
71(1)	pro	ab	ab	80	ab	1	–	7	2	FTCh	8j
81(1)	dis	ab	ab	–	–	1	–	–	–	R	8t
100(1)	pro	ab	ab	90	ab	1	–	9	3	FBeCh	8g
44(1)	dis	d	d	–	–	1	–	–	–	FMCh	8f
75(1)	pro	ab	ab	70	ab	1	–	5	1	FMCh	8k
234(1)	pro	d	v	80	no	1	–	8	4	QC	8l
70(1)	pro	ab	ab	80	ab	1	–	7	2	QC	8m
12(1)	dis	ab	ab	–	–	1	–	–	–	QC	8u

Table 14. Artifact Attribute Comparisons - Microblades (cont'd)

MOOSE PASTURE (cont'd)

#	SEG	ERA	ERB	PA	HM	#A	L	W	T	RM	PL
140(2)	pro	ab	ab	70	ab	2	–	4	1	QC	8v
245(2)	pro	ab	ab	–	–	2	–	–	–	QC	8w

ZODIAC

26(S)	pro	ab	ab	80	ab	1	–	4	1	QC	13b
51(S)	med	ab	ab	–	–	2	–	–	–	QC	13a
14(1)	co	ab	ab	80	ab	1	24	11	3	PCh	13c
11(1)	pro	ab	ab	80	ab	1	–	7	3	QC	13k
17(1)	med	d	v	–	–	2	–	–	–	FGrCh	13f
47(1)	dis	ab	–	–	–	2	–	–	–	R	13d
77(1)	dis	ab	ab	–	–	1	–	–	–	CBlCh	13e
16(1)	co	ab	ab	80	ste	1	13	5	3	QC	13g
31(1)	dis	ab	ab	–	–	1	–	–	–	QC	13j
75(1)	dis	ab	ab	–	–	2	–	–	–	QC	13h
86(1)	med	ab	ab	–	–	2	–	–	–	QC	13i
24(2)	med	ab	ab	–	–	1	–	–	–	R	13n
21(2)	dis	–	–	–	–	2	–	–	–	QC	13l
65(2)	pro	–	–	80	–	1	–	4	1	QC	13m

THE BEACHES

563	co	ab	ab	90	ab	1	40	11	3	R	
551	co	ab	ab	90	ab	2	48	10	3	R	15e
586	co	ab	ab	90	ab	1	22	6	2	FGrCh	
555	co	ab	ab	90	ab	2	32	6	3	RCh	
560	co	ab	ab	90	ab	2	36	8	3	FBrCh	15c
552	co	ab	ab	80	ab	1	23	6	1	QC	

Table 14. Artifact Attribute Comparisons - Microblades (cont'd)

THE BEACHES (cont'd)

#	SEG	ERA	ERB	PA	HM	#A	L	W	T	RM	PL
556	co		ab	90	ab	1	38	11	3	FGrCh	
574	co	ab	ab	80	ab	1	42	9	4	FMCh	
554	co	ab	ab	90	ab	1	36	10	3	R	16i
1410	co	ab	ab	80	ab	1	30	7	2	QC	16g
594	co	ab	ab	80	ab	1	28	7	2	QC	16h
582	pro	ab	ab	80	ab	1	–	7	2	CBlCh	
575	pro	ab	ab	70	ab	3	–	8	2	FMCh	16a
599	pro	v	ab	90	ab	1	–	11	3	FMCh	
1411	pro	ab	ab	90	ab	2	–	7	3	R	
601	pro	ab	ab	90	ab	2	–	8	2	FMCh	16b
573	pro	ab	–	90	ab	1	–	–	3	FGrCh	
598	pro	ab	ab	90	ab	1	–	9	3	R	16f
576	pro	ab	ab	80	–	1	–	10	3	FGrCh	
569	pro	d/v	d	70	ab	1	–	12	3	FMCh	
608	pro	ab	ab	90	ab	1	–	9	2	FBeCh	
585	pro	ab	ab	90	ab	1	–	9	3	R	
604	pro	ab	ab	80	ab	2	–	9	2	R	16d
566	pro	ab	ab	–	ab	2	–	6	2	FGrCh	
26	pro	ab	ab	80	ab	2	–	7	2	R	
568	pro	ab	ab	90	–	1	–	7	3	R	
565	pro	ab	ab	90	ab	1	–	10	3	FBeCh	
596	pro	d/v	v	90	ab	1	–	8	2	FBrCh	
13	pro	ab	ab	90	ab	2	–	6	2	FBrCh	
691	pro	ab	ab	90	ab	2	–	9	3	R	
677	pro	ab	ab	90	ab	1	–	7	3	R	
581	pro	ab	ab	90	ab	1	–	7	3	R	

Table 14. Artifact Attribute Comparisons - Microblades (cont'd)

THE BEACHES (cont'd)

#	SEG	ERA	ERB	PA	HM	#A	L	W	T	RM	PL
595	pro	v	d	90	–	1	–	8	3	FBlCh	
609	pro	ab	ab	90	ab	1	–	7	2	QC	16i
572	med	ab	ab	–	–	1	–	–	–	FMCh	
588	med	ab	ab	–	–	2	–	–	–	FGCh	
610	med	ab	ab	–	–	1	–	–	–	RCh	
600	med	ab	ab	–	–	2	–	–	–	FBeCh	
564 *	med	ab	ab	–	–	2	–	–	–	FGrCh	
564 *	med	ab	ab	–	–	2	–	–	–	FGCh	
606	med	ab	ab	–	–	2	–	–	–	R	
587	med	ab	ab	–	–	1	–	–	–	R	
597	med	–	–	–	–	1	–	–	–	FBrCh	
571	med	ab	ab	–	–	1	–	–	–	R	
591	med	ab	ab	–	–	1	–	–	–	FBrCh	
557	med	ab	ab	–	–	2	–	–	–	R	
20	med	ab	ab	–	–	1	–	–	–	R	
570	med	ab	ab	–	–	2	–	–	–	R	
692	med	–	–	–	–	1	–	–	–	R	
683	med	ab	ab	–	–	1	–	–	–	R	
559	med	ab	ab	–	–	2	–	–	–	R	
593	med	ab	ab	–	–	2	–	–	–	FBeCh	
580	med	ab	ab	–	–	1	–	–	–	RCh	
607	med	ab	ab	–	–	1	–	–	–	QC	
12	dis	ab	ab	–	–	2	–	–	–	CBrCh	
53	dis	ab	ab	–	–	1	–	–	–	R	

*NOTE: Both these specimens were catalogued with the same number.

Table 14. Artifact Attribute Comparisons - Microblades (cont'd)

THE BEACHES (cont'd).

#	SEG	ERA	ERB	PA	HM	#A	L	W	T	RM	PL
590	dis	ab	ab	–	–	1	–	–	–	R	
592	dis	ab	d	–	–	1	–	–	–	R	
603	dis	ab	ab	–	–	2	–	–	–	FBeCh	
583	dis	ab	ab	–	–	1	–	–	–	R	
561	dis	d	d	–	sn	1	–	–	–	R	16k
567	dis	ab	ab	–	–	3	–	–	–	FBrCh	

FOX BAR

58	co	ab	ab	80	ab	1	30	7	2	FBrCh	22h
7	dis	ab	ab	–	–	1	–	–	–	FBrCh	22i

BLOODY BAY COVE

314	med	ab	ab	–	–	1	–	–	–	R	23j
128	dis	ab	ab	–	–	1	–	–	–	R	23g
129	dis	ab	ab	–	–	1	–	–	–	R	23h
130	dis	ab	ab	–	–	1	–	–	–	R	23i
84	co	ab	ab	90	ab	2	50	7	2	R	23f

SANDY COVE

1	med	ab	d	–	–	1	–	–	–	FGrCh	26a
2	pro	ab	ab	80	ab	1	–	4	3	R	26b
3	med	ab	ab	–	–	2	–	–	–	QC	26c
4	med	d	v	–	–	2	–	–	–	FGrCh	26d
5	pro	ab	ab	70	ab	1	–	6	2	QC	26e
6	co	v	ab	–	ab	3	80	17	4	R	26f

BANK

#	SEG	ERA	ERB	PA	HM	#A	L	W	T	RM	PL
1	pro	ab	ab	80	ab	2	–	11	2	CBeCh	22e

Table 15. Artifact Attribute Comparisons - Sideblades

MOOSE PASTURE

#	C	FORM	SR	ER	SG	ES	L	W	T	RM	PL
49(S)	i	s-l	b	b	–	sl	–	6	2	FGrCh	8x
59(1)	i	s-l	b	b	ab	ab	–	7	2	FTrCh	8y
219(1)	i	s-l	b	b	–	sl	–	5	1	FGCh	8z
92(1)	i	–	–	–	–	–	–	–	2	FGCh	8aa
6(1)	i	s-l	ab	u	ab	ab	–	9	2	FBeCh	8bb
9(1)	i	tr?	ab	pb	ab	ab	–	11	2	FBlCh	8cc
282(2)	i	s-l?	b?	b?	–	ab	–	–	2	FGCh	8dd

Table 16. Artifact Attribute Comparisons - Burin-like Tools

MOOSE PASTURE

#	C	F	DES	PES	HM	NH	SR	SGD	SGV	EDGE A	EDGE B	D END	P END	L	W	T	RM	PL
105(1)	c	re	st	st	sn	3/3	pu	par	co	db;gr. along ext. edge	bi-f	vb;gr. along ext. end; bi-f	bi-f	27	14	3	FGrCh	9a
29(1)	i	–	st	–	–	–	–	pr	pr	gr. along ext. edge; bi-f	bi-f	bi-b	–	–	–	–	FGCh	9b
139(1)	i	–	st	–	–	–	–	pr	pr	db;gr. along ext. edge	bi-f	bi-b	–	–	–	–	FGCh	9c
60(1)	see text																FGCh	9d
130(2)	i	–	–	st	sn	4/3	–	pr	pr	–	–	–	bi-f	–	–	–	FBrCh	9e
225(2)	i	ir	cx	–	sn	–	ab	pr	pr	db;gr. along ext. edge	bi-f	bi-b	–	–	–	2	FGCh	9h
133(2)	i		st	–	–	–	–	pr	pr	db;gr. along ext. edge	bi-f	bi-b	–	–	–	–	FGrCh	9g
232(2)	see text																FGCh	9f

Table 16. Artifact Attribute Comparisons - Burin-like Tools (cont'd)

ZODIAC

49(1)	c	tr	st	st	sn	3/3	pb	par	par	gr.along ext. edge; do-f	bi-f	do-f and vb	bi-f	14	11	3	FMCh	13o

THE BEACHES

855	see text	FMCh	16m*

FOX BAR

#	C	F	DES	PES	HM	NH	SR	SGD	SGV	EDGE A	EDGE B	D END	P END	L	W	T	RM	PL
16	c	tr	st	st	sn	3/3	pb	par	par	bi-f	gr. along ext. edge; do-f	bi-b	bi-f	28	11	3	FBrCh	22j
18	i	tr		st	sn	7/7	pb	par	par	bi-f	gr. along ext. edge; do-b	—	bi-f	—	20	4	FGCh	22k

Table 17. Artifact Attribute Comparisons - Knives

MOOSE PASTURE

#	C	SY	EAS	EBS	ER	SRD	SRV	TS	BS	HM	NT	IN	NH	TX-S	L	W	T	RM	PL
77(S)	c	as	st	st	pb	par	co	ro	st	no	sn	1/1	3/4	plcx	33	14	5	R	9j
112(S)	c	as	st	cv	b	par	par	ro	st	no	sn	1/1	5/5	bipl	54	30	5	CBrCh	9i
57(S)	i	–	–	–	–	–	–	–	–	no	sn	1/-	4/-	bipl	–	–	4	FBeCh	9l
97(S)	i	as	–	–	pb	ab	ab	ro	–	–					–	–	x3	R	9k
88(1)	c	as	st	cx	pb	par	par	po	ir	no	sn	1/1	5/4	bipl	43	30	7	R	9m
42(1)	i	as	cx	st	b	co	co	–	cv	no	sn	1/1	3/3	bicx	–	19	7	R	9n
227(1)	i	as	cv	cv	pb	par	par	ro	–	no	sn	1/1	-/-	plcx	–	–	4	FMCh	9p
158(1)	c	as	cv	st	pb	par	ab	po	cx	no	sn	1/1	6/5	plcx	38	17	5	R	9o
189(1)	i	as	cx	st	pb	co	par	bl	–	–				bicx	–	–	–	CBlCh	9r
108(1)	i	–	st?	st?	pb	co	co	ro	–	–				bicx	–	–	–	PCh	9s
295(1)	i	as	–	–	pb	par	par	bl	–	–				bicx	–	–	–	PCh	9q
135(2)	i	as	cx	st	pb	par	ab	–	st	no	sn	1/1	4/2	plcx	–	12	3	FTCh	9t

THE BEACHES

1409	c	as	cx	st	pb	par	par	bl	cv	no	sn	1/1	6/3	bicx	79	34	7	R	17b
1387	c	as	cv	cx	b	co	co	ro	st	no	sn	1/1	4/4	bicx	88	34	7	FMCh	17d
56	c	s	st	st	b	co	co	po	st	no	sn	1/1	4/4	bicx	45	26	5	FMCh	17h
1408	c	s	cx	cx	b	co	co	ro	st	no	sn	1/1	4/5	bicx	55	18	9	FBeCh	17f
673	c	as	cv	st	b	co	co	ro	st	no	sn	1/1	2/3	bicx	36	18	4	FMCh	17g

Table 17. Artifact Attribute Comparisons - Knives (cont'd)

THE BEACHES (cont'd)

#	C	SY	EAS	EBS	ER	SRD	SRV	TS	BS	HM	NT	#N	NH	TX-S	L	W	T	GRM	PL
812*	c	as	cx	cx	pb	co	par	bl	cv	no	sn	1/1	4/4	bipl	74	31	5	R	17c
03	c	as	cx	cx	b	par	par	ro	cv	no	sn	1/1	3/5	bipl	60	30	5	PCh	
811	c	as	cx	cx	b	co	co	ro	st	no	sn	1/1	2/3	bicx	59	35	7	R	
819	c	as	st	cx	b	par	par	ro	st	no	sn	1/	3/	plcx	52	33	7	R	
809	c	as	cx	cx	b	par	par	ro	cv	no	sn	1/1	5/5	plcx	91	42	7	R	17a
820-1	i	as	ir	cx	b	co	co	–	st	no	sn	1/1	4/4	bipl	–	23	4	PGCh	17e
812*	i	–	–	cx	b	co	co	–	cv	no	sn	1/1	6/6	bicx	–	37	9	R	
816	i	as	cx	st	pb	par	par	ro	–	no	cn/sn	1/1	-/6	bipl	–	29	5	R	

* NOTE: Both these specimens were catalogued with the same number.

FOX BAR

127	i	as	cx	st?	b	co	par	–	cv	no	sn	1/1	6/3	bicx	–	35	6	R	221

BLOODY BAY COVE

510	c	as	st	cx	pb	par	par	po	st	no	sn	1/1	5/4	plcx	41	21	5	R	23e

SANDY COVE

1	i	as?	–	–	pu	par	par	–	st	no	sn	1/1	?/4	–	–	44	6	CGCh	26g
2	c	as	cx	cx	b	ab	ab	ro	st	no	sn	1/1	2/2	plcx	35	15	4	CBrCh	26h

Table 17. Artifact Attribute Comparisons - Knives (cont'd)

SANDY COVE (cont'd)

#	C	SY	EAS	EBS	ER	SRD	SRV	TS	BS	HM	NT	#N	NH	TXS	L	W	T	RM	PL
3	i	as?	cx?	st?	b	co	par	–	st?	no	sn	1/1	4/?	bicx	–	11	4	R	26i
4	i	as?	–	–	pb	–	–	po	–	–				bicx	–	–	–	R	26j

BANK

2	c	as	cx	st	b	co	co	bl	st	no	sn	1/1	3/3	bicx	51	27	4	R	22f
7	i	as?	–	–	b?	–	–	cv	–	–				bicx	–	–	–	FGCh	22g

APPENDIX B

Table 1: Comparison of Artifact Categories and Attributes for Groswater and Middle Dorset, Bonavista Bay

CATEGORIES	GROSWATER / MIDDLE DORSET	ASHLEY BAKER ISLAND	MOOSE PASTURE	ZODIAC	THE BEACHES	FOX BAR	BLOODY BAY COVE	SANDY COVE	BANK
Endblades	high side-notched	1	6	2	3		2		
	triangular and tip-fluted	1		3	43		1	8	2
Sideblades	semi-lunate lenticular		6						
	?								
Burins	?				1				
	absent								
Burin-like Tools	chipped and ground side-notches		5	1		2			
	tabular, entirely ground				1(?)				
Soapstone Vessels	absent								
	present				3				
Tip-fluting Flakes	absent								
	present	3		1	15		1	2	

APPENDIX B

Table 2: Comparison of Artifact Categories and Attributes for Early and Late Palaeo-Eskimo traditions in Newfoundland

	ATTRIBUTES	
CATEGORIES	EARLY	LATE
Endblades	high side-notched plano-convex sections	triangular and tip-fluted
Scrapers	?	?
Sideblades	semi-lunate lenticular	?
Burins	occasionally present	absent
Burin-like Tools	chipped and ground side-notched	tabular, entirely ground side-notched or "stemmed"
Knives	irregular or ovate shape	triangular
Soapstone Vessels	absent	present
Tip-fluting Flakes	absent	present

PLATE 1

Photograph of the Ashley Baker Island Site

PLATE 2

Artifacts from the Ashley Baker Island Site

a-d: Endblades

a-c: Stratum 1
d: Stratum 2

e-g: Scrapers

e, f: Stratum 1
g: Stratum 1(a)

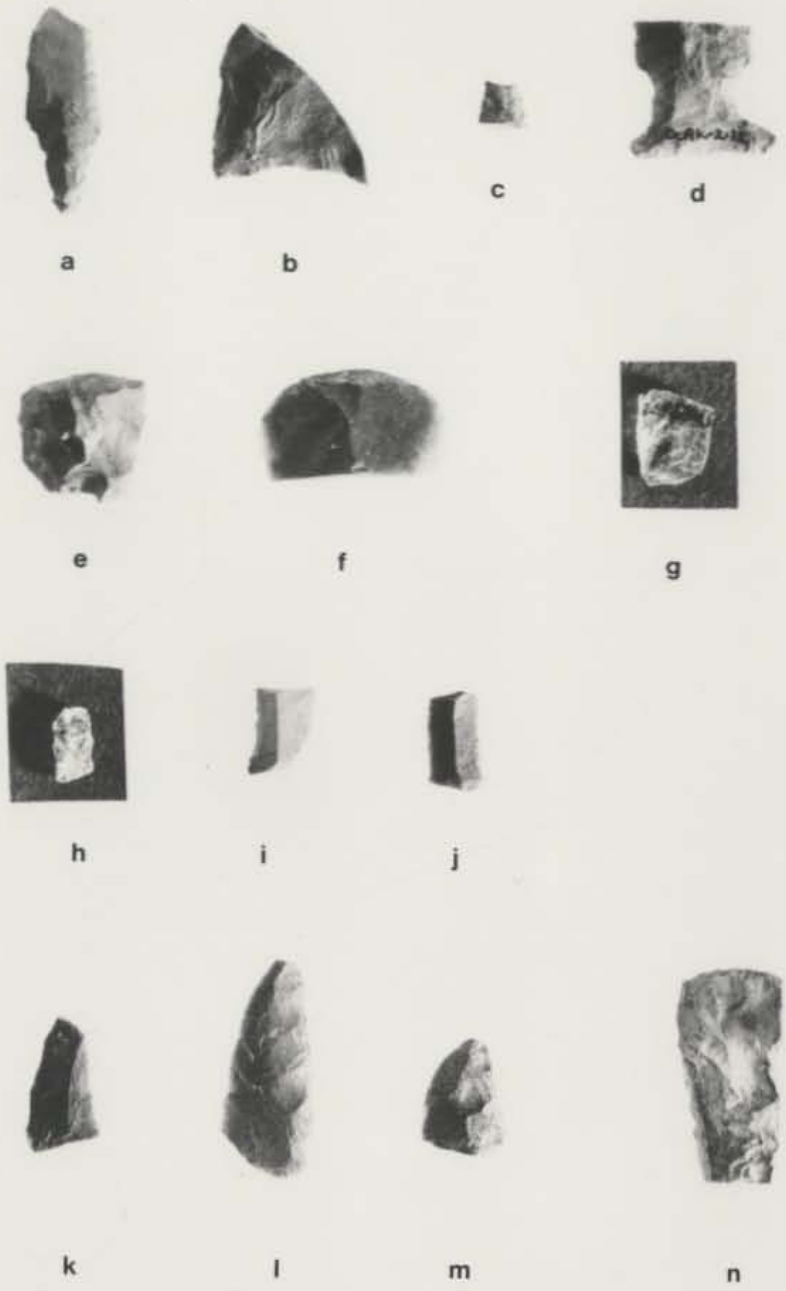
h-j: Microblades

h: Stratum 1
i: Stratum 1(a)
j: Stratum 2

k-m: Tip-fluting Flakes

k: Stratum 1
l: Stratum 1(a)
m: Stratum 2

n: Scraper-like Implement - Stratum 1(a)


a
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f
g
h
i
j
k
l
m
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0 1 2 3 4 5
CM.
CM.

PLATE 3

Photograph of the Moose Pasture Site

PLATE 4

Feature 1, Stratum 1: Moose Pasture Site


MOOSE PASTURE
STRATUM 1
FEATURE 1
JUNE 16 1980

PLATE 6

Endblades from the Moose Pasture Site

a-j: Sod
k-o: Stratum 1
p: Stratum 2

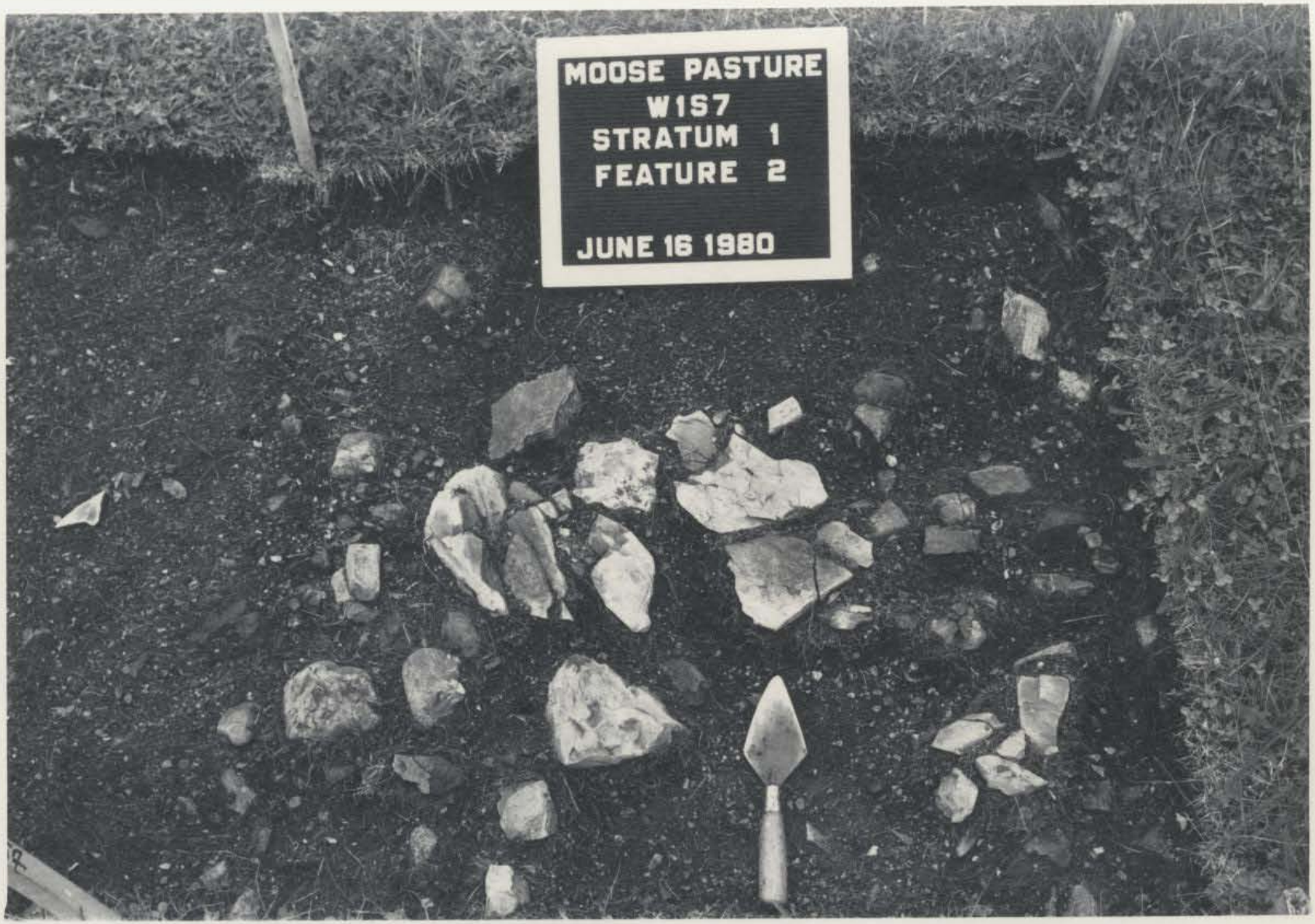
MOOSE PASTURE
W1S7
STRATUM 1
FEATURE 2
JUNE 16 1980

PLATE 6

Endblades from the Moose Pasture Site

a-j: Sod
k-o: Stratum 1
p: Stratum 2


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b
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k
l
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n
o
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CM.
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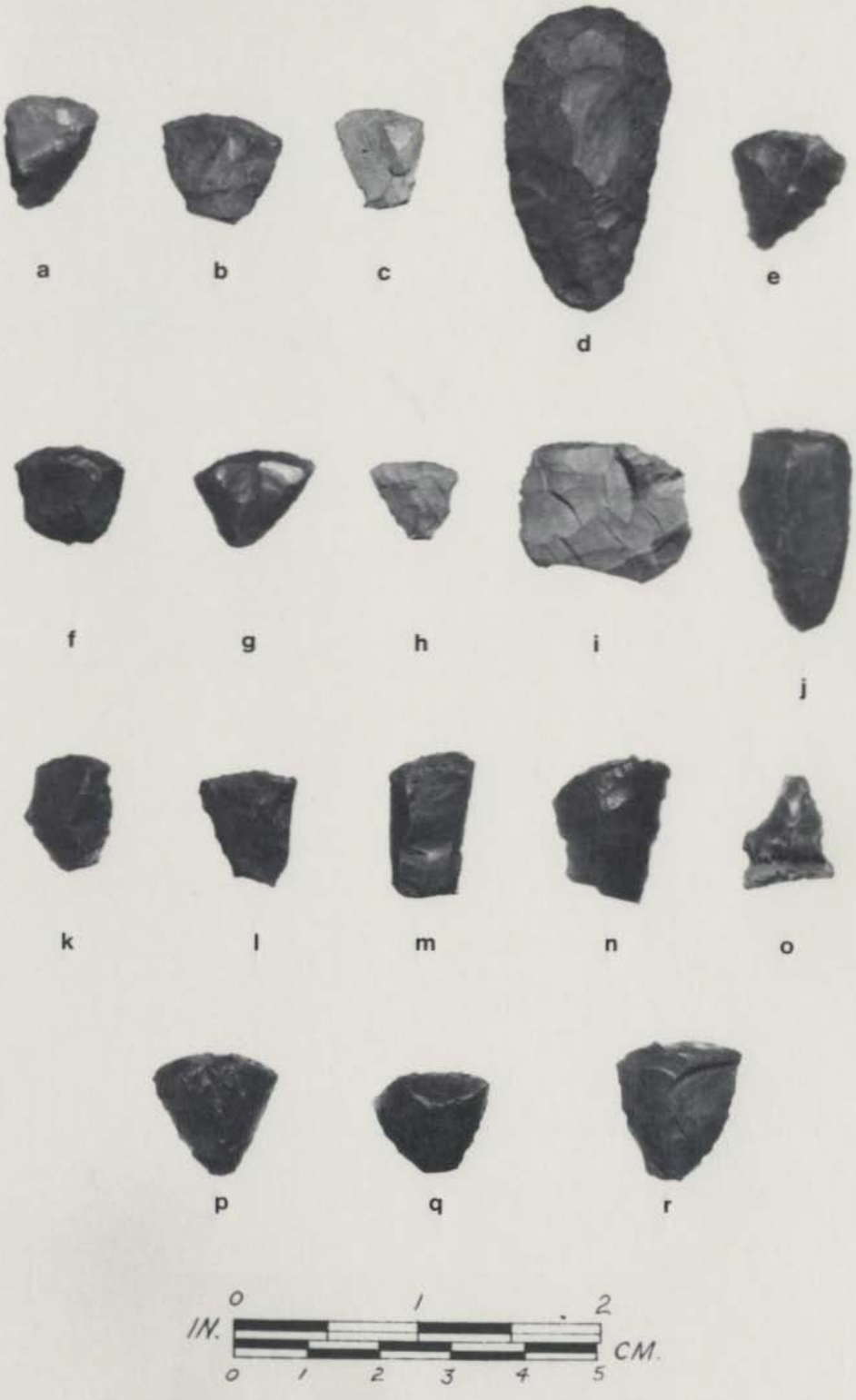
PLATE 7

Scrapers from the Moose Pasture Site

a-c, l: Sod
d-k, m-o: Stratum 1
p-r: Stratum 2


a
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g
h
i
j
k
l
m
n
o
p
q
r
0 1 2
IN.
CM.
0 1 2 3 4 5

PLATE 8

Artifacts from the Moose Pasture Site

a-w: Microblades

a-e: Sod
f-u: Stratum 1
v, w: Stratum 2

x-dd: Sideblades

x: Sod
y-cc: Stratum 1
dd: Stratum 2


a
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c
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f
g
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k
l
m
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o
p
q
r
s
t
u
v
w
x
y
z
aa
bb
cc
dd
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CM.
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5

PLATE 9

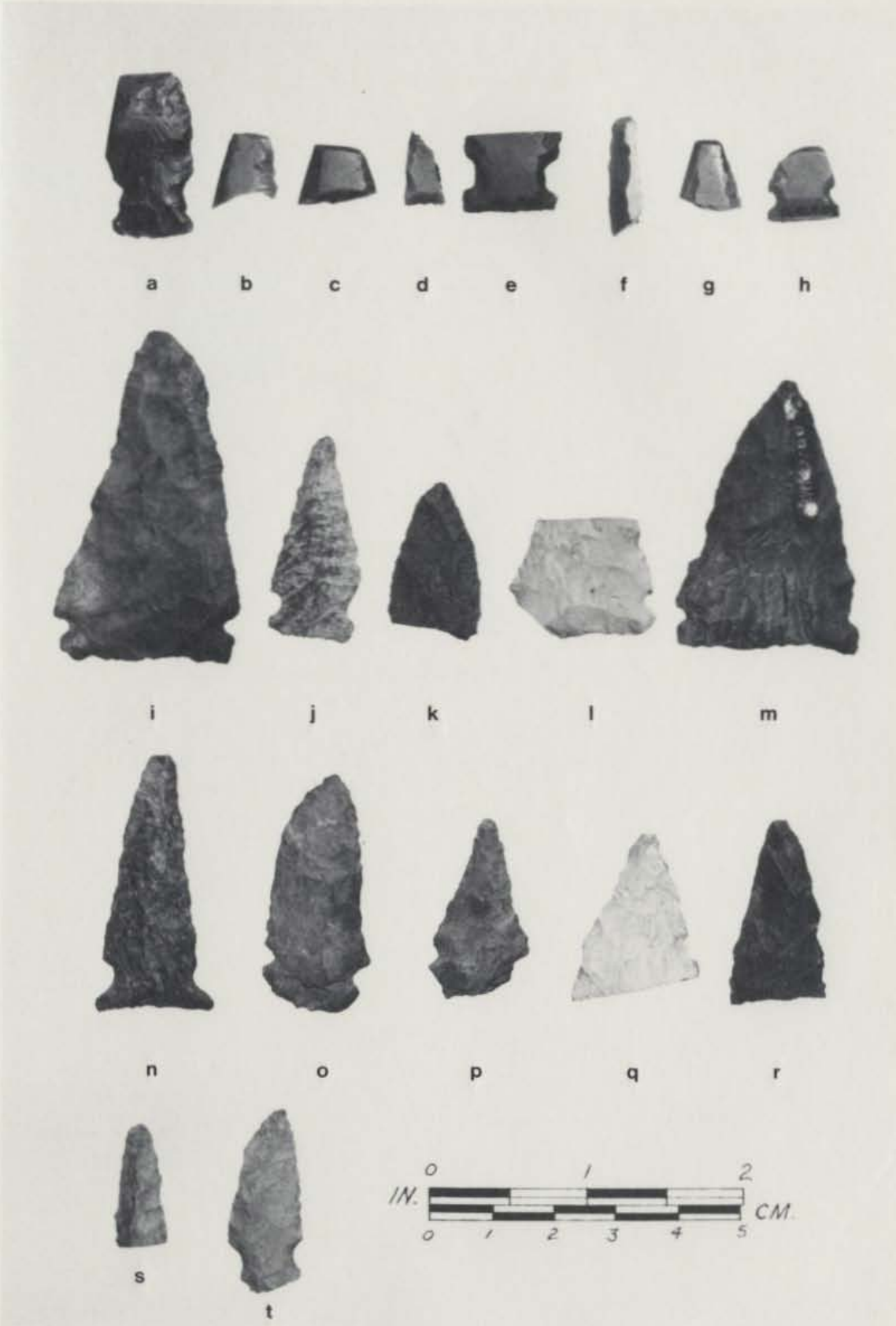
Artifacts from the Moose Pasture Site

a-h: Burin-like Tools

a-d: Stratum 1
e-h: Stratum 2

i-t: Knives

i-l: Sod
m-s: Stratum 1
t: Stratum 2


a
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d
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f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
0
1
2
IN.
CM.
0
1
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3
4
5

PLATE 10

Artifacts from the Moose Pasture Site

b-d: Undetermined

b: Sod
c, d: Stratum 1

a, e-g: Miscellaneous - Stratum 1

a b c d

e f g

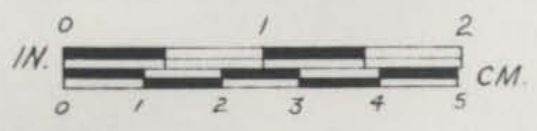


PLATE 11

Photograph of the Zodiac Site

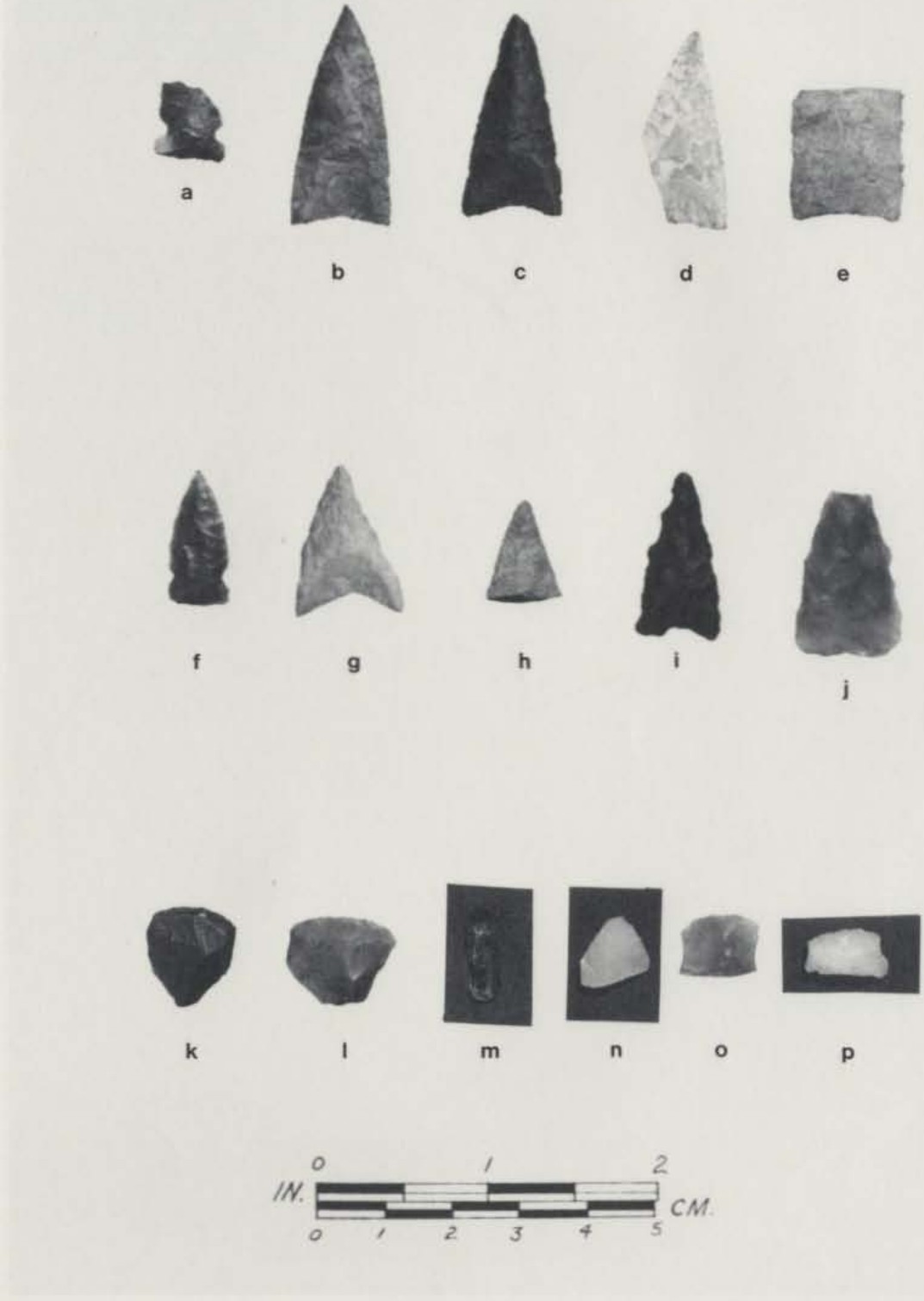
PLATE 12

Artifacts from the Zodiac Site

a-j: Endblades

a-e: Stratum 1
f-h: Stratum 2
i, j: Surface

k-p: Scrapers - Stratum 1


a
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c
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e
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g
h
i
j
k
l
m
n
o
p
0 1 2
IN.
CM.
0 1 2 3 4 5

PLATE 13

Artifacts from the Zodiac Site

a-n: Microblades

a, b: Sod
c-k: Stratum 1
l-n: Stratum 2

o: Burin-like Tool - Stratum 1

p, q: Miscellaneous

p: Stratum 1
q: Stratum 2

r: Preform - Stratum 1

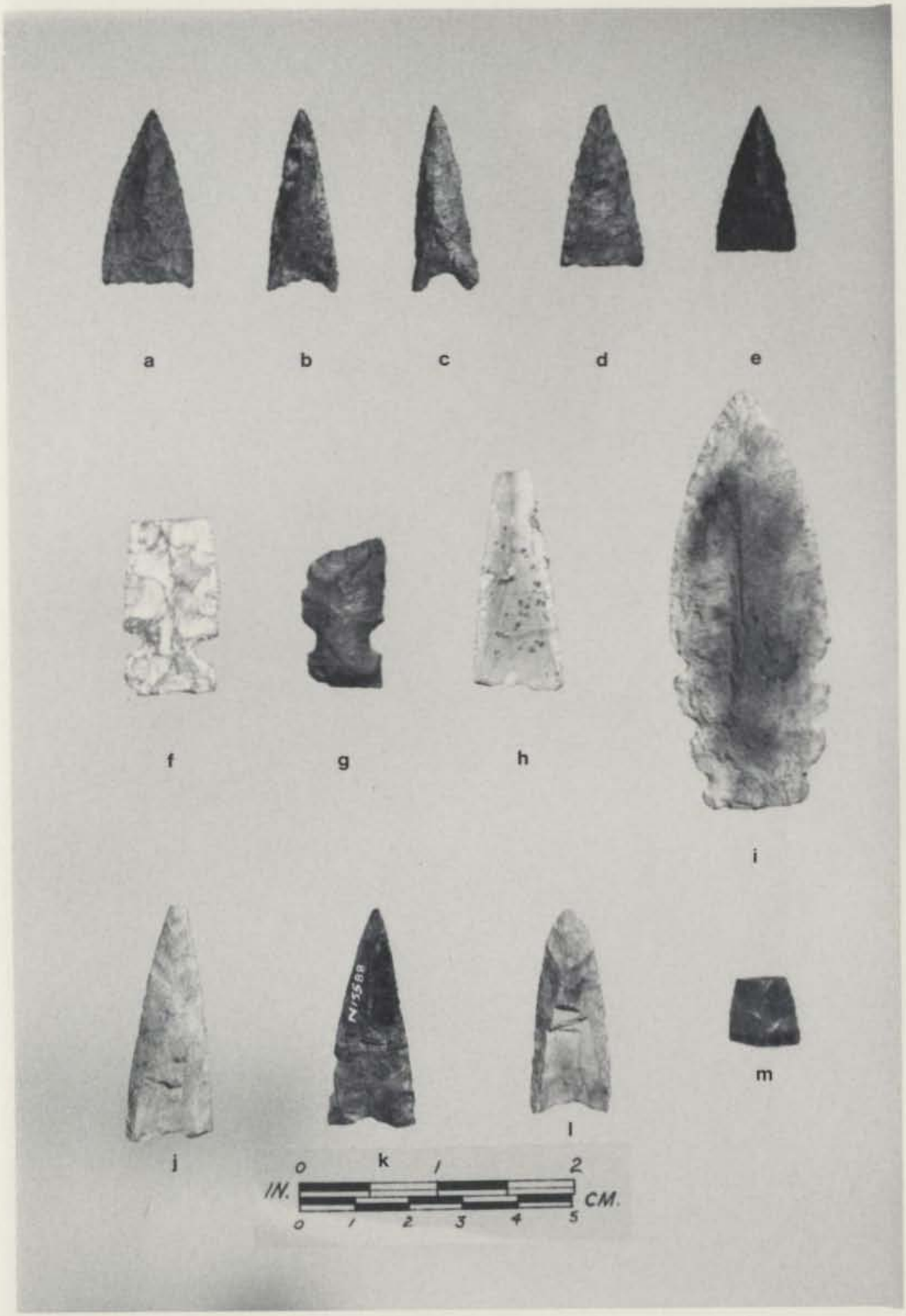
s: Tip-fluting Flake - Stratum 2

t-x: Undetermined - Stratum 1


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
v
w
x
0
1
2
IN.
CM.
0
1
2
3
4
5

PLATE 14

Endblades from The Beaches Site


a
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c
d
e
f
g
h
i
j
k
l
m
N1558
0 1 2
IN.
CM.
0 1 2 3 4 5

PLATE 15

Scrapers from The Beaches Site

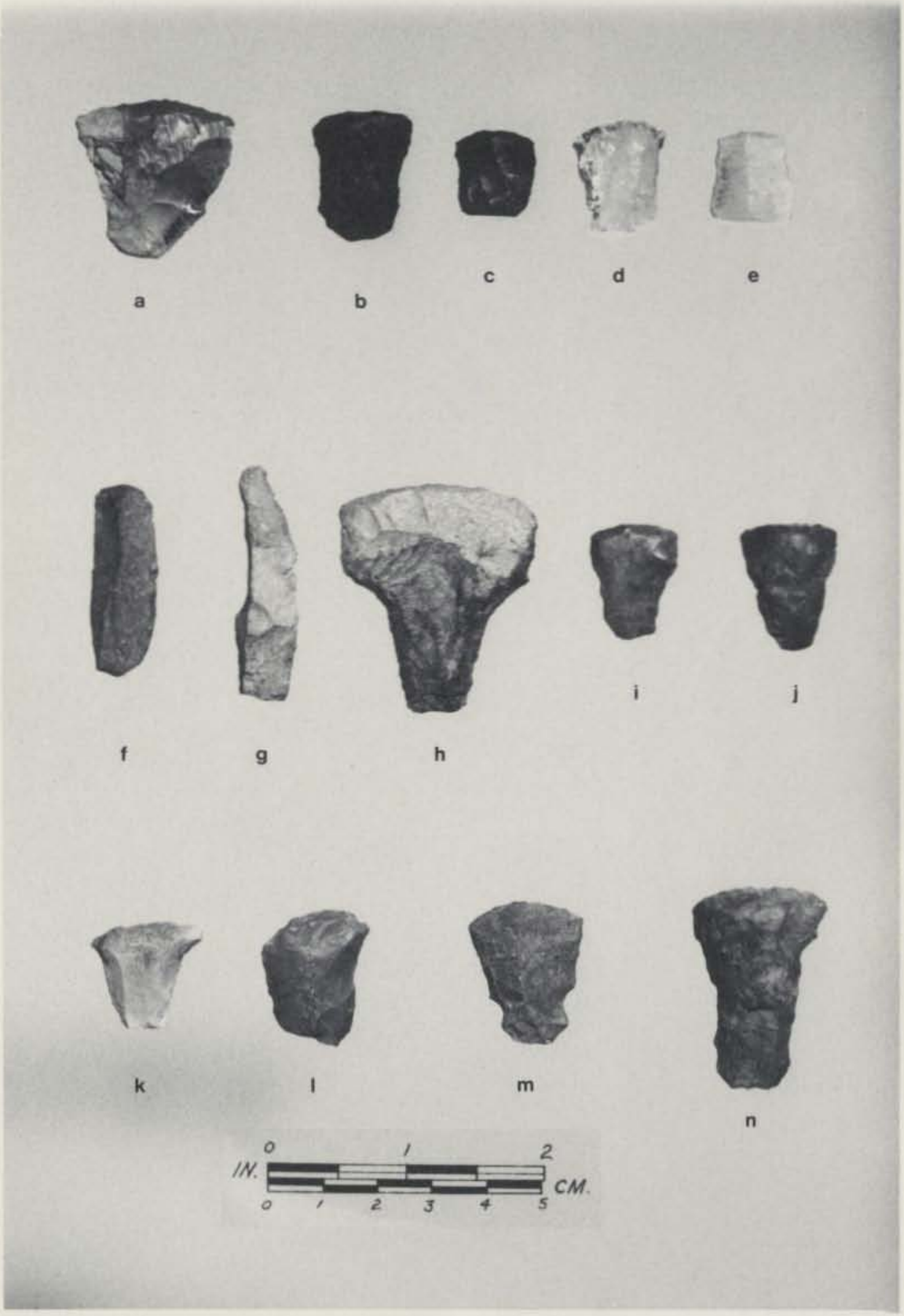
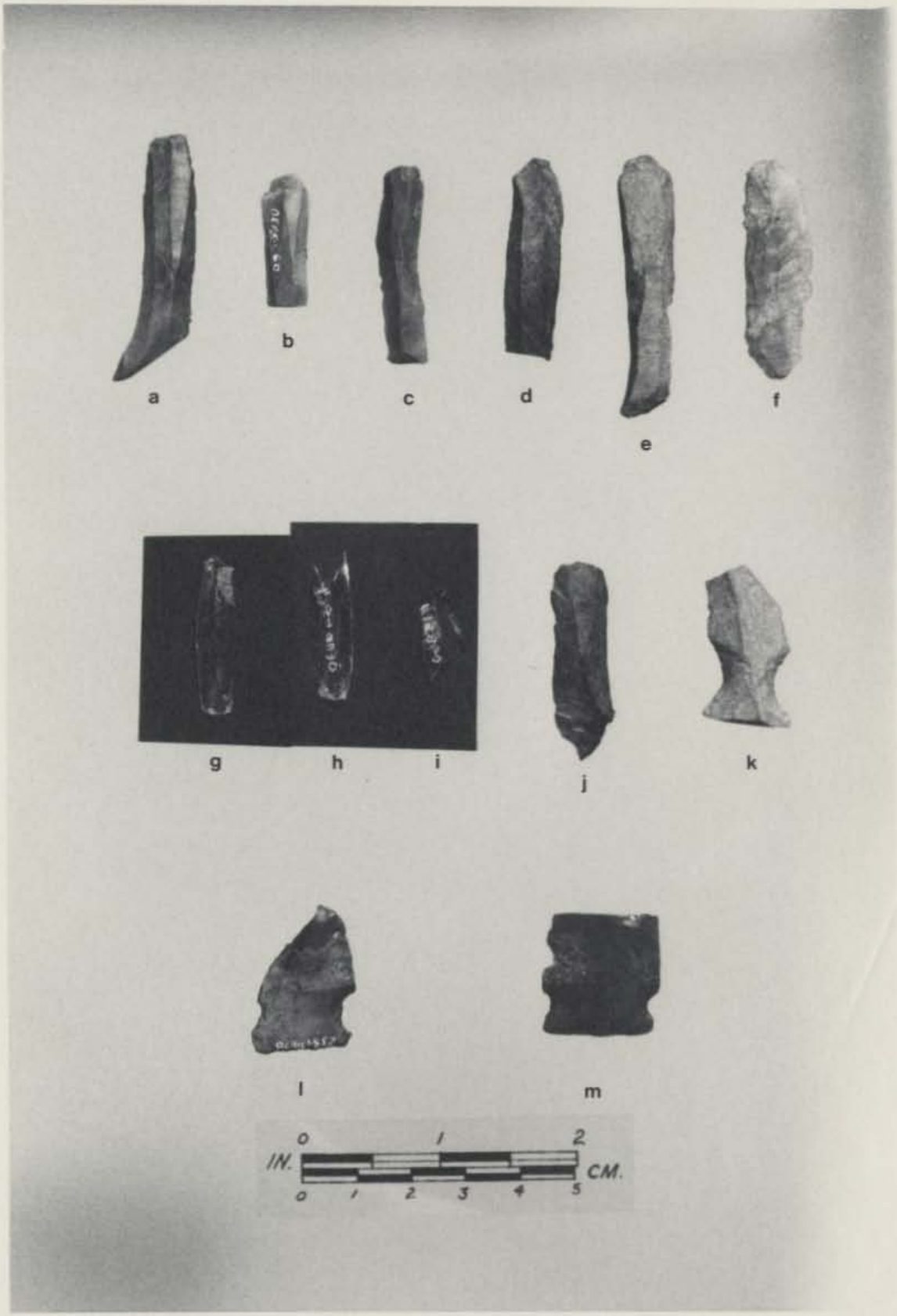

a
b
c
d
e
f
g
h
i
j
k
l
m
n
0 1 2
IN.
CM.
0 1 2 3 4 5

PLATE 16

Artifacts from The Beaches Site

a-k: Microblades
l: Burin
m: Burin-like Tool


a
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c
d
e
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g
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i
j
k
l
m
0 1 2
IN.
CM.
0 1 2 3 4 5

PLATE 17

Knives from The Beaches Site

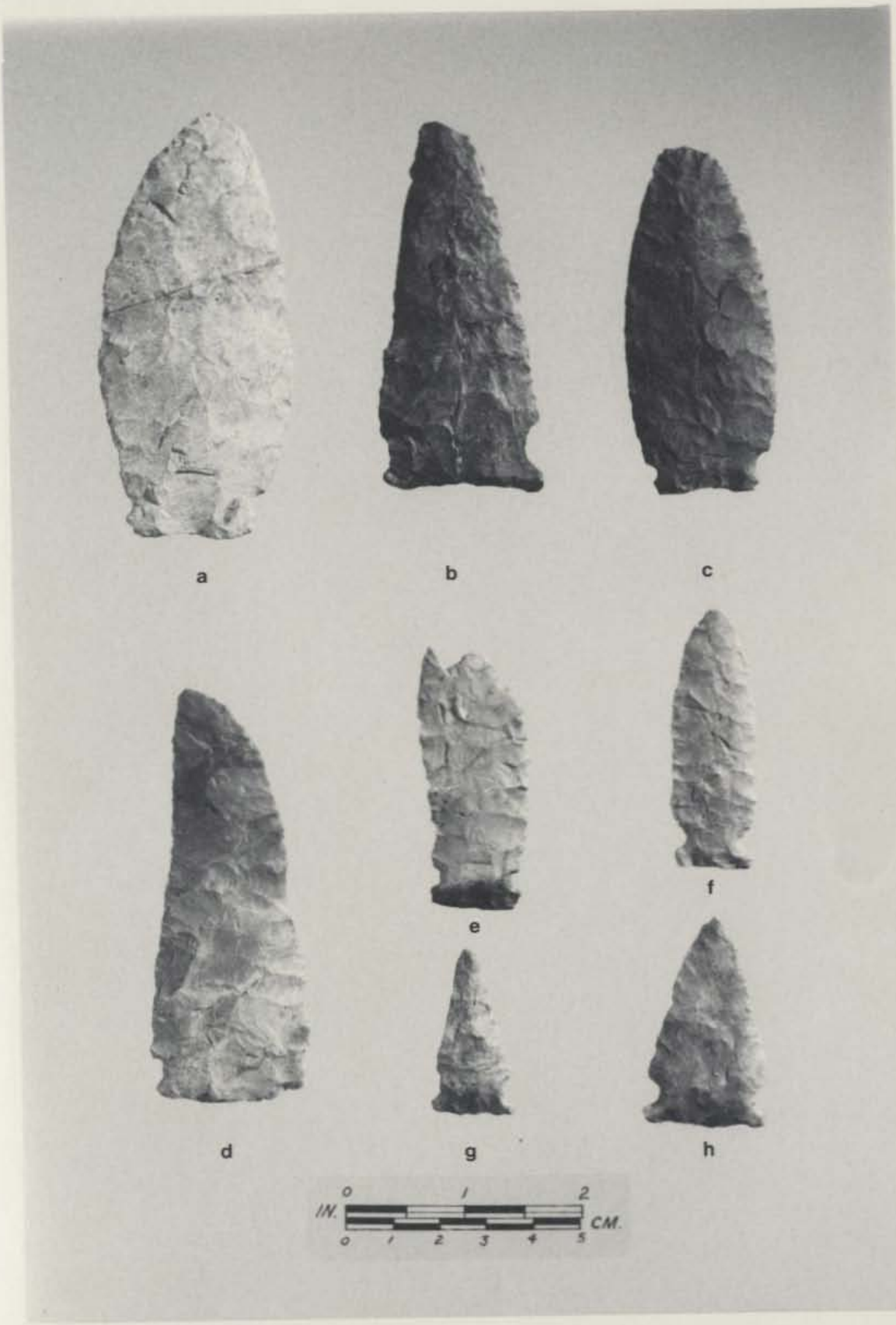

a
b
c
d
e
f
g
h
0 1 2
IN.
CM.
0 1 2 3 4 5

PLATE 18

Artifacts from The Beaches Site

a, b: Ground Stone
c, d: Soapstone Fragments

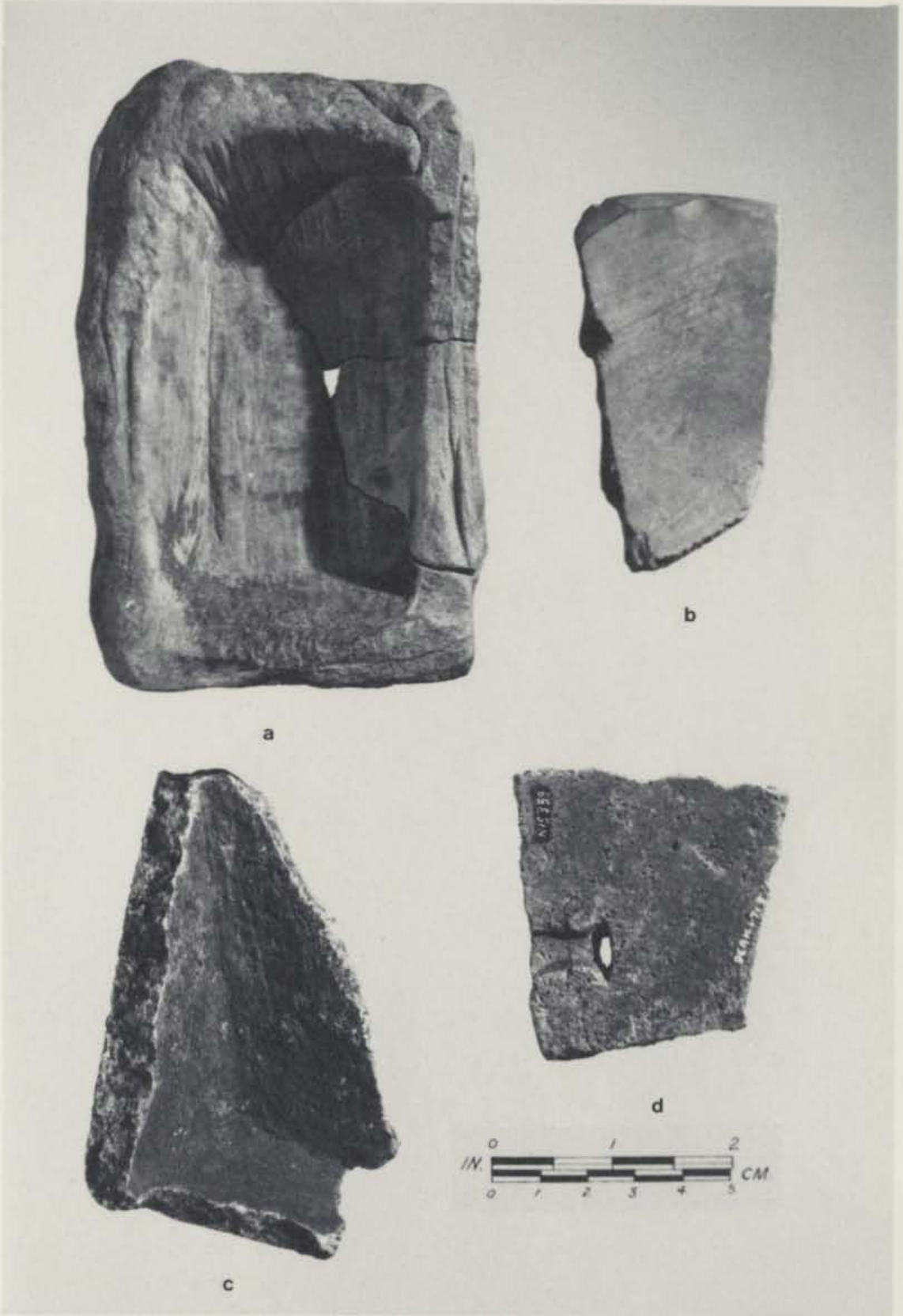
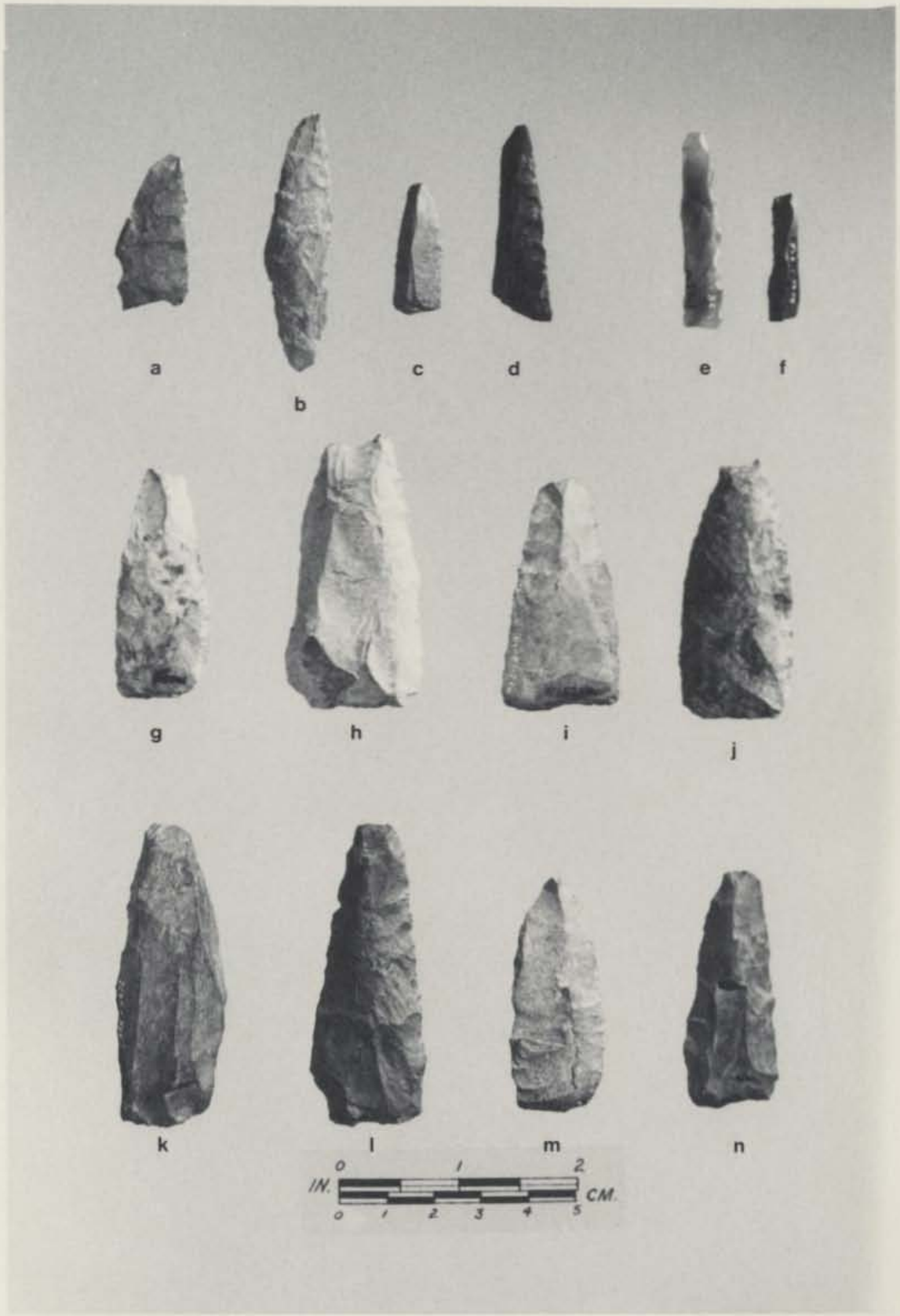

a
b
c
d
IN.
0 1 2
0 1 2 3 4 5
CM

PLATE 19

Artifacts from The Beaches Site

a-d: Tip-fluting Flakes
e, f: Ridge Flakes
g-n: Preforms


a
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g
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j
k
l
m
n
0 1 2
IN.
CM.
0 1 2 3 4 5

PLATE 20

Miscellaneous artifacts from The Beaches Site


a
b
c
d
IN.
0 1 2
0 1 2 3 4 5
CM.

PLATE 21

Photograph of the Bank Site

PLATE 22

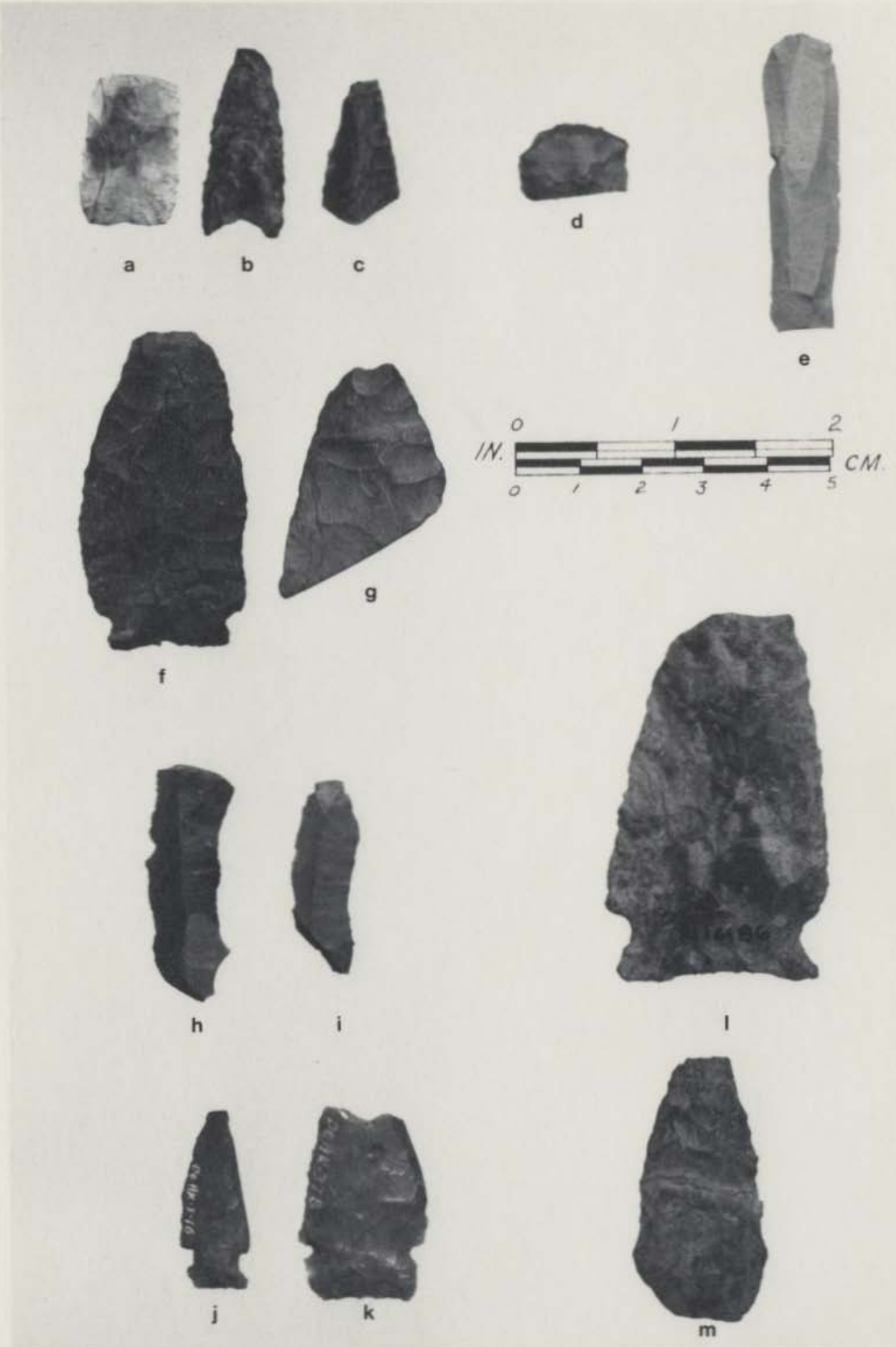
Artifacts from the Bank and Fox Bar Sites

Bank Site

a-c: Endblades
d: Scraper
e: Microblade
f, g: Knives

Fox Bar Site

h, i: Microblades
j, k: Burin-like Tools
l: Knife
m: Preform


a
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e
0 1 2
IN.
CM.
0 1 2 3 4 5
f
g
h
i
l
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k
m

PLATE 23

Artifacts from the Bloody Bay Cove Site

a-d: Endblades
e: Knife
f-j: Microblades
k: Tip-fluting Flake

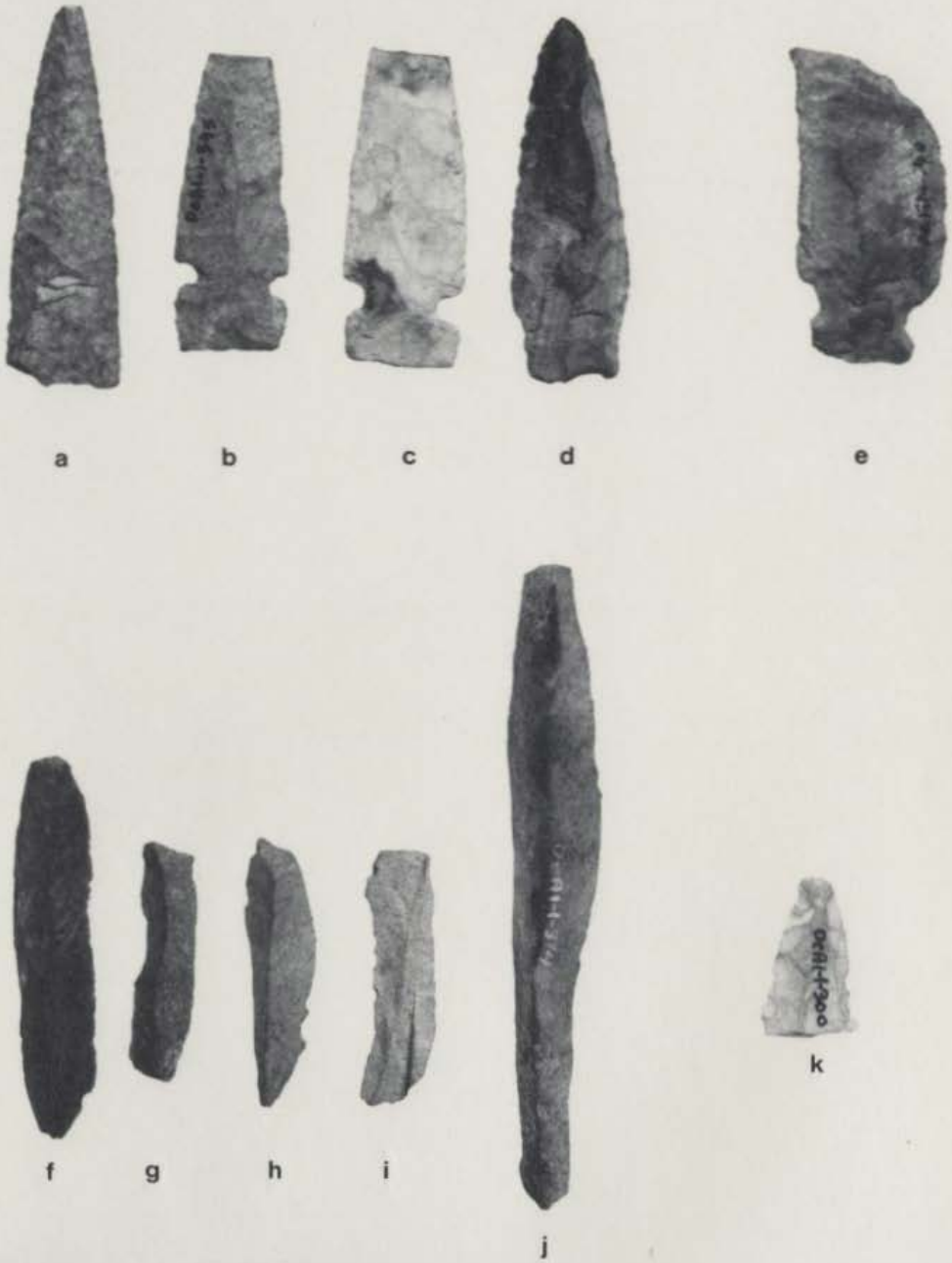
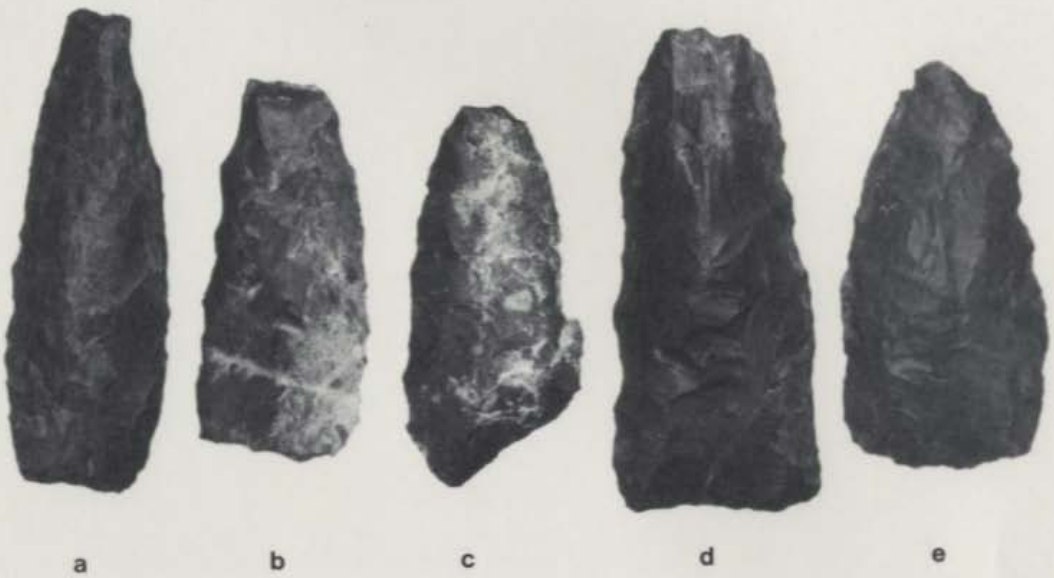
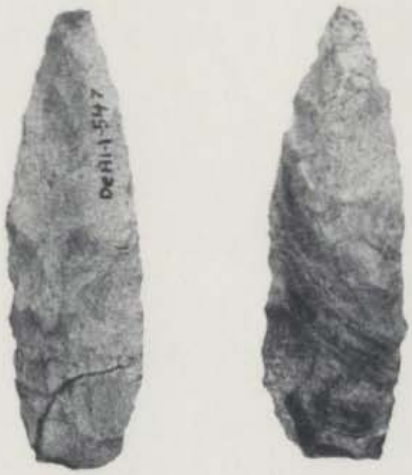

a
b
c
d
e
f
g
h
i
j
k
IN.
0 1 2
CM.
0 1 2 3 4 5

PLATE 24

Preforms from the Bloody Bay Cove Site



a b c d e



f g

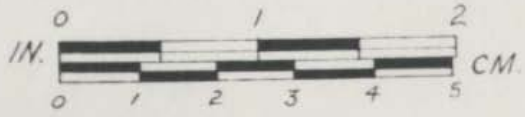


PLATE 25

Artifacts from the Sandy Cove Site

a-n: Endblades
o-t: Scrapers


a
b
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d
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o
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q
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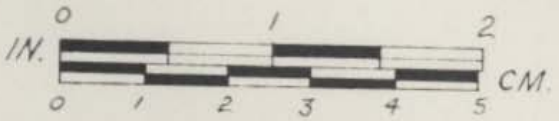
IN.
CM.
0 1 2 3 4 5

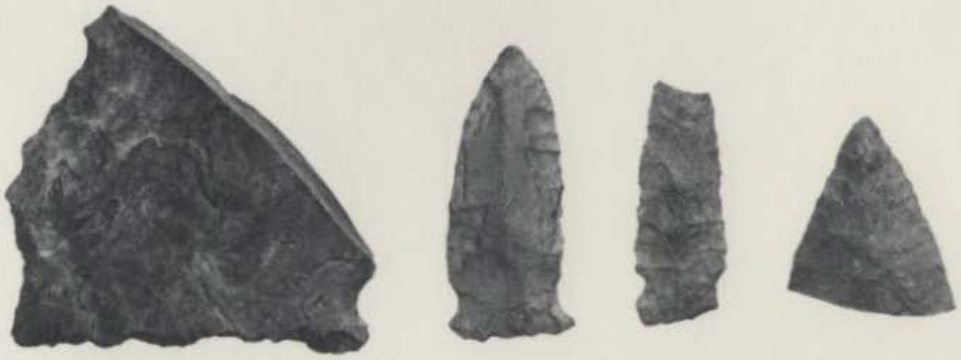
PLATE 26

Artifacts from the Sandy Cove Site

a-f: Microblades
g-i: Knives
k, l: Tip-fluting Flakes
m: Ridge Flake
n, o, q: Retouched Flakes
p, r, s: Miscellaneous

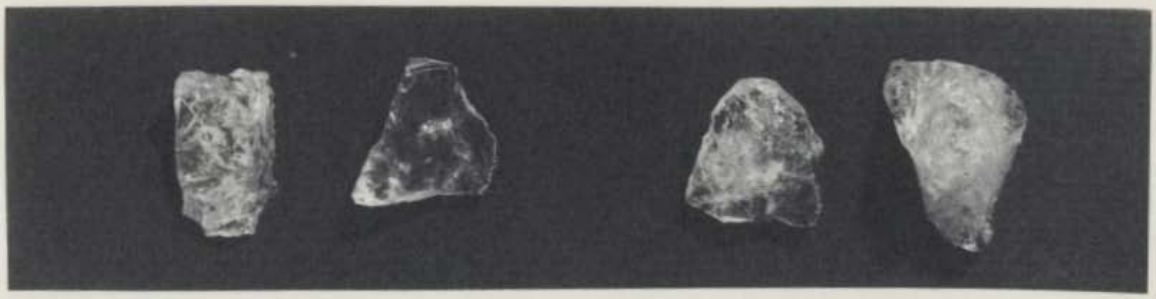
a b c d e f





g h i j

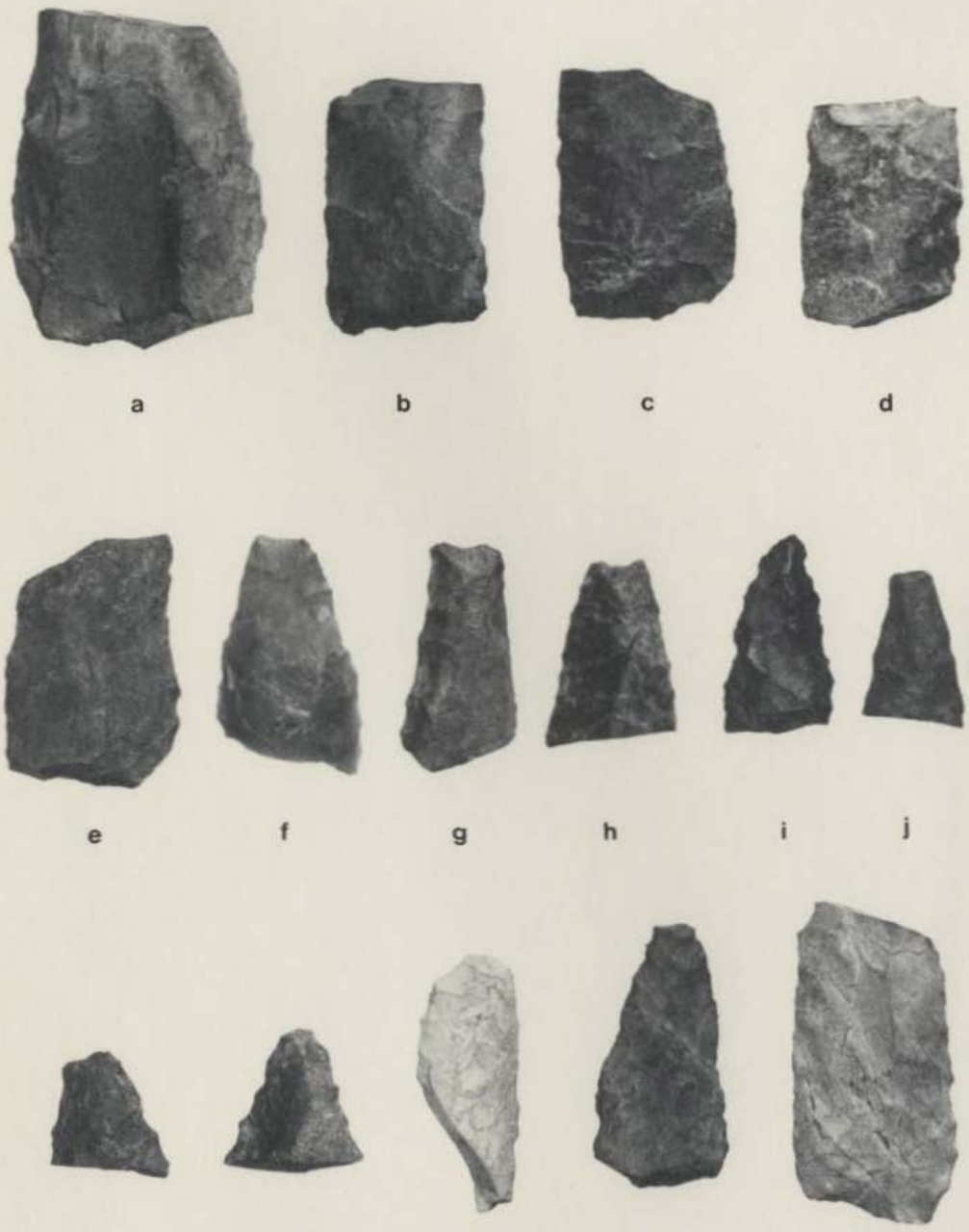
k l m n o



p q r s

PLATE 27

Preforms from the Sandy Cove Site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