STOCK COVE, TRINITY BAY: THE DORSET ESKIMO OCCUPATION OF NEWOUNDLAND FROM A SOUTHEASTERN PERSPECTIVE

DOUGLAS TAYLOR ROBBINS

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by

Douglas Taylor Robbins B.A.,
Memorial University of Newfoundland

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ABSTRACT

The Dorset Eskimo culture has been a subject of archaeological research in Newfoundland for more than five decades. Sites were first recognized by W.J. Wintemberg and Diamond Jenness in the late 1920's, after the original definition of Cape Dorset culture in the Arctic by the latter researcher, and since then numerous other finds have been made and excavations performed. Since the time of the first Dorset research in Newfoundland there has not been, however, a consistent interest in Dorset Eskimo archaeology. Instead, it has experienced a number of "hot and cold" periods, during which it was either in the forefront of Newfoundland research or of little concern to archaeologists.

Two major monographs stand as landmarks in the history of Newfoundland Dorset archaeology. "The Cultural Affinities of the Newfoundland Dorset Eskimo" (Elmer Harp Jr. 1964), compiled following fieldwork in 1949 and 1950, examined the occupation of the northwestern Newfoundland coast, and compared and contrasted this Newfoundland Dorset complex with Dorset culture in Hudson Bay, northern Labrador, Baffin Island, and Greenland. Nearly two decades later, fieldwork by Urve Linnamae led to the publication of "The Dorset Culture: a Comparative Study in Newfoundland and the Arctic" (Urve Linnamae 1975). Both of these works have taken comparative approaches, and as a result there has developed the idea that Newfoundland Dorset is in some ways unique, in

part due to the insular nature of the region. Concurrent with this idea arose the concept of "typical" Newfoundland Dorset culture, which implied a commonality of Dorset culture - or the observable part of Dorset culture, namely stone tools - throughout Newfoundland.

Through the 1970's and 1980's the pace of Dorset archaeology quickened, as several excavations were performed in northern, eastern, southern, and western Newfoundland. This work permits a more detailed examination of Newfoundland Dorset culture than was previously possible, and it has become increasingly obvious that considerable variety, with respect to settlement, subsistence, and artifact styles, existed among the Newfoundland Dorset population.

This study presents data from the Dorset Eskimo site at Stock Cove, Trinity Bay, where excavations were carried out in 1981. Contrasts between the Stock Cove assemblage and northern and western Newfoundland Dorset assemblages are notable, as are ecological differences between southern, northern, and western regions of the island. The hypothetical scheme presented in the last chapter suggests that there were at least three regional Dorset populations in Newfoundland, each adapted to local conditions, and distinctive with regards to subsistence and settlement, lithic material utilization, and the style of at least one artifact type, the harpoon endblade.

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During May and June, 1981, field work was performed by Martha Drake, Stephen Mills, Perry Moulton, and Mary Pittman, all of whom were undergraduate students of archaeology at Memorial University. In September, Stephen Mills and Mary Pittman, together with Katherine Monroe of Queen's University, graciously returned to work at Stock Cove for three weeks on a voluntary basis. I am indebted to these people for their excellent work, and their never-ending good humour and companionship. A word of thanks is also due the people of Sunnyside, Trinity Bay, for their friendship and helpfulness - not to mention for the fish, chicken, and homemade bread with which they kept us supplied.

Many of the ideas expressed in this work grew out of conversations with Drs. James A. Tuck and Ralph T. Pastore, to whom I extend a special word of thanks. Their enthusiasm for Newfoundland archaeology makes research at Memorial University a rewarding experience.

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Chapter 1

DORSET CULTURE RESEARCH AND THE STOCK COVE PROJECT

A REVIEW OF DORSET ESKIMO ARCHAEOLOGY

The progress of Dorset archaeology has been chronicled by several scholars. Taylor (1959) presented a commentary detailing the participants and their contributions up to the beginning of the 1960's. Maxwell (1976), in the introduction to "Eastern Arctic Prehistory: Palaeo-Eskimo Problems", reviewed the emergence and development of Dorset archaeology, and the current concerns in the eastern Arctic. Dekin (1978) dealt not only with Dorset culture research, but with the more general field of Arctic archaeology in a volume combining a narrative of people, events and theories with an extensive bibliography.

The following review is intended to impart something of the growth and expansion of Dorset culture research, and does not attempt to detail regional work. It relies on the above volumes, as well as the original publications.

It may be said that Dorset archaeology began indirectly in 1925, when Therkel Mathiassen published an initial description of the Thule culture. Later in 1925, Diamond Jenness was able to separate "Cape Dorset" artifacts from Thule ones in a mixed collection, and thus identify the Cape Dorset culture (Jenness 1925). Diagnostic of this newly recognized culture were stone implements and bone harpoon

heads of hitherto unknown types. Although Jenness did not hesitate to introduce an entirely new population to account for these strange implements, Mathiassen was by no means as certain, and in the 1927 "Report of the Fifth Thule Expedition" he argued that Cape Dorset culture was a local expression of Thule culture.

After these initial explorations of the 1920's, Cape Dorset culture became an increasingly popular subject for investigation and debate. Mathiassen in 1930 and Jenness in 1933 both reaffirmed the essence of their differing opinions. W.D. Strong presented the results of two field seasons research in Labrador in a 1930 publication, and suggested that stone age sites there represented a "common substratum" from which Eskimo and Indian cultures arose. In 1935 Henry B. Collins accepted the Jenness stance on Dorset culture, i.e. that it was Eskimo, and an entity separate from and older than Thule. In 1936, nine years after his original comments on Cape Dorset culture, Mathiassen retracted slightly, and agreed that Cape Dorset was quite distinct from Thule. At this point, however, he stated that Cape Dorset was in fact an Indian culture, and implied that it was contemporaneous with the Thule culture. This suggestion brought a response from Collins in 1940. He disputed this Indian affiliation, and suggested that Cape Dorset culture held relations with the Alaskan Bering Sea cultures, the subject of his research in the 1930's.

The decade of the 1940's saw an increase in Dorset-related publications, and the appearance of new investigators and new ideas. By the decade's end considerable new information, in the form of sites and assemblages, had been amassed. In 1939 Wintemberg published a two-part report detailing Dorset sites discovered by Jenness and himself in Newfoundland during the years 1927 and 1929. Graham Rowley reported in 1940 on the Dorset occupation of the Abverdjar site in Foxe Basin. Eric Holtved (1944) investigated Thule and Dorset sites in west Greenland. Junius Bird (1945) excavated in the Hopedale region of Labrador. Leechman (1943) discovered two Dorset sites in Hudson Strait, and was the first to describe Dorset structures.

These reports supplied supportive data for the separation of Dorset and Thule cultures, and for the greater age of the former. As well, the Alaskan affinities and the possibilities of a Bering Strait origin for Dorset culture received further attention from Birket-Smith (1948), Larson and Rainey (1948), and Giddings (1949, 1951).

Ideas which were born during the 1930's and 1940's were nurtured during the 1950's, and concurrently there developed a wealth of terms dealing with this increasingly specific knowledge. Some of these terms have become entrenched in the lexicon of present-day researchers, while others have slipped into disuse. With regards to culture origins, the "Denbigh Flint Complex" (Giddings 1951) became viewed

as the ancestral expression of Eskimo culture. In northeastern Greenland Knuth (1954) identified the "Independence" occupation, which he later refined into two stages, Independence I and II, with the latter being the more recent (Knuth 1958). The Palaeo-Eskimo "Sarqaq" was recognized in west Greenland by Meldgaard (1952) and further described by Larsen and Meldgaard (1958).

The Independence and Sarqaq cultures demonstrated relationships with the Dorset culture, as well as with the Denbigh Flint Complex of Alaska, and were thus held to be temporally intermediate between the two. In Greenland there appeared to be a distinct lack of continuity between these occupations (Independence and Sarqaq), and investigators there assumed a number of migrations in accounting for their presence. Since their original definition in Greenland, Independence I and II sites have been recognized in the Canadian Arctic (McGhee 1976), and are sufficiently different from Dorset culture to warrant the retention of the distinct name. American and Canadian archaeologists have placed Sarqaq in a pre-Dorset stage of Dorset culture, thus implying a cultural continuity. Collins (1954) first employed the term "pre-Dorset" in describing the phase of Palaeo-Eskimo occupation in the eastern Arctic which appeared to be directly ancestral to classic Dorset. The Scandinavian archaeologists - Meldgaard, Larsen and Mathiassen - saw Sarqaq as a distinct entity, separate from Dorset culture. On the basis of

his work at Igloolik, Meldgaard (1960) disagreed with the idea of a pre-Dorset-Dorset continuum. The North American viewpoint, which has become generally accepted, reconstructs an *in situ* development of Dorset culture from a pre-Dorset base, originating with the older cultures of Alaska and the Bering Sea (Collins 1956, Taylor 1959).

The 1960's witnessed an expansion of fieldwork, especially in the "core area" of Foxe Basin and neighbouring regions. Sites producing long series of occupations lent additional support to the theory of an *in situ* development. The "core area concept", which held that the area of northern Hudson Bay-Foxe Basin supported a continuum of pre-Dorset-Dorset occupation, and in turn supplied fluctuating populations to surrounding fringe areas, gained acceptability. Ideas of "causative climatic change", which acted to control population expansion, were advanced.

Dorset archaeology of the 1970's has seen the expansion of previous ideas, and the rethinking of some old concepts. McGhee (1976) presented new information concerning the Independence and pre-Dorset occupations of the central and high Arctic. In these areas Independence I and pre-Dorset appear to have been sequential occupations by distinct populations, contrary to previous ideas. McGhee (1976:38-39) also presented convincing arguments against the concept of causative climatic change. McGhee and Tuck (1976) reviewed the use of radiocarbon dates, which had formed the basis

of culture chronologies. A suggestion was made - namely the elimination of all sea-mammal derived dates - which reduced many of the previous inconsistancies in C-14-based chronologies.

DORSET ESKIMO RESEARCH IN NEWFOUNDLAND

The surveys conducted by Jenness and Wintemberg along the east and west coasts of the Great Northern Peninsula in 1927 and 1929 marked the beginning of Dorset Eskimo research in Newfoundland. Several sites of the Dorset culture were located, the largest and most prolific being the Phillip's Garden site at Port au Choix. Based on the results of this survey, Elmer Harp Jr. conducted excavations at Port au Choix in 1949 and 1950. This research formed the basis of his Ph.D. thesis, "The Cultural Affinities of the Newfoundland Dorset Eskimo", later published by the National Museum of Canada (1964).

Harp performed a comparison of Newfoundland Dorset with Dorset culture as it was then known (ca. 1950) from Hudson Bay, northern Labrador, Baffin Island, and Greenland. Although a high degree of correlation was demonstrated, some discrepancies were noted. Certain types of chipped stone artifacts present in the Newfoundland assemblage were not recognized in the "parent complex", and many of the bone artifact types in the Arctic were not present in Newfoundland.

Since its completion Harp's work has been utilized by many writers and investigators, and the concept of a "Newfoundland Dorset" or a "typical Newfoundland Dorset" - a regional development of Arctic Dorset culture characterized by unique stylistic traits and tool forms - is often attributed to him. This idea is not expressed as such in Harp's original work, although it is implied. Harp emphasized the "affinity", the similarity of character:

> Thus I believe it has been demonstrated that there is a strong and widespread degree of cultural concurrence between the Newfoundland Dorset aspect and the parent complex. (Harp 1964:138)

In 1967 and 1968 Urve Linnamae excavated at the Pittman site in White Bay and the Cape Ray Light site at the south-western corner of the island. The concept of a unique "Newfoundland Dorset" is best expressed in her final report on these sites:

> ... it seems reasonable to postulate that the geographic isolation of Newfoundland, in conjunction with an adverse climatic period, was responsible for the development of the regional flavour of Newfoundland Dorset. (Linnamae 1975:93)

Linnamae's Newfoundland-Arctic comparison pinpointed several traits present in the Newfoundland assemblage which were absent from Arctic assemblages. These traits include certain forms of side-notched endblades, "sickle-shaped" gravers, surface grinding on endblades, and variant forms of microblade cores, ground slate implements, and soapstone vessels. Such traits as these were used by Linnamae to distinguish the "Newfoundland Dorset".

In retrospect, the year 1972 marked the beginning of a significant change in Dorset archaeology in Newfoundland. In that year Paul Carignan began excavations at the Beaches site. The Norris Point site, first published by Wintemberg, was revisited by James A. Tuck and Paul Bishop. William Fitzhugh's publication Environmental Archaeology and Cultural Systems in Hamilton Inlet, Labrador appeared. From the multi-component Beaches site Carignan was able to recognize at least two artifacts which he felt demonstrated "... an affinity to the early Groswater Dorset phase ...", as identified by Fitzhugh in Labrador (Carignan 1975:132). In his final report on the Norris Point site, Bishop dwelt on the similarity between the collection from that site and Fitzhugh's Groswater Dorset.

At this time, the early 1970's, the realization that there were early traits - as opposed to "typical" Dorset traits - present in some Newfoundland assemblages emerged. The status of Dorset culture research in Newfoundland at that time was expressed by Paul Bishop in his Norris Point report:

> The nature and dating of the evolution or change from this early Dorset stage to a stage more similar to what is considered to be 'Typical Newfoundland Dorset' remains purely conjectural... Whether this change from an early form, as exhibited at Norris Point, was the result of centuries of contact and exchange with southern Labrador, or whether the later forms were established by a single new wave of migrating Dorset people from the north is a question only further research can hope to answer. (Bishop n.d.:23)

In the late 1970's a program of research was conducted by James A. Tuck of Memorial University at the Cow Head site in western Newfoundland. Excavations revealed a lengthy series of Indian and Palaeo-Eskimo occupations. The oldest Palaeo-Eskimo remains differed from any previously discovered on the island, but did resemble some material from Labrador, and appeared to "... represent a step in the transition from Pre-Dorset to Dorset culture which took place about 3000 years ago" (Tuck 1978:139). Tuck stated that a continuity between this material and the later Groswater or early Dorset was evident, yet the relationship with the "typical Newfoundland Dorset" still remained unclear.

These developments in the past decade revealed a deficiency, or a source of confusion, in the terminology being employed. The terms "Groswater Dorset" and "early Dorset" were being used interchangeably, sometimes with different implications. Fitzhugh (1980) reorganized the terminology into two traditions, an "Early Palaeo-Eskimo" and a "Late Palaeo-Eskimo". The Early tradition consisted of pre-Dorset, 'transitional' phases and, as its terminal expression, the Groswater phase. The Late Palaeo-Eskimo tradition incorporated the Dorset culture. "Early Dorset" and "Late Dorset" were used to refer to temporally distinct expressions of classic "Middle Dorset".

Fitzhugh devised this scheme with respect to the Palaeo-Eskimo occupations of the Labrador coast. In reference

to the island of Newfoundland he stated that:

> ... the luxuriant period of Dorset occupation on the island of Newfoundland is probably best seen as an amalgamation of resident Early Palaeo-Eskimo traditions with new ideas introduced from the north about 2000 B.P. (Fitzhugh 1980:26).

The evidence which he offers for the "continuance of these early traditions" includes "tool types like the side-notched asymmetric or crescent type biface knives, high side-notched points, and perhaps the artwork..." (1980:26).

Tuck reiterated this Early and Late Palaeo-Eskimo scheme in a paper presented to the 15th annual meeting of the Canadian Archaeological Association in 1982, and added:

> ... there clearly exists a 2-300 year gap, in both Newfoundland and along the central Labrador coast, between the most recent "Early" or Groswater material of the early Palaeo-Eskimo tradition and the earliest Dorset cultures of the late Palaeo-Eskimo tradition (Tuck 1982:214).

It is difficult to reconcile this observation with Fitzhugh's expressed "amalgamation" of Early and Late Palaeo-Eskimo traits on the island. As very little evidence exists which might indicate the presence of Early Palaeo-Eskimo populations on the island ca. 2000 B.P., Fitzhugh's concept might be viewed with some reservation.

THE PRESENT RESEARCH

From the preceding review several points concerning Newfoundland Dorset culture research become apparent. The first is that, with the exception of Paul Carignan's work, most research (prior to the 1980's) has been concentrated in western Newfoundland. Secondly, theses written by Urve Linnamae and Elmer Harp (based on western research) have openly stated or implied that Dorset culture in Newfoundland exhibits a distinctive character due, in part, to the insular nature of the region. This character is inherent in such terms as "Newfoundland Dorset" or "typical Newfoundland Dorset".[1] Despite the rather limited geographical range of field research, the concept of "Newfoundland Dorset" - as defined in the west - has come to include the entire island, because, it seems, there has been no argument against it.

In the fall of 1980 it was suggested that I work at Stock Cove. As will be discussed below, the site had been previously explored, and found to be rich in Palaeo-Eskimo and Recent Indian remains. The site appeared to be an excellent one for a Dorset culture study, as it is located in a region of Newfoundland where little archaeological work has been done, and it would provide the basis for

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[1] In this thesis, "Newfoundland Dorset" - in quotations - refers to this concept. Without quotations, the term simply refers to Dorset culture on the island of Newfoundland.

a comparison with western Newfoundland's "Newfoundland Dorset". Fieldwork at Stock Cove was, therefore, oriented towards the gathering of information pertaining to Dorset culture that would allow a testing of the concept of "Newfoundland Dorset". This included aspects of material culture, such as raw material utilization, functional and stylistic artifact types, frequencies of various artifact types, and structural remains.

Preliminary testing of the site had disclosed some distinctive traits, such as the frequent occurrence of grinding on chert endblades. It was suspected, on the basis of these traits, that Stock Cove might represent a very recent period of Dorset occupation in Newfoundland. A second objective was, therefore, to radiocarbon-date the site, for comparison with the chronology currently in existence for the Dorset occupation of Newfoundland.

As Stock Cove is located in a region not usually reached by the migratory harp seal herds, the mainstay of prehistoric hunters in northern and western Newfoundland, the basis for the occupants' subsistence was not immediately obvious. It was hoped that excavations might clarify this question, by supplying identifiable faunal remains indicative of resource exploitation.

While good progress has been made towards the realization of the first two objectives, the last still remains largely unresolved. Excavations resulted in the recovery of an extensive artifact collection, and the discovery of some

interesting, though perplexing, structural features. Attempts at radiocarbon dating were equally satisfactory, as all three Dorset-related dates fulfilled expectations. A reconstruction of subsistence on the basis of recovered faunal remains cannot be attempted at this time, however, and this stands as the single major failure of the Stock Cove project. Soil conditions at the site appear to inhibit organic preservation. As excavations at Stock Cove were restricted to a single, small area, there exists the possibility that larger-scale work might locate areas where better preservation exists.

Conclusions drawn from the Stock Cove research have brought into question the concept of a homogeneous, island-wide "Newfoundland Dorset" culture. A contrast between Stock Cove Dorset and western Newfoundland Dorset is apparent, and, with this recognition, it is becoming increasingly obvious that there was not a single and unique expression of the Dorset culture on the island. In the final chapter of this work some of the differences in the character of Dorset culture from various parts of the island are discussed, and related in a hypothetical interpretation.

Chapter 2

NATURAL AND ARCHAEOLOGICAL SETTING

The resources and environment of insular Newfoundland figured prominantly in the establishment and proliferation of Dorset Eskimo settlement on the island. The primarily hunting-based subsistence of these and other prehistoric peoples required a knowledge of potential food resources as well as a familiarity with the geographical and ecological setting in which these resources were located. Southeastern Newfoundland, the focus of this work, possesses some features which serve to differentiate it from other regions of the island, and which likely presented new obstacles - and possibilities -, to its Dorset inhabitants.

THE PHYSICAL SETTING

Geology and Palaeoenvironment

In southeastern Newfoundland most geological and palaeoenvironmental studies have been conducted on the Avalon Peninsula. The Avalon, and all of Newfoundland, has been of interest to geologists because of its great antiquity. Its formation predates the appearance of Iapetus, a pre-Atlantic ocean, some 600 million years ago. At that time the Avalon zone was either attached to the the North African plate, or existed independently as a micro-continent. Tectonic plate movement about 400-450 million years ago brought

the North American and North African plates together, resulting in the closure of the Iapetus Ocean. The Avalon zone was then joined with western Newfoundland, which had previously separated from continental Labrador. Approximately 375 million years ago, during the Acadian orogeny, the Appalachian Mountains were formed, and Newfoundland stands as the northeasternmost part of this mountain system. The island remained a part of the immense continent of Pangea, including the North African and North American plates, until another period of continent formation began about 200 million years ago. The modern Atlantic Ocean appeared some 115 million years ago, with insular Newfoundland being the easternmost land mass of North America (Rogerson 1981).

Geologically the Avalon is composed of volcanic and sedimentary bedrock of Precambrian age. The rugged and irregular topography, and the highest landmarks of the area, are evidence of the resistant nature of these rocks. Cambrian slates and shales, with occasional beds of limestone, overlie the Precambrian deposits and are succeeded in turn by Ordovician sandstones and shales. Cambrian and Ordovician deposits are fossiliferous. The occurrence of these beds is irregular and unconformable, due to periods of intense erosion and frequent faulting (McCartney 1967).

The Avalon was last glaciated during the Wisconsin. The Avalon ice-cap originated in the highlands around St. Mary's Bay, when a general cooling trend favoured increased precip-

itation in this area. The ice-cap is estimated to have been 600 meters thick, as it filled bays 200 meters deep and was present on uplands 335 meters above sea level. The Avalon ice-cap is believed to have blocked ice from interior Newfoundland from moving into the eastern area although some ice from the interior did penetrate into Trinity Bay, flowing southeast through Bull Arm (Henderson 1972).

Deglaciation of the Avalon is thought to have occurred around 10,000 B.P. Radiocarbon-dated pollen samples from northeastern Newfoundland suggest a maximum date for deglaciation there of 12,000 B.P. A date of 9,270±150 B.P. (G.S.C.-2601) from the base of a core taken at Sugar Loaf Pond, northeastern Avalon, supports the estimated date of 10,000 B.P. for the Avalon deglaciation. The best record for the post-glacial environment of the Avalon is present in the pollen core from Sugar Loaf Pond. Following deglaciation, the Avalon underwent a series of vegetation changes. Pollen from the base of the core (ca. 9,300 B.P.) indicate a tundra-like environment. An open woodland, composed of spruce, balsam fir, trembling aspen, tree birch, and a variety of shrubs, had developed by 8,300 B.P., and persisted until around 5,400 B.P. Boreal forest as present today appeared after 5,400 B.P (MacPherson 1981).

Physiography

Physiographically, southeastern Newfoundland is characterized by a steep and rugged coastline broken occasionally by lowland areas, and an inland plateau. Coastal lowlands have resulted from the erosion of softer sedimentary deposits. The interior uplands are gently rolling barrengrounds intermixed with areas of boreal forest, at an elevation of about 100 meters above sea level. This plateau is often interrupted by short ranges of hills (monadnocks) rising to more than 300 meters a.s.l. (Henderson 1972:5).

The interior uplands drain in a general southerly direction to the coast. The present system of drainage is believed to be similar to that present during preglacial times, when large rivers flowed in the valleys of the major bays (Henderson 1972:10, after Summers 1949:24). Several large streams flow today into Placentia Bay, Fortune Bay, and the Bay d'Espoir-Hermitage Bay system, tributaries of the preglacial rivers. Trinity Bay presents a rather different system, as there are no major streams flowing into the head of the bay. Drainage there is characterized by a myriad of small streams which sometimes run dry after the spring runoff. The drainage system of southeastern Newfoundland shows the greatest run-off activity in February, with a continued substantial discharge during March and another period of increased activity during April (Yoxall 1981:177).

Climate

Banfield (1981:129) describes the climate of the south-eastern region as being that part of Newfoundland experiencing the "greatest maritime influence". Annual precipitation ranges from 1500 mm to 2000 mm, of which less than half falls in the winter as snow. Winters are relatively mild compared to northern and western regions, and summers are cool and often foggy. Trinity Bay receives slightly more snow during a somewhat colder winter and enjoys a sunnier summer than the south coast.

A record of air temperature and precipition spanning a period of 100 years exists for the St. John's area, and gives an idea of the degree of short-term climatic fluctuations possible. During the decade after A.D. 1900 the mean summer air temperature was 12.5° C. Forty years later the mean summer air temperature was a little over 14° C. The coldest winters were experienced during the 1880's, when the air temperature averaged -4° C. During the 1950's the mean winter temperature was -2° C. Generally, the period 1880-1920 was about 1° C colder during summer and winter than the period 1930-1980. Annual precipitation for the St. John's area reached its lowest level around 1930, when 1100 mm were recorded. The highest level of precipitation was recorded during the 1890's and again during the 1950's, with annual falls of almost 1600 mm. (Banfield 1981:124).

FOOD RESOURCES

Terrestrial

There are fourteen species of land mammals native to insular Newfoundland, ten of which are unique subspecies restricted to the island (Table 1). The Newfoundland wolf, a distinct subspecies, became extinct during the early 20th century.

TABLE 1

NATIVE LAND MAMMALS

Meadow vole	Microtus pennsylvanicus terranovae
Long-eared bat	Myotis keenii
Little brown bat	Myotis lucifugus
Arctic hare	Lepus arcticus bangsii
Beaver	Castor canadensis caecator
Common muskrat	Ondatra zibethicus obscurus
Newfoundland wolf	Canis lupus beothucus
Red fox	Vulpes vulpes deletrix
Black bear	Ursus americanus hamiltoni
Ermine	Mustela ermina
Pine martin	Martes americana atrata
Otter	Lutra canadensis degener
Canada Lynx	Lynx canadensis subsolanus
Caribou	Rangifer tarandus terraenovae

The greatest potential terrestrial resource in Newfoundland is the caribou. Areas of habitation and routes of migration have been disturbed over the past few hundred years by road building, logging and the spread of white settlement, and thus present day caribou herds possibly reflect only a percentage of the prehistoric population.

Today the majority of caribou are found on the interior uplands in the southern part of the island. This area is their principal winter range: open, windswept country

where food can be obtained during winter months. Smaller herds are located on the plateaus of the Northern Peninsula and the southern Avalon. Winter is the time of maximum population concentration, when small bands of from two to thirty animals range in close proximity to one another. In spring the caribou disperse to the north and east, as the snow cover disappears and food becomes available in areas unfavourable during winter. Calves are born in the spring and are usually mobile within a few days. In summer the caribou range widely, and frequent forested areas as well as the open barrengrounds. In fall rutting companies unite, and after breeding the caribou return to their winter range (Bergerud 1963).

During the summer dispersal and before the late fall migration the caribou approach to within a few kilometers of the south coast, and animals are occasionally sighted within 40 or 50 kilometers of the Isthmus of Avalon (Bergerud 1958:81-82). The uplands of southeastern Newfoundland are suitable range for caribou, and were conceivably frequented by herds prior to European settlement (Deichmann pers. com.). Historical records indicate that the Beothuck Indians were hunting caribou in the vicinity of the Isthmus during the early years of the 17th century (Howley 1974:15).

The Arctic hare was once populous throughout the island. With the introduction of the snowshoe hare in the late 19th century and the resultant increase in the lynx population,

the Arctic hare declined drastically in numbers. Where Arctic hares do occur, they are often found in groups.

The beaver, an excellent food as well as a source of high quality fur, was also once quite common on the island, but has been greatly reduced in numbers. Owing to over-trapping, the beaver came close to extinction during the 1920's. Many of the other animals listed in Table I, such as the muskrat, the fox, and the ermine, are valued more for their furs than for their flesh, and have been trapped to varying degrees during historic times.

Marine

Four species of seals may have been available to prehistoric hunters of southeastern Newfoundland.

The harbour seal (Phoca vitulina) is found in many locations along the island's coast, in the south, the northeast, and the west. In 1973 the largest single concentration of harbour seals was located in Placentia Bay, where 910 animals were estimated to be present. On the northeast coast, from western Notre Dame Bay to Bonavista Bay, a herd of 685 animals was present. Scattered small herds, consisting of from 20 to 100 animals, were located along the west and south coasts. In Trinity Bay harbour seals have reportedly disappeared within the last fifteen years. The total estimate for the harbour seal population along the Newfoundland coast in 1973 included 2005 animals (Boulva

and McLean 1979:2). Undoubtably prehistoric populations were much larger.

Harbour seals are often found in coves and inlets and around small islands, and as the weather warms in late spring, they are frequently seen close to shore. During the summer and fall harbour seals prefer to remain inactive, basking in the sun on shore. To do so, they leave the water shortly after sunrise, often returning to the same location day after day. Pups are born on shore in the spring, and weigh about 28 kilograms by the first summer. An adult may attain a body weight of more than 100 kilograms. During cold months, when inlets are frozen, harbour seals move offshore and are seldom seen out of the water.

The grey seal (Halichoerus grypus) is also known to occur in the southeastern region. Pups are born in late winter on landfast ice or on shore, and gather in large numbers during the summer in good feeding areas. Like the harbour seals, grey seal pups often roam far from their place of birth. As grey seals did not breed on the Newfoundland coast (at least during historic times) most animals present are immature ones.

The ringed seal (Pusa hispida) is found today in northeastern Newfoundland. Pups are born on landfast ice, and ringed seals are rarely found in regions where such ice conditions do not prevail during winter and spring. A newborn pup weighs about 4.5 kilograms, and by maturity

may exceed 70 kilograms (Mansfield 1967:20). The ringed seal maintains breathing holes during winter, basks on the ice in spring, and spends most of the summer in the water. The same condition that might discourage a winter and spring harbour seal population - the occurrence of landfast ice - would favour an occupation by ringed seals.

The only migratory seal known to occur in southeastern Newfoundland is the harp (Pagophilus groenlandicus). Occasionally young harps are found in Trinity Bay as late as May. They are generally available, moreso in the outer regions of the bay, during April and early May, prior to the start of the northward migration (Sergeant 1965:439). Harps are rarely sighted south of Trinity Bay, although years of exceptionally heavy and persistent pack ice may extend their migration, as was witnessed during the spring of 1984 when harp seals were seen near St. John's.

Scott and Crossman (1964) list nineteen species of fish which occur in the fresh waters of insular Newfoundland; several of these species are also found in coastal waters. The sea lamprey, Atlantic sturgeon, alewife, American shad and windowpane are rare, and the sticklebacks are not common. Brook trout (Salvelinus fontinalis) is by far the most abundant species. Some brook trout remain in fresh water year-round ("mud trout"), while others annually travel to salt water ("sea trout"). Atlantic salmon (Salmo salar) are also common and probably constituted the greatest potential

piscian resource. Some local populations of Atlantic salmon are landlocked, and never leave fresh water, yet the majority make yearly spawning runs from the ocean to fresh water rivers and streams. The tomcod (Microgadus tomcod), is found in salt water, but also seeks freshwater coastal locations. Other coastal fishes include capelin, smelt, and squid.

Avian

The Newfoundland coast has provided shelter, food and breeding places for a variety of sea birds. These birds and their eggs were likely an important supplementary food source for prehistoric inhabitants of the island. Today the largest and best-known breeding locations are on the northeast coast, yet their occurrence during prehistoric times in many places in southeastern Newfoundland cannot be discounted. The destruction wrought by large-scale egging during the 19th and early 20th century is recorded (Cott 1953:418-19) and most certainly affected the habits of Newfoundland sea birds.

Today several species breed in the cliffs and rock faces around the island's coast. Those which gather in colonies during breeding season offer the greatest potential and include: the herring gull (Larus argentatus), present almost everywhere along the coast; the black guillmot or sea-pigeon (Cepphus grylle), which has been observed at

Placentia Bay; the common eider (Somateria mollissima); the Atlantic puffin (Fratercula arctica), reported to breed at Great Island, Placenta Bay; the Atlantic murre (Uria aalge), known to breed at various locations on the Avalon (Templeman 1945).

Eggs of colonial nesters can be gathered in large numbers during the breeding season. Sea birds have been clubbed on shore by Newfoundland fishermen, or caught with baited hook and line. Templeman (1945:141) relates the interesting practice whereby local fishermen would catch young gulls, clip their wings, and raise them to maturity for slaughter.

Other species of birds frequent the seacoast without gathering in nesting colonies. These include the common loon (Gavia immer), the common goldeneye (Bucephala clangula), and the black duck (Anas rubripes). As these species nest inland, in wooded areas near freshwater, they do not constitute a readily available coastal resource. Additional species which are found in the interior forests and barrengrounds are the willow ptarmigan (Lagopus lagopus), the Canada goose (Branta canadensis), and the common merganser (Mergus merganser) (Peters and Burleigh 1951, Godfrey 1967).

The Resources of Stock Cove

The preceding review presented a summary of the food resource potential of Newfoundland and of the southeastern

area in particular. Regretfully, it is only possible to speculate as to the actual diet of the Dorset inhabitants of southeastern Newfoundland due to the absence of preserved faunal remains at Stock Cove and other sites. During our stay at Stock Cove during the spring and fall of 1981 we noted several resources which may have been valued by the prehistoric Dorset Eskimo inhabitants.

Late one evening in the late spring, the quiet was broken by an unusual series of squishing and squelching noises. Upon investigation, we found hundreds of squid attempting to propel themselves onto shore during the low tide, and a delectable meal was gotten simply by picking up a few of the creatures. Dense schools of squid visited the shore each evening for several days, during which time we might have collected great numbers. Capelin and smelt behaved in similar fashion, offering themselves for consumption. We occasionally fished the small streams for trout, using a baited hook tied to a short length of twine. These trout were small, but plentiful and tasty. One evening we tried for "sea trout" where one of the brooks emptied into Little Stock Cove. On the incomimg tide, in a couple of feet of water near shore, we caught fish after fish - not sea trout, but "tomcods". In a short time we took enough for two meals. Mussels clung to the rocky shore in many places, and could be easily collected when the tide was low. By chance, a lobster was once sighted in

shallow water a few feet from shore but, unhappily, escaped in the resulting confusion.

Modern fishing activity in the area has probably affected the habits of sea mammals. Local inhabitants report that it was not uncommon for seals to be shot in the water in years past - this was encouraged by the bounty once offered for harbour seals, as it was thought they were destroying fishstocks. We did not sight any seals during our stay in Stock Cove, but we did observe a young otter frolic and gorge itself on capelin for two days during our stay there in June.

The forests surrounding Stock Cove offer a lesser variety of game. Moose spoor was not uncommon, however this animal is not native to Newfoundland. No signs of caribou were noted. Varying hares (universally referred to as "rabbits" in Newfoundland) are plentiful: this species was also introduced, but may fill an ecological niche similar to the Arctic hare which is native to the island. Occasionally we flushed a "partridge" (ptarmigan) and sighted flocks of ducks. Herring gulls were a common site - especially when the fishing boats passed - and a male and female bald eagle apparently found enough food not only to support themselves, but to feed their single offspring as well.

The mainstay of the Dorset Eskimos subsistence probably no longer exists at Stock Cove. Whether this is due to some climatic shift during the past millennium which has

altered sea ice patterns, and consequently reduced the availability of migratory seals, or to recent population pressure which has nearly eliminated sedentary seal populations, cannot be said with certainty. As discussed in a later section, however, this writer tends to favour the latter possibility. The fish, hares and fowl mentioned above were, in themselves, probably insufficient to form the basis of a diet, yet they likely constituted important and welcome supplements. We noted these resources around Stock Cove during our stay there during the late spring, early summer, and fall, and it is during these times that the area appears to offer its greatest potential for a hunting and gathering mode of existence.

CULTURE HISTORY

Maritime Archaic and Post-Archaic Indian

The faunal resources of insular Newfoundland - the seals, caribou, fish, etc. - attracted people to the island about 5,000 years ago, and since then the nature of the island's environment has made it suitable for occupation by Indian groups found in more continental climes as well as by Palaeo-Eskimo groups from Arctic environs. Newfoundland's environment was not, however, ideally suited for a hunting subsistence, as the island's prehistory is apparently characterized by a series of population expansions and extinctions

- the repeated "boom and bust" situation referred to in a recent paper by Pastore and Tuck.

The first inhabitants of northeastern North America - the Palaeo-Indians, best known from the Debert site in Nova Scotia (MacDonald 1968) - apparently did not reach the island. Across the Strait of Belle Isle, on the southern coast of Labrador, triangular projectile points similar to the fluted points of these maritime people were recovered from a few small sites and suggest that that coast was occupied by 9,000 B.P. (Tuck 1976:11-12). The oldest evidence of human activity on the island relates to the Maritime Archaic tradition, a culture complex which likely developed from the early Palaeo-Indian period. At Port au Choix in northwestern Newfoundland a Maritime Archaic cemetery was discovered and excavated in the late 1960's (Tuck 1971, 1976). With the Port au Choix excavation, the significance and extensiveness of the Archaic occupation of insular Newfoundland was recognized. During the 1970's and 80's Maritime Archaic living sites were discovered in other regions of Newfoundland, in the west, the east and the south. This tradition appears to have persisted on the island, essentially unaltered, until ca. 3,000 B.P.

Europeans arriving in Newfoundland during the 16th century found it to be occupied at that time by an Indian people, the Beothucks. Historical records and archaeological

research have shown that the Beothucks were pursuing a way of life not unlike that of the early Maritime Archaic people.

The origin of the Beothuck people has long been a question in Newfoundland prehistory. One line of reasoning holds that they were derived from a maritime or mainland Canada Algonkian ancestry, and were relatively recent arrivals to the island. The opposing view suggests that the Beothuck population developed in Newfoundland, from previous island traditions, perhaps extending as far back as Maritime Archaic times. While there still exists no definitive evidence linking Beothuck and Maritime Archaic populations, recent archaeological research does suggest that the Beothuck culture is firmly rooted in Newfoundland prehistory.

Between the time of the last Maritime Archaic Indians - according, at least, to the present archaeological record - and the time of the "discovery" of the Beothucks by European people there is a period of approximately 2,500 years. An ever-increasing body of archaeological data indicates that Indian people were living on the island during at least some of this time. Every year brings to light new sites pertaining to the "Little Passage complex", a pre-Beothuck population first recognized archaeologically by Gerald Penney (n.d.c, 1981) on the south coast of the island, and now known to have inhabited much of insular Newfoundland, with the possible exception of the Great Northern Peninsula. Recent work by Pastore at the Boyd's Cove site in Notre

Dame Bay suggests that these people were directly related to the historically known Beothuck population. Chipped stone arrowheads - similar to specimens of Little Passage origin - found in association with modified iron nails and other European goods within pithouse structures, provide convincing evidence (Pastore 1983, 1984).

In Bonavista Bay the Beaches, Bloody Bay Cove, and Cape Freels sites (Carignan 1975) have produced evidence of an Indian occupation which may be earlier than Little Passage. The side-notched "Beaches complex" projectile points are distinct from the corner-notched and stemmed specimens common in Little Passage. Resemblances are sufficient, however, to suggest a relationship, perhaps an ancestral one. An "evolution" of projectile points appears to have occurred, from earlier side-notched specimens as found at the Beaches, to later corner-notched and stemmed examples recovered from Boyd's Cove and other late Little Passage - Beothuck sites.

Evidence for another Indian occupation comes from the stratified Cow Head site in western Newfoundland. A collection of roughly flaked bifaces - unlike specimens fouhd in Little Passage or Beaches collections - are dated to ca. 1,750-1,050 B.P. (Tuck pers. com.) Despite the 1,300 year gap between the Maritime Archaic and Beaches complex, there are visual similarities between some of the chipped stone tools of the two occupations. Absent

from the Cow Head complex, however, are many of the artifact types characteristic of Maritime Archaic, such as the stemmed projectile points and ground slates. The Cow Head complex may have been restricted to northwestern Newfoundland, where Little Beaches or Little Passage material has been found. Conceivably the Cow Head and Beaches complexes existed contemporaneously, in different regions of Newfoundland, for several centuries. Another, rather speculative, interpretation would see the Beaches and Cow Head complexes as the same: the rough bifaces from Cow Head representing a flintknapping station, rather than constituting a functional toolkit.

Palaeo-Eskimo

The last decade has seen a tremendous expansion of Palaeo-Eskimo research in Newfoundland. Prior to the early 1970's researchers had recognized that insular Newfoundland had been occupied by Dorset Eskimo people, primarily from the evidence of the large Port au Choix-2 site, along with other, smaller, western Newfoundland sites (Harp 1964). In more recent years, excavations have been performed at several other locations, notably: Sop's Island and Cape Ray Light (Linnamae 1975); Factory Cove (Auger 1982); Cow Head (Tuck 1978); Englee (Tuck); Norris Point (Bishop n.d.); Beaches (Carignan 1975); Moose Pasture (Sawicki n.d.); Frenchmen's Island (Evans 1981); Stock Cove (Robbins 1982);

L'Anse a Flammé (Pennéy 1981). During the 1970's the interpretation of the Palaeo-Eskimo prehistory of coastal Labrador was also advanced by researchers Cox, Fitzhugh, and Tuck. These investigations have resulted in a detailed, although far from complete, comprehension of Palaeo-Eskimo culture history in the province.

As discussed earlier, Fitzhugh (1980) and Tuck (1982) reorganized the terminology pertaining to Palaeo-Eskimo prehistory, referring to "Early" and "Late" traditions. These two traditions are distinguished on the basis of artifact styles and settlement-subsistence patterns. Representatives of both traditions once occupied the island.

The earliest Palaeo-Eskimo evidence comes from northern Labrador, and indicates that the northern part of the coast was occupied by ca. 3,800 B.P. These early occupants, possibly bearers of Independence I-Sarqaq culture (Tuck 1975:187), did not inhabit insular Newfoundland. Some 800 years later descendants of these people did reach the island. Feature 40 at the Cow Head site has produced tool types similar to ones dated at ca. 3,000 B.P. in Labrador. Evidence of Palaeo-Eskimo people in Newfoundland for a few centuries after 3,000 B.P. is scarce, yet by about 2,700 B.P. there appears to have occurred a significant population growth and expansion. This Groswater phase of the Early Palaeo-Eskimo tradition persisted until about 2,100 B.P., becoming widespread throughout insular Newfoundland.

Diagnostic of Groswater assemblages are such tool types as side-notched harpoon endblades, chipped and ground burin-like tools, asymmetric biface knives, sideblades, and flared-edge endscrapers. Colourful, fine-grained cherts - originating from Cow Head and/or Port au Port - are popular. Sites are often situated in sheltered "inner bay" locations, and yield assemblages representative of a variety of subsistence and maintenance activities.

Seemingly the Groswater people disappeared from the island, for reasons unknown, around or shortly before 2,100 years ago. The next oldest evidence of Palaeo-Eskimo people dates to ca. 1,800-1,900 B.P., and relates to the Late Palaeo-Eskimo tradition, or Dorset culture. Assemblages characteristic of Dorset differ greatly from Groswater, and include triangular (often tip-fluted) harpoon endblades, low side-notched bifacial knives, completely ground tabular burins, triangular and quadrangular endscrapers, and ground slate endblades and knives. Settlement and subsistence, as considered later in this work, appear to have differed from the Groswater pattern. The Dorset occupation of insular Newfoundland flourished for approximately 500 years, until ca. 1,300 B.P., and persisted in some locations for several more centuries.

Archaeological Sites

Several Palaeo-Eskimo and multiple component sites have been located in the region of southeastern Newfoundland. Urve Linnamae conducted an archaeological survey in Placentia Bay in 1970, and located several sites of Palaeo- Eskimo occupation. A few artifacts from one of these sites indicate that the Little Passage people also inhabited the Bay. Two sites, Bordeaux I (CkAm-4) and Bordeaux II (CkAm-5), are situated on the mainland (the western shore of the Isthmus of Avalon), along a small sandy peninsula between Arnold's Cove and Come By Chance. Additional sites were found on the islands lying just off the coast in the inner part of the bay. Long Island Neck (CkAm-2) and New Grove (CkAm-1) are on Long Island, Great Brule (CjAm-1), Dog Harbour (CjAm-2), and Tack's Beach (CjAn-1) are located on the neighbouring Merasheen Island (Linnamae n.d.). A pattern in the specific locations of these sites appears discernable, as all but one occupy narrow, sandy "necks" of land. The exception, New Grove, is located in a small cove with a beach, not unlike Stock Cove, Trinity Bay.

A survey by Gerald Penney in 1978 resulted in the discovery of the Stock Cove and Frenchmen's Island sites in Trinity Bay (Penney n.d.a). Good evidence of Palaeo-Eskimo and Little Passage occupations has been recovered from both sites, along with less substantial evidence of Maritime Archaic activity (Evans 1981; 1982; Robbins 1982). The

Frenchmen's Island location resembles the Placentia Bay pattern, in that it is situated adjacent to a sand spit. Survey work conducted by the Stock Cove field crew in the spring of 1981 led to the discovery (by P. Moulton and S. Mills) of a small site on the Duck Islands, at the entrance to Bull Arm. While no diagnostic artifacts were recovered from the single testpit, the presence of numerous small, patinated white flakes suggested Dorset affiliation. Another Dorset site was located by Don Locke on Dildo Island, about 30 kilometers southeast of Stock Cove. Although little is known about this site, it is reported to be quite large, and the assemblage is believed to resemble the Stock Cove collection (Tuck pers. com.).

Chapter 3

STOCK COVE:
SITE DESCRIPTION AND EXCAVATION

Situated on the eastern shore of the Isthmus of Avalon at a point where the isthmus is about seven kilometers wide, Stock Cove is now uninhabited. It has, however, been a scene of intermittant human activity for perhaps 3000 or 3500 years. While this thesis concerns the Dorset Eskimo occupation, the other prehistoric and historic inhabitants of this small cove deserve at least cursory mention. Archaeological evidence indicates that at least two prehistoric groups other than the Dorset resided there; ground stone celts and the stem of a slate "bayonet" indentify a Maritime Archaic Indian occupation, and many artifacts indicate the site was utilized by other Indians after the Dorset people had departed. Evidence of an eighteenth or nineteenth century historic occupation, nails, glass, and clay pipe fragments, is also present. The remnants of small houses and wharves, together with oral accounts of present-day occupants of neighbouring communities, give evidence for a not-long-past occupation by Newfoundland fishermen. These most recent occupants gave the cove its present-day name. "Stock Cove" is derived from the English word "stockfish", which refers to split, unsalted, sun dried codfish.

A small, steep and wooded headland divides Stock Cove into two parts, locally known as "Big" and "Little" Stock Cove. The past occupations of these two coves differ dramatically, and reflect the different requirements of aboriginal and white settlers. Little Stock Cove is fiord-like, bounded on both sides by steep and forested hills which rise to more than 90 meters above sea level. The shelter which it offers from winds and seas encouraged temporary occupation by fishermen from the neighbouring communities of Sunnyside and Chance Cove in the past, especially in days before widespread use of the outboard motor speeded marine travel. Small houses or "shacks" were built, and spindly wharves erected against the rocky shore for this summertime fishery. This practice has now ceased, as technological advances permit fishermen to make the return trip between their permanent settlements and the fishing grounds in a day. Little Stock Cove shows no evidence of an earlier historic or a prehistoric occupation.

Little Stock Cove was attractive to Newfoundland fishermen in the past because of the shelter it offered, and for the opposite reason Big Stock Cove was unsuitable for their purposes. It is much more exposed to winds, and during a storm seas roll high up the sloping cobble beach, shifting and reshaping it. The prehistoric people of Stock Cove, unconcerned with safe anchorages for heavy plank boats, must have viewed Big Stock Cove very differently. From

its beach the inner reaches of Trinity Bay are clearly observable, and accessible. The beach itself offers marine resources not available along a rugged and rocky shoreline.

THE SITE

The cobble beach extends along most of the shore of Big Stock Cove, interrupted at points by bedrock outcrops. The ground adjacent to the beach is fairly level, until hills are encountered about 50 meters inland. These hills rise steeply to a height of about 60 meters and eventually reach an elevation of more than 100 meters above sea level. A small stream discharges onto the beach in the middle of the cove. The shores of Big Stock Cove are, like Little Stock Cove, densely wooded. The prehistoric site, located on part of the level ground immediately adjacent to the beach, is covered with a growth of fir, birch, dogberry, and a variety of shrubs. A one or two meter high bank along the beachfront is presently undergoing erosion by the sea. Prehistoric cultural material, including lithic artifacts and flake debris, flagstones, and charcoal, occurs continuously for a distance of about 85 meters. Inland, away from the beachfront, testing has revealed similar evidence extending, in some places, to the base of the bordering hills. The dense forest and brush cover make it difficult to ascertain the exact size and configuration

of the once-occupied area, and estimates of site size range from 2000 to 4000 square meters.

First evidence of prehistoric occupation at Stock Cove came from the eroding bank. In 1976 Gerald Penney collected Maritime Archaic and Dorset Eskimo artifacts from the eroding area, while conducting a survey of Trinity Bay (Penney n.d.a). In the fall of 1980 Dr. James A. Tuck and members of the Memorial University archaeological field school travelled to the site, and conducted further testing. Another occupation was recognized, referred to at the time as "Beothuck". Today this term is exclusively used in reference to the historic Indian occupants of insular Newfoundland. The "Little Passage Complex" (Penney n.d.c) refers to their immediate (prehistoric) ancestors. Thus, the "Beothuck" occupation of Stock Cove is now termed Little Passage, or, more generally, Recent Indian.

As it was obviously impossible to excavate the entire Stock Cove site, some selectivity was necessary. There was, in truth, little reason to choose one area above another. It did not seem feasible to attempt to salvage the eroding bank, as it was too extensive to deal with adequately in the time and with the means available. Partial excavation of the bank, it was felt, would only hasten erosion. There was no other evidence of disturbance which might influence our selection of an area to work. Recent human activity had been concentrated in Little Stock Cove, and local residents

were in fact unaware of the existence of the prehistoric site in Big Stock Cove. It was suspected that tree roots may have effected considerable disturbance, yet searching for an unwooded area proved fruitless. As the primary objective of the proposed research concerned the Dorset Eskimo culture, it was desireable to concentrate efforts in an area free from subsequent Recent Indian occupation. In this we were only partially successful, as some of the excavated area did produce evidence of Recent Indian activity. As an alternative to an intensive excavation of a portion of the site the possibility of conducting a random sample of the entire site existed. This approach was decided against on two counts. Firstly, the presence of structural remains encouraged exploration of at least one of these features; random sampling would not significantly advance our understanding of the Stock Cove structures. Secondly, it seemed unlikely than we could complete a representative random sample of the site, given our time and manpower limitations. A grid would have to be established over the entire site and, because of the dense forest cover, this alone would have consumed much of our short field season.

After some hours of exploring, an area in which we would concentrate our efforts was selected. There was excellent evidence, under a thin carpet of fir needles, of a Dorset Eskimo occupation, including flagstones, diagnostic

stone tools, and flakes of the material from which these tools were made. Additionally, no artifacts clearly of Recent Indian affiliation were located during this preliminary inspection. Initially it was our intention to complete an excavation in this area, exposing the feature, and then proceed to work in another area, slightly removed from the first. This optimistic scheme was short-lived as, in the first week, we fully realized the richness of the cultural deposits.

An area near the eroding bank of about 150 square meters was cleared of trees and brush. A large tree bordering the cleared area to the south was selected as datum, and a grid established. Work began with the clearing of four 50 cm wide trenches, forming a rectangle. The results from these preliminary trenches determined the direction of more intensive excavation.

STRATIGRAPHY

Two natural strata were distinguished during excavation. While these levels are not clearly separated, some distinction appears obvious with respect to the cultural debris contained in each, and thus they are thought to have some temporal and occupational significance. Stratum I, the upper level, was distinquished from the lower Stratum II on the basis of soil colour and density. Generally, the upper stratum was lighter and less compacted than the lower, containing

a greater amount of cobble rock and fewer flagstones. Most of the Recent Indian material was recovered from this level, along with artifacts of Dorset origin. Stratum II yielded artifactual and structural evidence of Dorset Eskimo occupation. Stratum IIa also relates to the Dorset Eskimo culture, and differs from Stratum II in containing greater amounts of decayed organics. Stratum IIa is restricted to a portion of the excavated area, whereas Stratum II is continuous throughout.

In all, 55 square meters were excavated at the Stock Cove site. Only in isolated areas, however, was the entire Dorset stratum excavated to a sterile sublevel. The features described below were located in Stratum II, and the stratum continued below them. Thus, excavating the Dorset deposit to its bottom required the removal of flagstones, and the destruction of these features. Nine weeks (and five people) were required to accomplish the work summarized here - including the collecting of some 1900 artifacts. Removing the flagstones and fully excavating the exposed area required time - and finances - that were unavailable. It was felt that a "rush job" in the last few days would do little but add to the artifact count, and be essentially an act of destruction. Features were therefore left intact, with a thought towards future work.

Before concluding fieldwork, however, it seemed advisable to probe at least a small part of the site to a greater

depth, to see what (if anything) lay underneath the tremendously rich Dorset deposit. Accordingly, one square meter unit was selected, simply on the criterion that it was one of the very few places we could dig without disturbing the exposed features. Stratum II was excavated to its bottom, where it merged with an apparently sterile gravel layer (about 30 cm below surface). Continuing excavation into the gravel uncovered a thin black level some 38 cm below surface. This level - labelled Stratum III - produced flakes of patinated white and green cherts, along with several artifacts, including a bifacial, side-notched triangular endblade, a crystalline quartz endscraper, a miniature crystalline quartz endblade, a microblade core of brown-green chert, and a small side-notched endblade reminiscent of Early Palaeo-Eskimo culture. Scattered charcoal was also encountered amongst these artifacts in Stratum III, and collected. Radiocarbon analysis produced a date of 2140±60 B.P. (Beta-4063), near the end of the known range of the Groswater occupation of insular Newfoundland. We can therefore add yet another period of occupation to the culture history of Stock Cove.

FEATURES

Feature 1

Two flagstones standing on edge and protruding from the forest carpet were initially thought to mark the location

of a hearth. These flagstones were located on the periphery of an oval-shaped raised or "humped" area measuring approximately 2-3 meters in diameter through which a tree, aged approximately 30 years, had grown. Preliminary examination disclosed flakes of patinated white chert. Clearing the carpet of fir needles exposed Stratum I, a dark brown, loosely packed soil containing fist-sized cobbles and larger rocks, some of which were fire-cracked, together with occasional small flagstones. An admixture of lithic raw materials was present, including patinated white chert, crystalline quartz, purple rhyolite, green- and gray-banded chert, and occasional small fragments of coloured cherts. This stratum continued to a depth of about 8-12 cm below surface, and contained, predominantly, artifacts of Recent Indian origin. A few artifacts of Dorset affiliation were mixed in this deposit, along with an occasional iron nail. None of the nails showed aboriginal modification.

At a depth of 8-12 cm below surface a soil change was noted. The previous dark brown deposit gave way to a blacker soil mixed with gravel and containing fewer cobbles. This level, designated Stratum II, proved to contain only material of Dorset Eskimo origin. Patinated white chert and crystalline quartz were the predominant lithic materials found. Dorset Eskimo artifacts recovered include harpoon endblades, knives/bifaces, grindstone fragments, endscrapers, microblades, and various retouched and utilized flakes.

Charcoal deposits were encountered, and samples taken. A radiocarbon analysis (Beta-4064) yielded a date of 1560±60 B.P. Stratum II contained greater amounts of gravel at lower depths, and eventually merged with a sterile gravel layer at about 25-30 cm below surface.

Charcoal deposits and fat-stained flagstones indicate that Feature 1 was a hearth. There is, however, no clearly delineated structure. It seems likely that the once-present structure has been disturbed and literally "uprooted" by tree growth. The flagstones first noted, those standing on edge, were found to be supported by tree roots, and therefore are probably not in their original position. The Dorset hearth may also have been disturbed to some extent by Recent Indian activity, possibly in a search for chert cobbles left by the Dorset inhabitants, as there is some evidence indicating that Indians were making use of this material. The profusion of rocks and cobbles in Stratum I, some of which evidenced fire-cracking, suggests the presence of an Indian hearth overlying the Dorset Eskimo hearth. Similar cobble features have been noted at other Recent Indian sites.

Feature 2

Feature 2 is another probable hearth, lying to the west of Feature 1 and seemingly connected to it by two irregular rows of flagstones. These flagstone rows are

slightly less than 1 meter wide, approximately parallel and about 1 meter apart, and extend for a distance of 6 meters. The stones are not neatly arranged; some are angled slightly and partially resting on top of others. The edges of several stones appeared freshly broken, and larger ones could sometimes be reconstructed from smaller fragments. None of the flagstones was set vertically.

Feature 2, the western extremity of these rows of flagstones, consists of scattered flagstones and other rocks. Charcoal and fat-stained rocks suggest that it was a hearth; again, however, there is no well-defined structure discernable. Stratigraphy in the area of Feature 2 was similar to that of Feature 1. The dark brown Stratum I encountered immediately below the carpet of fir needles contained an admixture of Recent Indian and Dorset Eskimo artifacts. Compared to Feature 1, there were fewer Recent Indian artifacts in this upper stratum, and more Dorset Eskimo ones. Stratum II was a pure Dorset Eskimo deposit, containing an assortment of stone tools very similar to Feature 1.

Feature 3

The rows of flagstones mentioned above lie roughly parallel to the beachfront (ESE-WNW). Towards their longitudinal centre, and on the side closer to the beach, a change in the Stratum II deposit is noticeable. Here, the Dorset deposit is very black, greasy, and compacted,

compared to elsewhere. Few flagstones are present; instead it is mixed with rocks of irregular shapes, some football-sized and larger. The artifact frequency is quite high, and many specimens are broken. This area, Feature 3, is thought to be a midden; the greasy black deposit is referred to as Stratum IIa.

A one by three meter section of this midden was excavated to a depth of 35 cm below surface, and testing in one location continued to a depth of 55 cm below surface. Even at this depth a sterile sublevel was not encountered. As this midden was situated about three meters from Feature 1 and four meters from Feature 2, it was not obviously associated with one hearth rather than the other. Indeed, if Features 1 and 2 proved contemporaneous, the midden might relate to both. A charcoal sample was recovered from Feature 3 at a depth of 25-30 cm below surface, and analysis gave a date of 1280±60 B.P. (Beta-4065).

INTERPRETATION

Two general interpretations appeared feasible while excavation was ongoing. The rows of flagstones, linking two hearths, might constitute a single house structure. Alternately, the hearths might pertain to different occupations, with the flagstone being remnants of structures occupied at different times. If the former was correct, then charcoal collected from the two hearths would be expected to produce

contemporaneous radiocarbon dates. Analysis of a sample from Feature 2 (Beta-4062) yielded a date of 1280±60 B.P., which is at least 160 years later than the Feature 1 date (1560±60 B.P.). Features 1 and 2, then, represent temporally distinct occupations. As Feature 2 is the more recent of the two hearths, most of the flagstone arrangements may relate to it. It seems a reasonable presumption that, in an area of repeated occupation, the most intact structure pertains to the most recent occupation.

The date from the Feature 3 midden is identical to the one from the Feature 2 hearth, suggesting that the midden is associated with the Feature 2 hearth and the flagstone rows. A tentative interpretation, then, would see the linear arrangements of flagstones as being the remnants of a structure built and occupied ca. 1280 B.P., incorporating the Feature 2 hearth and the Feature 3 midden. The discovery of a cross-mend between a preform fragment from the Feature 2 hearth and another fragment from the midden lends additional support to the suggestion that these two features were utilized contemporaneously.

The internal arrangement of this Dorset structure still remains unclear (see Map 1). The flagstones appear to mark the limits of the structure. Bordering the flagstones (towards the outside of the structure) Stratum II is quite loose-packed and gravelly, with a relatively low artifact content. This may have resulted from gravel being heaped

against the outside periphery of the structure, to seal and hold down the edges of a skin covering. Between the flagstone rows (in the centre of the structure) the ground is very hard-packed, and artifacts are again scarce. Artifacts were most frequently found amongst the flagstones and around the hearth feature. Initially we thought that the flagstone rows were sleeping platforms, but this idea does not agree with the artifact distribution. It now appears more plausible that the central unpaved area was used for sleeping, and the surrounding paved areas were work places. The structure's hearth (Feature 2) was placed at the western end of the structure. The entranceway was presumeably located towards the eastern end of the structure, away from the hearth and facing the ocean. This would agree with the location of the midden - immediately adjacent to the structure on the seaward side.

Feature 1, in the eastern part of the excavated area and bordering the structure described above, likely pertains to an older Dorset occupation (ca. 1560 B.P.). Excavation was not extended to the area around Feature I as time did not permit. A little testing was done, yet this did not reveal a flagstone structure, and therefore we presumed that the flagstones had been removed, perhaps to be used in later constructions. The Feature I date, compared with the Features 2 and 3 dates, gives a minimal time range for the Dorset occupation of Stock Cove.

SUMMARY

Stock Cove has made a contribution to the prehistory of southeastern Newfoundland, and is promising for future work as excavations to date have, literally and figuratively, only scratched the surface. Following is a brief summary of the prehistoric phases of occupation discovered to date at Stock Cove.

Recent Indian

The work described above, conducted during May, June and September of 1981, produced evidence of repeated occupation by Palaeo-Eskimo and Indian people. The most recent inhabitants -- Indians of the Little Passage Complex - were widespread throughout Newfoundland, and are thought to have been the immediate ancestors of the historic Beothucks.

Despite our efforts at Stock Cove to avoid areas of Recent Indian activity (for reasons mentioned earlier), some 400 artifacts relating to that culture were collected. The single most common diagnostic tool type encountered was the corner-notched/expanding stem projectile point. The range of other tools recovered, such as scrapers, knives/bifaces, linear flakes and bipolar cores, along with considerable amounts of flaking debris, indicate that the Recent Indians were performing a variety of activities at this site. At least one activity area, a "cobble hearth", was identified. Stock Cove may prove to be one of the larger known sites of Recent Indian occupation on the island.

In one sense, however, Stock Cove is not ideal for a Recent Indian study, because of the mixing of cultural deposits which occurs. Recent Indian artifacts are restricted to the upper stratum, yet are often intermixed with objects of Dorset origin. In order to separate the two clearly, a comprehensive knowledge of Recent Indian and Dorset Eskimo assemblages is required. In the spring of 1981, Little Passage archaeology was in its infancy, and my very incomplete knowledge of what might be included in such an assemblage presented some on-site difficulties in separating and interpretating a mixed collection. This problem has been somewhat alleviated in recent years, with the excavation of unmixed Recent Indian sites (Pastore 1983). Some confusion still exists; for example, the distinction between Dorset and Recent Indian endscrapers is not entirely clear. With further work on single component Recent Indian sites, the Stock Cove site - carefully approached - can undoubtable yield a great deal of information pertaining to the Recent Indian period in southeastern Newfoundland. A full treatment of the Recent Indian, Maritime Archaic Indian, and European occupations at Stock Cove, including decription of artifactual remains, will be presented in a forthcoming paper.

Maritime Archaic

Maritime Archaic artifacts were rarely encountered during the excavation. The few diagnostic Archaic artifacts recovered include the basal portion of a stemmed, ground

slate lance, and two celt fragments. Two leaf-shaped bifaces are possibly of Archaic origin, yet their provenience is more suggestive of a Recent Indian affiliation. The lance point and the celt fragments were found in Stratum II, and are not believed to be in situ. A few biface fragments collected from the eroding bank are thought to relate to a Maritime Archaic occupation, and suggest that much of the Archaic component may now be eroded from the site.

Groswater

The single radiocarbon date and the small, side-notched endblade from Stratun III hint at a Groswater occupation at Stock Cove prior to the arrival of Dorset people. Only in one small and isolated location was the excavation pursued to the depth of Stratum III, so very little can be said at present about this occupation. The presence of several centimeters of sterile gravel between Stratum II and Stratum III suggests, however, that there may have been a considerable time lapse between the Groswater and Dorset occupations. This is in agreement with the 200-300 year hiatus between the Dorset and Groswater occupations of Newfoundland proposed by Tuck (1982).

With regards to future excavation of the Groswater component, any excavator proposing to do so would first have to deal with the artifact-rich Dorset and Recent Indian deposits. This would certainly prove a major hinderance

to an investigator concerned solely with Groswater phase Palaeo-Eskimo culture.

Dorset Eskimo

The most extensive and intensive occupation of Stock Cove was undoubtably by the Dorset Eskimos. Radiocarbon dates suggest that the Dorset people were present in Stock Cove over a 200 year period, and the actual span of occupation was probably at least somewhat greater. From the size of the occupied area and the structural evidence it might be inferred that the site was a semi-permanent residence, or at least something more than a casual camp. It is obvious that the Dorset inhabitants of Stock Cove were exerting considerable effort in moving and arranging flagstones, and it should be emphasized here that the area excavated was but one of many locations where flagstone features were evident. The depth and richness of the Dorset cultural deposit also suggest repeated occupations, and perhaps extended yearly stays. If, as was previously suggested, future excavations are successful in recovering preserved faunal remains, a better understanding of seasonality might be achieved.

Only 55 square meters were excavated during the 1981 season, out of some 2000-4000 square meters of occupied area (1.4-2.8%). This work has supplied a good look at one phase, at least, of Dorset Eskimo history at Stock Cove. It is impossible to say at this time whether this

is representative of the entire period of Dorset occupation at the site. Undoubtedly the site is worthy of further attention, yet the direction of future research must be carefully considered. Two primary objectives which should be addressed are (a) a reconstruction of resource exploitation and (b) a clarification of the form of structures.

Difficulties encountered with organic preservation have already been related. Hopefully more extensive work will provide analyzable faunal material. The reconstruction of subsistance may also be aided through the exploration of neighbouring sites in the isthmus region, as the Stock Cove inhabitants may have utilized other nearby locations and their various resources in a seasonal exploitation round. These other sites may supply preserved faunal material, or through their specific locations imply a resource-related activity. In this sense, the isthmus region constitutes a prime location for a settlement-subsistence study.

Flagstone structures are well-known in the Arctic and on the Labrador coast, yet are quite rare on the island. With the exception of Phillip's Garden at Port au Choix, few Dorset sites in Newfoundland have produced structural evidence of any kind, and therefore Stock Cove presents a unique opportunity.

A clearer understanding of Dorset structures at Stock Cove can only be achieved through more extensive excavation. The flagstone structure described above, which included

a hearth and a midden, oocupied about 27 square meters. Approximately 130 man-days were required to expose it, as excavation was slowed by the high artifact frequency. Obviously, productive work cannot proceed on a piecemeal basis. A comprehensive interpretation of the internal organization of Stock Cove structures and relationships between structures must begin with large areal excavations. Such an undertaking will require a considerable manpower and time commitment - e.g. an eight or ten person crew engaged in a multi-season project - and backup facilities to deal with the thousands (perhaps tens of thousands) of retrieved artifacts.

There are many secondary objectives that might be addressed by future researchers, for example: (a) additional radiocarbon dates would augment the rather meagre chronology; (b) a distinctive chert type dominates the lithic collection, suggesting that the source of this material is close to Stock Cove. The locating of this source would be of assistance in reconstructing the Dorset cultural system in the region of the Isthmus of Avalon.

Chapter 4

ARTIFACTS

The assemblage of Dorset Eskimo artifacts recovered from the Stock Cove site during the 1981 excavation consists entirely of lithic tools and associated manufacturing debris. No implements made from organic materials were found due, presumably, to preservation conditions. The following inventory includes implements which functioned in many aspects of Dorset Eskimo life: weaponry, cutting and scraping tools, implements for the fabrication of others, and vessels for domestic use. As well the process of making many of these artifacts is reflected in the collection of unfinished tools and flaking debris.

One type of chert is predominant in the Dorset Eskimo assemblage. Artifacts manufactured from this chert are highly susceptable to weathering, and now exhibit an off-white, mottled brown and white, or brown patina. This patination is apparently common to cherts native to the Trinity Bay region (Art King, M.U.N. Geology Dept., pers. com.). In comparison to cherts found in other Newfoundland collections, this material might be considered of "medium" quality. The fact that it was often ground suggests that it is less hard than many other chert types.

The second most popular material from which chipped stone tools were manufactured is crystalline quartz. Frequently

used for making endscrapers and microblades, quartz crystal is very hard and produces a razor-sharp cutting edge.

Green and gray-green cherts are also present, but they are rare. These materials are much finer grained than the patinated chert, and were occasionally used for making endscrapers.

HARPOON ENDBLADES n = 366

Triangular points once used to tip harpoon heads are numerous at the Stoek Cove site. These projectiles were constructed either by chipping or a combination of chipping and grinding. The collection is accordingly divided into three categories: "Chipped" specimens were shaped and finished exclusively through flintknapping; "Ground" specimens were initially flaked, and then finished with a grindstone; "Chipped and Ground" endblades display both techniques of finishing.

Chipped Endblades n = 162 (Tables 3 and 4, Plate I)

Harpoon endblades manufactured exclusively by chipping constitute 44% of the Stock Cove endblade collection. Bifacially flaked specimens are the most frequent, tip-fluted specimens are second in popularity, and unifacially flaked examples form a minority.

a. Bifacial n = 79

The majority of bifacial endblades are completely flaked over both surfaces. The quality of flaking varies, with less than 20% appearing precisely worked. Many are roughly chipped and exhibit surface irregularities, yet the outline form is, in most cases, symmetrical. All specimens are basally thinned, usually to an equal degree on both the dorsal and the ventral surface.

A variety of shapes is present. Approximately 50% display a similar form: an elongated triangular outline with straight or slightly convex sides, and a straight or slightly concave basal margin. Other specimens are not as uniform, ranging from very squat examples to quite long and narrow ones. Side-notching is rare; five examples have shallow side-notches immediately above their bases, one has a pair of notches placed further up the body, while another specimen has two sets of notches, the second set located near the tip.

b. Unifacial n = 35

Unifacial endblades are, by definition, flaked on one surface only, although the ventral or unworked face may exhibit edge retouch. 64.5% of these unifacial specimens show complete surface flaking on the dorsal face. 77.7% are basally thinned; of these about one-half (40.7%) exhibit an equal amount of thinning on both faces.

With respect to shape, unifacially chipped endblades are essentially similar to bifacial specimens. The greatest difference is symmetry, as 53.3% are asymmetrical in outline. Lateral edges are again slightly convex, and basal margins are slightly concave or straight. Whereas bifacial specimens are bi-convex in both longitudinal and transverse cross-section, most unifacial endblades are either plano-convex or concave-convex in longitudinal cross-section, and plano-convex in transverse cross-section.

c. Tip-fluted n = 48

Forty-five tip-fluted specimens exhibit a longitudinal median ridge on their ventral surface, where two or more tip-flute flakes were removed. Each of the remaining three examples have had a single tip-flute flake removed. Most specimens (93.3%) are completely flaked on the dorsal surface. 77.1% exhibit no evidence of working - other than tip-fluting and basal thinning - on the ventral face. All specimens were basally thinned on the dorsal and the ventral surface; 51.3% were thinned to an equal degree on both faces.

A symmetrical, elongated triangular form occurs most frequently. Lateral edges are usually gently convex. Tip-fluted specimens show the highest frequency of concave basal margins (81.1%). Longitudinal cross-sections are either plano-convex or bi-convex, depending upon the degree of tip-fluting and basal thinning on the ventral surface. Variation in the size of the ventral tip-flute ridge may

result in either a bi-convex, a plano-convex, or a triangular-convex transverse cross-section.

Ground Endblades n = 107 (Tables 5 and 6, Plate II)

"Ground" harpoon endblades are manufactured from chert and are judged to have grinding over at least 75% of their surface area. This degree of surface grinding differentiates them from specimens in the following "Chipped and Ground" class, all of which have less than 75% of their surface finished by grinding. "Ground" endblades show no surface chipping, although most exhibit a fine edge serration, or a coarser edge retouch.

Most ground chert endblades (86.6%) have a symmetrical outline. 83.3% have gently convex edges. Slightly concave and straight basal margins occur with approximately equal frequency. 59.7% are either bi-convex or triangular convex in longitudinal cross-section, depending upon the precision with which surface and basal grinding was done. Three specimens have broad, shallow side-notches formed after grinding was done.

Grinding was not performed in an identical manner on all specimens. Generally, two grinding techniques were followed. Flat grinding was performed in a single plane, parallel to both axes of the specimen. Bevelled grinding produced a peaked or convex surface. A single specimen may exhibit one or both techniques. While bevelled grinding

may occur on both faces of an endblade, flat grinding, when it does occur, is restricted to a single face. In some instances bevelled grinding was executed with machine-like precision, producing a specimen that appears bilaterally and bifacially symmetrical. More often, however, it was done less exactly. The transverse cross-section of a ground chert endblade reflects the grinding technique employed, as well as the precision with which grinding was executed, and forms the basis for the following descriptive classification.

a. Plano-convex n = 6

The ventral surface of these six specimens is ground flat, while the dorsal face is bevel-ground to a convexity. Basal grinding is done on both surface and in the case of these plano-convex examples it is more pronounced on the dorsal face. Three specimens have finely serrated edges.

b. Triangular n = 2

Specimens with a triangular transverse cross-section are also flat-ground on the ventral face and bevel-ground on the dorsal. Compared to plano-convex examples, however, the dorsal grinding was more precisely controlled, producing a well-defined longitudinal midline. Basal grinding is again more pronounced on the dorsal face, and lateral edges are serrated in both cases.

c. Bi-convex n = 63

The most popular type of ground endblade has two convex faces. The exact transverse cross-sections vary, from examples which are symmetrical or lens-shaped, to ones which are markedly asymmetrical, i.e. nearly plano-convex. Basal grinding is usually more pronounced on the dorsal face, yet several symmetrically bi-convex specimens exhibit an equal degree of basal grinding on both faces. Most specimens have edge serration; those which do not have a coarser edge retouch.

d. Triangular-convex n = 30

These specimens are similar to the preceding type, yet exhibit preciser grinding on one face. As a result, this face has the well-defined longitudinal midline as seen in Triangular examples. Basal grinding occur on both faces and is usually slightly more pronounced on the face with the longitudinal midline. Again, most specimens have edge serration, while those without have the coarser edge retouch.

e. Diamond n = 6

Precisely controlled bevel-grinding on both surfaces produces a flattened diamond transverse cross-section, with a longitudinal midline on both faces. As basal grinding was also performed in a near-identical manner on each face, these specimens are bilaterally and bifacially symmetrical. Lateral edges are serrated in all cases.

Chipped and Ground Endblades n = 97

(Tables 7 and 8, Plate II)

All these endblades are chipped, yet also exhibit grinding facets. Grinding was performed secondarily, to sharpen edges and tips, and to thin bodies and bases. Occasionally, additional edge retouch has removed areas of a ground surface.

Three classes of chipped and ground endblades are distinguished according to their primary method of manufacture: chipping.

a. Bifacial n = 37

Exactly 75% display surface grinding facets, while 83.3% exhibit basal grinding. Surface and basal grinding occur together on 53.3%. Bases were often chipped subsequent to being ground; 56.7% are thinned by a combination of chipping and grinding.

Most specimens have a symmetrical outline and gently convex lateral edges. Basal margins are usually slightly concave or straight. Longitudinal cross-sections are most frequently bi-convex, although varying degrees of bi-convexity exist, from nearly plano-convex to symmetrically bi-convex.

b. Unifacial n = 27

The occurrence of surface and basal grinding on unifacial specimens is essentially similar to bifacial ones. Basal thinning is more commonly performed by grinding than chipping,

and is usually more pronounced on the dorsal face of the specimen. 42.9% exhibit post-grinding edge retouch.

A symmetrical outline and convex lateral edges again predominate. Unifacial endblades show a slightly greater occurrence of concave basal margins than do bifacial specimens. The longitudinal cross-section assumes a variety of forms, most commonly either bi-convex or plano-convex. Most are plano-convex in transverse cross-section.

c. Tip-fluted n = 33

Tip-fluted specimens show a marked decrease in the occurrence of surface grinding, while basal grinding occurs with 100% frequency. The bases of tip-fluted specimens are commonly chipped as well as ground. Concurrent with the decrease in surface grinding is a low frequency of post-grinding edge retouch; of the fifteen specimens exhibiting surface grinding, only one was subsequently retouched. Tip-fluted specimens show a form of grinding not present on bifacial and unifacial endblades, namely, grinding of the ventral tip-flute ridge. On thirteen specimens (46.4%) the distal portion of the longitudinal ridge produced by the tip-fluting process has been flattened and nearly obliterated by grinding. The objective was, presumeably, to sharpen the tip.

In outline, these specimens show a less symmetrical form than either bifacial or unifacial examples. Lateral

edges are usually convex, and basal margins concave. Cross-sections are often bi-convex, although considerable variation exists.

KNIVES/BIFACES n = 100

Only two of the 100 knives/bifaces are intact, while there are 50 tip fragments, 14 midsections and 34 bases. Most of the fragments are undistinctive, showing only that the Stock Cove Dorset inhabitants were making and using a variety of long triangular bifaces, not unlike oversized harpoon endblades. Fourteen of the bases are sufficiently distinct to place in two types, each type including one of the intact specimens. Many of the fragmentary ones are similar to these types, but cannot be classified due to their condition.

Large Bifaces n = 8 (Plate III)

These bifaces are quite thin in proportion to their length and width; the intact specimen measures 85.2 mm long, 37.1 mm wide and 6.8 mm thick. Most of the fragmentary examples are larger, the largest about 100 mm long. Bases are carefully thinned and retouched to a slight concavity. This preparation, along with the notches present on six examples, indicate that these tools were hafted. Notches are shallow and placed immediately above the base; one specimen has two sets of notches. All examples are bifacially thinned and two have surface grinding near their base.

These tools may have served a variety of functions. The thin and sharp tip of the complete one indicates it may have been a projectile - a spear or lance point - and the sharp edges of all specimens were likely well-suited for cutting.

Small Bifaces n = 8 (Plate III)

Besides being smaller than the preceding ones, these tools are proportionally longer and narrower. Again, they are quite thin; seven are less than 5 mm thick. Bases are bifacially chipped and in one instance subsequently ground. Shallow side-notches, placed slightly above the concave base, are present on all specimens. Two examples have double sets of side-notches. These bifaces are generally smaller, more slender, and lighter than the large bifaces. They may have tipped projectiles, perhaps of the throwing rather than the thrusting type, in addition to being used as cutting knives.

Unclassified Fragments n = 84

Fifty distal fragments are unclassified. Three have blunted tips, and were therefore probably not projectiles. All are triangular in outline; some are broad as in Large Bifaces while others have the longer, narrower outline of the latter type. Three are tip-fluted and one is ground.

Three of fourteen medial fragments have parallel sides; others have converging sides. Two have grinding on their surface.

Eight of twenty proximal fragments have the long, narrow outline of Small Bifaces. None is notched, however, and their basal margins are either straight or irregular. Two notched specimens are unlike either of the preceding types; both have very small side-notches placed high above the base, and parallel rather than converging sides. One is bifacially chipped and ground and quite thin, while the other is a uniface, and much thicker. The remaining bases are asymmetrical and irregular, and appear to have received a minimal amount of shaping prior to use.

SCRAPERS n = 72

The mixing between Recent Indian and Dorset Eskimo materials at Stock Cove, as discussed in a previous section, has presented particular problems with respect to endscrapers. It is generally not difficult to differentiate between Recent Indian and Dorset tools, with styles being distinctive and diagnostic. The selections of raw materials is also helpful, as there is a dichotomy between the fine-grained colourful cherts used by the Recent Indians and the weathered white material prevalent in the Dorset assemblage. The distinction does not hold true, however, with respect to endscrapers; the Dorset people of Stock Cove used a variety

of coloured cherts in addition to the weathered chert and quartz crystal for making endscrapers. A clear morphological distinction between Recent Indian and Dorset endscrapers is also not observable. Several specimens may be confidently identified as Dorset (for example those with graving spurs) but many are of questionable origin.

Failing to produce a replicable or quantifiable method of identifying endscrapers (several methods of metrical analysis and plotting were attempted), the mixed collection was "divided" by visual inspection. This "method" is highly subjective and reflects the prejudice of the researcher, but is inescapable until further research produces an objective means of identification.

Based on the fact that quartz crystal is unknown to occur in Newfoundland Recent Indian assemblages, all quartz crystal endscrapers are presumed to be Dorset Eskimo. Diagnostic Dorset Eskimo tools (e.g. microblades) made from quartz crystal have been found at Stock Cove and other sites, so there is no doubt that Palaeo-Eskimos were using this material. The fact that quartz crystal endscrapers outnumber chert specimens at Stock Cove is a significant and somewhat unusual occurrence in Newfoundland Dorset assemblages. A possible explanation may be that the popular weathered chert was in fact unsuitable for endscrapers - a tool requiring a durable working edge. The presence

of the better quality coloured cherts in the endscraper collection is also explained by this reasoning.

Quartz Crystal Scrapers n = 51

(Tables 9 and 10, Plate IV)

The small size of most quartz crystal scrapers appears to be a function of the size of available crystals. Three types are distinguished on the basis of outline form and the number of working edges.

a. Four-sided, single working edge endscrapers n = 30

Several quadralateral shapes occur; the most common form is rectangular. Twenty specimens are surface flaked on their dorsal face while ten exhibit crystal cortex. All have a single working edge, twenty-one along their length dimension and nine along their width. Two specimens are stemmed. Most are incompletely worked along their lateral and proximal margins.

b. Three-sided, single working edge endscrapers n = 10

Except for their triangular outline, these endscrapers are quite similar to the preceding type. Five are completely flaked on their dorsal surface, four display some crystal cortex, and one is fashioned on a quartz crystal flake. None is stemmed, and non-working edge retouch is rare.

c. Scrapers with multiple working edges n = 5

Included in this type are two specimens which are equilaterally triangular in outline, and have three working

edges. Another has a rectangular shape and four working edges. An irregular specimen has two slightly convex working edges and a single concave edge. Another unique specimen has two convex working edges, fashioned on opposite faces of a quartz crystal flake.

d. Concave sidescrapers n = 5

Four quartz crystal microblades and one linear fragment of quartz crystal have one side retouched to form a concave working edge. Opposite edges are not retouched. These concave sidescrapers or "spokeshaves" range in length from 14.2 mm to 18.0 mm, and their working edges vary between 6.5 mm and 10.1 mm.

e. End-of-blade scraper n = 1

One quartz crystal microblade fragment, measuring 7.2 mm in length and 6.0 mm in width, is retouched at one end to form a convex working edge.

Chert Scrapers n = 21 (Tables 9 and 10, Plate V)

The chert scrapers are quite variable and do not readily lend themselves to classification. Because of the tentative nature of the following typology the entire collection is illustrated in Plate V, each row corresponding to one of the following types.

a. Large, three-sided endscrapers n = 7

The seven specimens included here are approximately triangular in outline, with symmetrical convex working

edges. All are flaked on their dorsal surface and one is also ground. Lateral edges are retouched, producing graving spurs on one example. A variety of green, blue and tan cherts occur.

b. Small, three-sided endscrapers n = 3

These are essentially similar to the preceding ones, but are much smaller. In size and form they closely resemble quartz crystal endscrapers. They may be expended, or nearly expended, examples of the above type.

c. Four-sided endscrapers n = 4

These endscrapers have steeper and less regular working edges than either of the above types. All are flaked on their dorsal surface; one is also worked on its ventral face. Lateral edges are retouched.

d. Flake endscrapers n = 3

These specimens were made on flakes, and are irregularly triangular in outline. They are quite thin in cross-section and exhibit a minimal amount of working edge and non-working edge retouch. All are made from weathered chert.

e. Composite end/sidescrapers n = 4

These four rectangular specimens appear to be composite end/sidescrapers. End working edges are thin, while working sides are thicker and steeper. All are constructed from weathered chert; two are made on blades.

BLADES/BLADE-LIKE FLAKES n = 185

(Tables 11 and 12, Plate VI)

The core from which blades are produced requires preparation of a striking platform, and a face from which the blades are removed. This preparation is accomplished by the removal of ridge flakes - linear flakes with triangular cross-sections and transverse flaking - and other core debris. The blade itself has been defined as "... a parallel sided flake with a prepared striking platform and/or prepared platform edge, with one or more straight dorsal ridges parallel to the lateral edges" (Linnamae 1975:131).

A striking feature of the blade technology at Stock Cove is its apparent poor development, when compared with other Newfoundland Dorset assemblages. Applying the above definition, no more than three dozen blades can be identified in the Stock Cove collection. The collection is, instead, replete with a variety of blade-like flakes and linear flakes which cannot be considered true blades due to their irregularities. The infrequent occurrence of true blades is believed to be partially a function of the raw materials used by the Dorset inhabitants of Stock Cove, in that none was ideally suited to a blade industry. Rarely, attempts at producing blades from patinated chert were made, but results were generally unsuccessful; only a few specimens fulfill the requirements of the above definition. No patinated chert blade cores were recovered from Stock Cove, which

appears to reinforce the suggestion that this material was not suitable for blade technology. Quartz crystal was also used, with only slightly better results. In this case the imperfections may be due to an additional factor: the size of the quartz crystals. Most of the quartz crystals used by the Dorset people of Stock Cove are quite small, and therefore were probably difficult to prepare in the manner identified with true blade production. However, the elongated, facetted form of quartz crystals made them suitable for producing blade-like flakes, with a minimum of core preparation. These quartz crystal blade-like flakes are numerous at Stock Cove, and seem to be a substitute for true blades.

As true blades are nearly absent at Stock Cove, all imperfect blades and blade-like flakes are included in this category of "Blades/blade-like flakes". This presumes that blades and blade-like flakes had the same function, and that blade-like flakes were made when it was difficult (or undesireable) to make blades.

Chert Blades/blade-like Flakes n = 67

Of the 67 specimens manufactured from chert, 15 have parallel sides and arrises and can be considered true blades. The remainder have irregular sides and irregular and often incomplete arrises. Most examples are made from patinated chert. Three specimens of purple rhyolite, two of green

chert, and one of Ramah chert are present. Table 11 presents a metrical summary.

Quartz Crystal Blades/blade-like Flakes n = 118

Quartz crystal specimens number 118, including 19 examples identified as true blades. The remaining 99 blade-like flakes present irregularities similar to chert ones. Whether or not the 19 blades were produced in a different manner than were the 99 blade-like flakes is debatable. All may have been made by the same process, with the straight sides and arrises of the 19 "true" blade being fortuitous. The process by which blades/blade-like flakes were produced from quartz crystals is elaborated upon in the following section. The variable, non-standard form of quartz crystal blade-like flakes is reflected in the ranges of lengths, widths, and thicknesses (Table 12).

QUARTZ CRYSTAL CORES AND CORE DETRITUS (Plate VI)

There are 51 quartz crystal blade/blade-like flake cores, 38 core fragments, and 9 unworked crystal fragments in the collection. Considering only the intact cores, it can be seen that the proportion of cores to blades/blade-like flakes is quite high: 51:118, or about 1:2.3. This suggests that these quartz crystals were relatively unproductive blade cores. Sixteen of the 51 intact cores show multiple arrises where two or more blades/blade-like flakes were

removed. Of the remaining 35, 25 exhibit a single blade/blade-like flake arris, and 10 show evidence of working but do not have blade arrises.

Cores from which two or more blades were struck best exhibit the technique that was practised. The crystal was first broken transversely to produced a flat platform; preparation flakes were then struck, originating at this platform and extending part of the length of the crystal. This angled the platform slightly in relation to the longitudinal axis of the crystal. The crystal was then rotated 180°, and blades/blade-like flakes struck from its face, on the opposition side from the preparation flakes. When the crystal core was expended, the platform had assumed a wedge shape.

Core detritus is represented by 90 fragments of quartz crystal. This includes flaking debris from preparing the platform, and initial flakes from the core face from which blades were subsequently removed. Flakes and linear flakes are present, along with odd-shaped fragments that were presumeably the results of unsuccessful attempts at core preparation. Crystal cortex is often observable on the dorsal surface of core detritus flakes.

TIP-FLUTE FLAKES n = 118 (Tables 13 and 14)

The tip-fluting technique produces distinctive debitage which provides some clues as to how the technique proceeded.

After the tip of a preform was prepared, the initial or primary tip-flute flake was struck. This produced a linear facet on the preform and a corresponding flake with flaking scars on its dorsal surface - the former surface of the preform. Next, a second fluting flake was struck from the tip of the preform adjacent to the first. This would remove the remainder of the preform's original surface along with a portion of the linear facet from the first tip-flute flake. Accordingly, secondary tip-flute flakes have flaking scars over a portion of their dorsal surface and a facet on the rest. Sometimes a third or tertiary fluting flake was removed; these are recognized by the presence of two linear facets on the dorsal surface.

Usually two and sometimes three tip-flute flakes were struck from the same surface of a preform, and can be assigned either a left or a right position. With the flake orientated so as the dorsal surface is up and the striking platform is distal to the observer, left examples have an edge facet along their left-hand margin. Right tip-flute flakes have this edge facet on their right-hand side.

There are 33 primary, 56 secondary and 29 tertiary tip-flute flakes in the Stock Cove collection. Five primary and two secondary specimens are ground on their dorsal surface, demonstrating that in some cases grinding was done prior to tip-fluting. Two fluting flakes, a left secondary and a right tertiary, are from the same preform

and can be reassembled. The primary flake belonging with these two is not present. Table 13 provides a typology of the Stock Cove tip-flute flakes.

Metrical analysis shows that primary, secondary and tertiary specimens are similar with respect to maximum thickness (usually measured at the bulb of percussion). Primary examples, however, are generally larger and more variable than secondary and tertiary specimens with regards to maximum length and width. (Table 14).

PREFORMS n = 129 (Tables 15 and 16, Plate VII)

A "preform" is an unfinished form of a stone tool that does not display the precise flaking and shape of the final product. The 129 examples from Stock Cove vary in size, shape and degree of finish, and give a general impression of the flintknapping techniques practised by the Dorset inhabitants. The collection is subdivided into two categories: those which are true core tools, i.e. were formed through a progressively refined reduction process; and those which were formed on conveniently shaped flakes or fragments, referred to as, for lack of a better term, "flake" preforms. The distinction is, in a sense, a matter of degree as core preforms also originated with suitably shaped chert fragments or "blanks". Core preforms were subjected to a more complete - perhaps "standardized" -

reduction process than were flake preforms, and thus several attributes serve to distinguish the two types.

With a single exception all preforms are manufactured from weathered chert. The exception is made from blue rhyolite.

Core Preforms n = 81

Preforms which have been reduced from a larger blank have flaking scars on one and usually both faces. Depending upon the stage in the flintknapping process the specimen has reached, it may also exhibit retouch of the lateral edges and base. As the reduction process continued the preform became smaller, thinner and more regular in outline, with a greater number of smaller flake scars on its surfaces. At some point in the process, when the specimen had attained a regular outline form, tip-fluting was sometimes done. This involved retouching the distal tip to a concave shape, and then removing long, usually narrow, flakes from the ventral face, originating at the projections of the concave-shaped tip. This technique greatly assisted in thinning the preform and was repeated as the reduction process continued. 33.3% of the core preforms demonstrate this technique.

The shape of a preform is largely dependant upon the stage in the manufacturing process it has reached. Large ones with only a few flake scars - from direct percussion flaking - are usually asymmetrical, with irregular edges

and little or no basal thinning. Smaller ones generally have a symmetrical outline and regular convex edges and base. Size, thickness and final basal modification, or inherent flaws that negated further reduction, distinguishes these forms from finished tools. Some specimens appear to have broken in the final stages of manufacture, as is the case with two tip-fluted examples where the final tip-flute attempt fractured the specimen.

The emphasis on creating a symmetrical form (in the latter stages of manufacture) and thinning the body by tip-fluting and surface flaking suggest that many of these core preforms were intended to become harpoon endblades or larger projectiles where symmetry, thinness and sharp edges and tips were desireable characteristics. The more refined preforms attain the elongated form popular among Stock Cove projectiles.

Flake Preforms n = 48

These preforms are in a sense "forms of convenience", whereby a suitable flake or fragment was modified via edge retouch to produce the desired shape. Flaking scars are usually absent from one or both faces; the surface is either cortex or the ventral face of the original flake. The striking platform or the bulb of percussion is often visible. Bifacial or unifacial edge flaking was done as required

to thin the specimen and shape its outline, and it is notable that tip-fluting was never performed on flake preforms.

Outline symmetry depends to some extent on the shape of the original fragment or flake, and on the degree of edge retouch. Frequently one or both faces are plano, in contrast with the usually convex surfaces of core preforms.

Flake preforms cannot be readily associated with any one finished artifact type. They vary in size, shape and thickness and were probably intended for a variety of uses. With further work some may have become endblades, but most are unsuited to this purpose and were probably intended as cutting knives.

GROUND SLATE TOOLS n = 21 (Plate VIII)

Three types of ground slate endblades are present, along with one form of slate knife represented by two specimens, three examples of a slender knife-like tool corresponding to Harp's "chisel", and five individually unique specimens.

a. Triangular endblades with line holes n = 6

These six examples are manufactured from light grey and light brown slates. All are broken basally and two are also missing their tips. Each specimen has two grinding facets which meet at a longitudinal midline and a basal grinding facet on each face. The transverse cross-section is a flattened diamond shape, while the longitudinal cross-section is either a flattened diamond or a lens shape.

Line slots are gouged, and approximately parallel to the long axis of the specimen. Sides are straight, and tips are pointed and sharp.

b. Triangular endblade with incised side-notches n = 1

This endblade is made from light grey slate, and is intact, measuring 65.8 mm long, 27.0 mm wide, and 6.0 mm thick. A surface grinding facet on each face extends from the basal margin almost to the tip. Edges are bevelled on each face, producing a symmetrically hexagonal transverse cross-section. Three pairs of side-notches are cut, and are triangular in shape. Sides are gently convex and the base is straight.

c. Endblades with rounded tips n = 4

Three of these endblades are ground flat on their surfaces and have bifacially bevelled edges, blunted by grinding. As bases are missing, it is impossible to determine whether they had line holes or notches. In outline they are not unlike the triangular endblades described above, but have a thin, rounded tip rather than a sharp and pointed one. The fourth specimen differs from the preceeding one in outline; instead of presenting a triangular form, it converges towards the base and the tip. This endblade has a single line hole, which is placed much closer to the tip than was the case among the first type described above.

d. Knives n = 3

The large slate knife in Plate VIII appears to have a handle shaped by chipping. The specimen is ground flat on both surfaces and the working edge is bevelled unifacially. Two additional specimens included here are edge fragments of other such tools, exhibiting similar surface and edge grinding.

e. "Chisels" n = 3

The designation "chisel" is used for lack of a better term, and is in accordance with the name used by Harp for similar tools. These specimens are made from light brown slate; two are midsection fragments and the third is broken basally and damaged slightly at its tip. Surfaces are ground flat and edges are bevelled bifacially. Edges are blunted by grinding, and therefore it is unlikely that these tools were cutting knives. Sides are straight and converge towards the tip.

f. Miscellaneous n = 5

A midsection fragment of a large endblade or knife, measuring 34.2 mm wide and 3.9 mm thick, has bifacially bevelled, sharp edges and a single gouged hole. A much smaller specimen has convex surfaces and a single gouged hole. A small endblade (36.3 mm long, 12.2 mm wide, 4.4 mm thick) is similar to ground chert endblades, except that it has a rounded base. Two ground slate pieces with

flat surfaces and bevelled edges may be either endblade or knife fragments.

BURIN-LIKE TOOLS n = 2

One burin-like tool is essentially intact, having only minor breakage along its edges. It is rectangular in outline, measuring 42.1 mm long, 28.5 mm wide, and 3.4 mm thick. Its surfaces are ground flat, and the thickness is quite uniform. Two edges are bevelled from the same face; the sharp corner resulting from this bevelling is chipped slightly, possibly from utilization. The second specimen is a fragment of a similar tool with flat surfaces and a bevelled edge. Thickness measures 3.6 mm.

HAMMERSTONES n = 11 (Table 17)

Ten of the eleven hammerstones are essentially intact, while one specimen is broken across its diameter and missing a substantial portion of its original mass. This broken specimen is pecked but not spalled on the end which is present (because of its incomplete state it is excluded from further analysis). Nine of the remaining ten hammerstones are elongated - roughly "egg" or teardrop shaped. All exhibit pecking on both their ends; eight have spalling on one or both ends. One of the largest examples seems to have also functioned as an anvil, as it is battered on its surface as well as both ends. The size and weight

of the eight large specimens and the spalling evident on their ends suggest that they were employed as direct percussion flakers for "roughing out" preforms. As the two small hammerstones are pecked but undamaged they were likely used for more precise and less strenuous work.

ABRADERS n = 7 (Table 18, Plate IX)

Two varieties of abraders are differentiated on the basis of material. The first kind, represented by two specimens, is manufactured from a very hard, dense stone. One has an elongated shape and a quadralateral cross-section; each of its four surfaces is smoothed. The ends of this specimens are pecked, indicating it served double use as a hammerstone. The second example of this kind is ovoid in outline and quite thin in cross-section - probably a fragment of a larger stone. It has one convex ground surface.

The five examples of the second variety are made from a much softer grey material. All specimens are now fragmented, but appear to have originally been rectangular in shape. Each have several smoothed facets or platforms - one or two broad surface facets and narrower facets along their edges. The largest specimen has a total of six smoothed facets.

While the first type of abrader is sufficiently hard to grind chert, the second kind appears much too soft for

this purpose. It is possibly suited for working softer materials such as slate, bone, and antler.

SOAPSTONE n = 10 (Plate IX)

Ten fragments of soapstone represent a maximum of six vessels. Four fragments belonging to the same vessel have been cross-matched and two other pieces presumeably from another vessel were also found to join. All soapstone fragments have two finished surfaces and appear to be from angular rather than rounded vessels. All but one have burnt fat adhering to their surfaces. Because of the fragmentary nature of these pieces it is impossible to reconstruct vessel size or shape; one piece permits a partial reconstruction.

Specimen 1726 is a wall fragment from a soapstone vessel whose inside depth (from rim to turn of the base) measures 41.8 mm. As the thickness of the base cannot be precisely determined the total height of the vessel can only be estimated - at about 52-55 mm. Wall thickness varies between 6.8 mm at the rim and 11.6 mm at the base. Three holes are gouged through this piece and two vertical lines incised on the outside.

The remaining fragments are not useful for reconstruction, and can only be described. The four articulating pieces are part of a wall including the rim. Thickness varies from 9.1 mm at the rim to a maximum of 13.2 mm, and the

vessel originally measured in excess of 120 mm in height. Three gouged holes are present. Another three pieces are also wall and rim fragments. Minimum and maximum thicknesses are 11.0-14.4 mm, 5.4-9.4 mm, and 6.2-7.2 mm. One of these pieces has three gouged holes. The final fragment appears to be part of a base with a maximum thickness of 21.1 mm.

Chapter 5

A SURVEY OF NEWFOUNDLAND DORSET ESKIMO SITES AND ASSEMBLAGES

Works by Elmer Harp Jr. and Urve Linnamae have implied or directly stated that the Dorset culture in Newfoundland may be "typified" by a few traits of artifact assemblages, and accordingly distinguished from Dorset occupations ~~elsewhere~~ in the eastern Arctic. This line of thinking has persisted in recent years. While some traits do distinguish Newfoundland Dorset from Arctic Dorset manifestations, the same traits are not shared or reproduced throughout the island. There is not a "typical Newfoundland Dorset" culture. Stone tools are the most obvious indicators of the extant variety, yet it is difficult at this point to express and quantify stylistic differences without a careful examination of assemblages. Such an examination is difficult as some collections are inaccessible and written reports are often incompatible. A thorough examination of assemblages is beyond the scope of this work, as it would ultimately require the analysis and comparison of tens of thousands of lithic tools. For the present, therefore, I will limit discussion of lithics to a brief look at a few tool types and the raw materials employed. This cursory examination is, however, sufficient to demonstrate the existing diversity among Newfoundland Dorset Eskimo collections.

Site locations and hypothesized subsistence routines also differ between regions of the Newfoundland coast. The specific location of a site may be seen to be a direct response to a resource or resources, and different resources required appropriate responses. As will be seen, Dorset Eskimo sites were located, directly or indirectly, to utilize best these regional resources.

The West Coast: Cape Ray to Cape Riche

The west coast of Newfoundland has continued to interest researchers of Dorset culture since it was first surveyed during the early twentieth century. Elmer Harp Jr. carried on extensive excavations at the Phillip's Garden site at Port au Choix and tested several other sites in the area (Harp 1964). More recently, Urve Linnamae (1975) conducted research at Cape Ray, at the southwestern corner of the island. Since 1980, a Dorset site at Broom Point has been excavated (Tuck 1983), and a survey of the Port au Port peninsula performed (Simpson 1984). In 1984 Dr. M.A.P. Renouf began a multi-season project at Phillip's Garden and environs. In sum, these investigations have provided a good look at the Dorset occupation of western Newfoundland.

Port au Choix-2 (Phillips Garden)

In discussing the Dorset artifacts from Port au Choix-2 and other northwest coast sites, Elmer Harp Jr. wrote that "...a strong cultural unity" was evident. More specifically:

> Many of the artifact types occur repeatedly; they are strikingly uniform in their small size; they show strong similarities in workmanship and technique; and they are made of the same materials (Harp 1964:89).

These features of northwest coast Dorset artifacts - relative frequencies, size, workmanship/technique, and raw materials - gain new significance in light of Dorset assemblages from other regions of Newfoundland.

The two most popular artifact types at Phillip's Garden (as reported by Harp) are triangular projectile points and snub-nosed scrapers, each representing about 15% of the collection. The triangular projectile points, or harpoon endblades, have convex sides, slightly or deeply concave bases, and a width approximately 40-50% of their length. Most (86%) have surface flaking restricted to one surface, with the opposite face being either unworked or tip-fluted. The popular raw materials are chert and flint (Harp 1964:36). Snub-nosed scrapers, or endscrapers, are also fashioned from chert and flint, have convex working edges, and flaking on their "exterior" (dorsal) surfaces. Some examples are notched (Ibid:54). Next in frequency are prismatic blades (7%), and "prismatic blade knives, blunt-edged" (4.5%), which are tip-flute flakes. The smaller prismatic blades are made from crystalline quartz, and the large ones from chert and flint. One-quarter show utilization or purposeful retouch (Ibid:48-50). These artifact types constitute more than 40% of the Port au Choix-2 collection, the remainder

consisting of: various knife forms, of which some are Groswater, but certain ones such as large, asymmetric, notched specimens can be identified as Dorset; ground and polished bevelled slate points with characteristic basal notches, and slate "chisels", also ground and polished; utilized chips; fragmentary artifacts; and a few types represented by rare specimens, which in some cases may be recognized as Groswater rather than Dorset Eskimo. It should be noted that this collection represents only a portion of the total artifacts recovered from Port au Choix-2, as only Harp's early work at the Phillip's Garden site is reported in his 1964 publication.

Other sites visited by Harp along the northwest coast were not worked as intensively as was Phillip's Garden, and the collections from them are of limited usefulness for comparative purposes. Mixing of Dorset Eskimo and Groswater deposits occurs. Some sites, such as Norris Point, are now known to have discrete Groswater components. Suffice it to say that other northwest coast Dorset sites examined by Harp probably have (or had) artifact assemblages similar to Phillip's Garden, with respect to artifact types, styles, and raw materials.

The west coast of Newfoundland borders the Gulf of St. Lawrence, and most locations along the coast are exposed to winds and seas from the gulf. As Harp notes (Ibid:85), "Exposure to wind and climate... does not seem to have governed [site] location." He does say, however, that

while some sites are open to the north, others, like Norris Point-1 and 2, are situated in more sheltered areas. Subsequent work at Norris Point-1 by Paul Bishop (n.d.) has shown it to be a Groswater encampment, and its sheltered location compares with the locations of other Groswater sites in Newfoundland, and contrasts with the "outer" locations common to Dorset Eskimo sites in western and northern Newfoundland.

These northwest coast Dorset sites were apparently prime seal hunting locations. Analysis of food bone from House 4 at Port au Choix-2 showed almost 98% to be seal, mostly harp seal (Harp 1976:128). House 5 is thought to be a summer dwelling (Ibid:130), as it is less substantial than other structures at the site and lacks an internal hearth. This would suggest that Port au Choix-2 was occupied at seasons - perhaps summer and fall - in addition to the spring harp sealing period.

Broom Point

Systematic archaeological research has been done at another Dorset Eskimo site on the northwest coast. Broom Point, in Gros Morne National Park, was investigated by a team from Memorial University under contract to Parks Canada in 1982. Additional excavation was done in 1984 by Carol Krol, a graduate student at Memorial University, again in cooperation with Parks Canada. Data from the

1984 excavation are not yet compiled, but a report of the results of the 1982 fieldwork is available (Tuck 1983).

Tool types from Broom Point closely agree with ones from Phillip's Garden, and the relative frequencies of types differ only slightly. The most frequent artifact type at Broom Point is the prismatic blade, accounting for 35.4% of the assemblage. Endscrapers (11.5%) and chipped harpoon endblades (10.4%) are next in order (Tuck 1983:66). In comparison to Phillip's Garden, prismatic blades are about five times as plentiful, while endblades and endscrapers are slightly less frequent. Endblades and endscrapers occur with approximately equal frequency, as was the case at Phillip's Garden. Endblades with convex sides, slightly or deeply concave bases, and which are unifacially flaked or tip-fluted, closely resemble Phillip's Garden specimens. Fine-grained coloured cherts were used to manufacture these and other artifacts.

There appears to be little significant difference between the assemblages from Phillips Garden and Broom Point with respect to relative artifact frequencies - except for the prismatic blade count - as most chipped stone artifact types described or illustrated by Harp (1964) are represented at Broom Point. This would appear to argue against an hypothesis that Broom Point was a specialized procurement station. Instead it indicates that Broom Point was an independant and self-contained settlement, or "... a small

encampment of Middle Dorset people whose equipment included all those chipped and ground stone tools and weapons necessary for maintenance and survival". (Tuck 1983:67). The primary subsistence focus was probably the exploitation of gulf seal herds during the winter and spring, although the possibilty of summer and fall occupations at Broom Point cannot be excluded.

Port au Port

The Port au Port Peninsula, on the southern part of the west coast, was first surveyed in 1975 by Paul Carignan (n.d.) and again by David N. Simpson in 1983 (Simpson 1984). The latter investigator records the presence of four prehistoric sites on the peninsula. However, only one yielded extensive evidence of Dorset Eskimo occupation. At this site (the Port au Port site, or DdBq-1) harpoon endblades were relatively infrequent (6%), but closely resemble Phillip's Garden specimens with their convex sides, slightly or deeply concave bases and high frequency of tip-fluting (Ibid: pl.1). A variety of endscrapers, carefully manufactured from fine cherts, constitutes about 11% of the assemblage. An analysis of faunal remains from the Dorset component of the Port au Port site revealed a predominance of seal bones. Three species, harp, ringed, and harbour seals, are represented (Simpson pers. com.).

In addition to the habitation sites located during the Port au Port survey, three chert outcrops were discovered.

Although no certain evidence linking the Dorset Eskimo population to these potential quarries was found, their existence may have provided a reason, other than seal hunting, for the Dorset occupation of the area.

Cape Ray Light

A large and rich Dorset Eskimo site is located at Cape Ray, at the southern extreme of the west coast, and was excavated by Urve Linnamae during 1967 and 1968 (Linnamae 1975). A total of 4,797 lithic artifacts was recovered, including all the major types recorded at Port au Choix-2, Broom Point, Port au Port, and elsewhere on the west coast. Prismatic blades, or microblades, constitute the single largest category (18.5%), followed by endblades (14.1%) and endscrapers (12.6%). The relative frequencies of the latter two types compare favourably with sites on the northwest coast. With respect to endblades, a greater variety of forms is present than at other west coast sites. Many specimens are similar to the Port au Choix type, but others present a different outline form - longer and narrower (Linnamae 1975: fig. 15). Some of these endblades display basal grinding, a characteristic not seen in northwest coast assemblages.

Discussion and Radiocarbon Dating

These Dorset Eskimo sites, ranging along the west coast from Cape Riche to Cape Ray, share certain similarities of assemblages. Most notable is the style of harpoon endblades.

Characteristically, endblades from west coast sites have convex sides, slightly or deeply concave bases, and a width equal to or slightly less than one-half their length. Most are carefully manufactured from fine-grained black, green, or blue chert. Endscrapers are similarly well-made from the same materials, and a variety of forms often includes notched examples. These two artifact types usually occur with approximately equal frequency, each constituting 10-15% of the total artifact assemblage. Port au Port is the only site where the relative frequencies of these artifact types differ, as endblades constitute only 6% of the assemblage, but due to the small sampling of that site this difference may not be significant. Prismatic blades are numerically more variable, ranging from 7% of the Port au Choix-2 assemblage to 35.4% of the Broom Point collection. If these tools are, as is suspected, butchering knives, these variable frequencies may be indicative of on-site activity areas, with the relatively low frequency of blades recovered from Port au Choix indicating that butchering was not done in or close to the house structures excavated by Harp. Conversely, the excavated portion of the Broom Point site was a butchering area.

All of the sites discussed above are located on the immediate coast, exposed to the Gulf of St. Lawrence. Exposed locations appear to have been preferred as they facilitated access to the gulf seal herds. The presence

of harpoon equipment at each site, and the faunal remains from Phillip's Garden and Port au Port, indicate that the Dorset inhabitants of the west coast were seal hunters. The existence of at least one summer dwelling at Port au Choix-2, and the diversity of the seal faunal assemblage from Port au Port indicate that these sites were occupied during summer and fall months, in addition to the spring, and perhaps even year-round.

Each of these sites has been radiocarbon dated, and the results give a representation of the time-frame of the west coast Dorset occupation. A total of twenty dates were run on Phillip's Garden samples, of which fourteen were derived from wood charcoal and are acceptable:

1736±48 B.P.	(P-692)	1580±54 B.P.	(P-727)
1712±40	(P-695)	1565±53	(P-733)
1683±49	(P-736)	1538±55	(P-729)
1659±48	(P-693)	1509±47	(P-696)
1623±47	(P-679)	1502±49	(P-676)
1602±49	(P-694)	1465±51	(P-734)
1593±49	(P-683)	1321±49	(P-737)

(After Harp 1976:137)

Three dates are available for Broom Point:

1650±90 B.P.	(Beta-4771)	(Tuck 1983)
1420±70	(Beta-11375)	
1370±100	(Beta-11376)	(Krol pers. comm.)

Two Dorset Eskimo radiocarbon dates were run at Port au Port:

1350±80 B.P.	(Beta-7778)	
1300±60	(Beta-7777)	(Simpson (1984)

A single reliable wood charcoal date is available from Cape Ray:

1565±95 B.P. (Gx-1198) (Linnamae 1975)

The Broom Point, Port au Port and Cape Ray dates all fall within the range established by Port au Choix-2, and this range of ca. 1300-1750 B.P., or A.D. 200-650, probably encompasses the major period of Dorset occupation on the west coast of Newfoundland.

The East Coast of the Great Northern Peninsula

Urve Linnamae worked at the Pittman site at Sop's Island, White Bay, in 1967 and 1968. In 1969 Dorset Eskimo sites at Englee and nearby Lane's Cove were excavated by Dr. James A. Tuck. An environmental impact study conducted by Gerald Penney for Newfoundland Hydro resulted in the discovered of a small Dorset Eskimo site at Devil's Cove. This, plus the l'Anse aux Meadows Norse excavation where a few Palaeo-Eskimo artifacts were found, is the extent of Dorset archaeology along the east coast of the Northern Peninsula.

Englee

The Englee site produced a large collection of stone tools, most manufactured from black chert. As a typological analysis of the collection is not yet available, a quantatative comparison of the Englee assemblage with other Newfoundland assemblages is not possible at this time; however, some

interesting points may be gleaned from a visual inspection of the artifacts. Chert endblades and endscrapers are common. The endblades bear a remarkable resemblance to specimens from Port au Choix-2 and Port au Port with respect to outline form (convex sides, concave base, length:width dimensions) and manufacture technique (fine workmanship, frequent tip-fluting). Most are made from black chert. Endscrapers are also similar to west coast ones, with, in several cases, the additional feature of ventral flaking.

Lane's Cove, Devil's Cove

Lane's Cove is located quite close to Englee. The assemblages from both sites are very similar, with no significant difference being immediately observable. The few endblades collected by Penney at Devil's Cove are also similar. They are slightly smaller than usual in overall size and, in my view, the finest specimens recovered from any Newfoundland Dorset site.

Pittman

The Pittman site on Sop's Island, White Bay, yielded a collection of 1,403 lithic tools. Mixing of Dorset Eskimo and Groswater artifacts occurs (see Linnamae 1975, fig. 28), and was not recognized at the time by the excavator, so the relative percentages of artifacts may be slightly skewed. Triangular endblades constitute 15.5%, and endscrapers 12.2% (Ibid:179). Microblades are the most frequent artifact type, making up 18.5% of the collection. Harpoon endblades

similar to west coast and Englee specimens are present (Ibid: fig. 28f), along with others whose longer, narrower outline does not conform to the style common along the west coast (Ibid: fig. 28a-d).

Discussion and Radiocarbon Dating

There is no obvious difference between the Pittman site assemblage and west coast assemblages with respect to the relative frequencies of endblades and endscrapers. At the Pittman site each of these artifact types falls within the 10-15% frequency range established on the west coast. The frequency of blades at the Pittman site is most similar to Cape Ray Light, and is intermediate between Port au Choix-2 and Broom Point. The Englee and Lane's Cove assemblages are believed to conform to the Pittman site with respect to the relative occurrence of these artifact types, but this cannot be confirmed until a quantative analysis of these assemblages is completed. As well, the minor artifact classes present in the west are represented at these east coast Northern Peninsula sites.

In general terms this, together with the locations of Englee, Lane's Cove, and Sop's Island, would suggest that subsistence activities along the east coast of the Northern Peninsula were not greatly different from the west coast. The Front seal herd is accessible from this coast during the late winter and spring, and while there are no faunal remains from the archaeological sites to

support the hypothesis, it seems probable that the Dorset inhabitants were hunting migratory seals.

A single radiocarbon date is available from both Englee and the Pittman site on the east coast of the Northern Peninsula. Both are acceptable, but they can only indicate a time of occupation at each site. At present we have no means of knowing how long each site was occupied, or at what stage in the occupation the radiocarbon date falls. Englee is dated 1585±95 B.P., and Pittman at 1340±100 B.P. These dates fall within the latter part of the range established for the west coast, perhaps indicating that the period after ca. 1600 B.P. (A.D. 350) was a time of widespread occupation throughout western Newfoundland. This agrees with the suggested time of Dorset occupation at l'Anse aux Meadows - ca. A.D. 500 (Wallace n.d.).

The Northeast Coast: Bonavista Bay and Notre Dame Bay

The northeast coast of insular Newfoundland, including Notre Dame and Bonavista Bays, has not been explored to the extent the western region has with regards to Dorset archaeology. In 1972 and 1973 Paul Carignan excavated at the Beaches, Bonavista Bay (Carignan 1975). Shambler's Cove, located about 30 kilometers from the Beaches, was worked in 1982 excavation by Reginald Auger, under contract to the Government of Newfoundland and Labrador. Pastore's 1981 survey of eastern Notre Dame Bay located several Dorset

Eskimo sites, and is the only Dorset research reported for that bay (Pastore 1982).

The Beaches

The Beaches site incorporates at least four components: Maritime Archaic, Groswater, Dorset Eskimo, and Recent Indian. The latter component is probably more complex than previously thought, perhaps including several temporally and typologically discrete phases. These repeated occupations and the nature of the site have resulted in mixed cultural deposits lacking clear stratigraphic separation. Many artifacts have been assigned cultural affiliation on the basis of typology rather than provenience, stratigraphy, and association. With respect to some artifact classes, this methodology is suspect and a degree of caution is necessary when dealing with the Beaches collection. Certain forms of side-notched endblades and asymmetric knives included by Carignan in the Dorset assemblage are probably Groswater and are excluded here. Some of the scrapers and microblades are possibly Groswater, but as this is difficult to determine the figures are left unaltered in the following discussion.

An estimated breakdown shows that endblades constitute 18% of the assemblage, endscrapers 17% and microblades 15%. The latter two figures are, if anything, slightly high. Compared to western sites, endblades and endscrapers are slightly more frequent, but again approximately equal

in number. The outline form of endblades is, however, significantly different. A long and relatively narrow shape predominates, sides tend to be less convex, and bases are straight or only slightly concave. All specimens but one are manufactures from grey rhyolite. This rhyolite is the most popular material in the Dorset assemblage.

The frequency of microblades is similar to Cape Ray and the Pittman site. Other artifact types represented in the Beaches assemblage are preforms, flake knives, tip-flute flakes, soapstone, and ground slate knives and projectiles, including most of the types present in western sites.

Carignan suggests that the Beaches area was occupied during the early spring to late fall period, at which time subsistence was based primarily on sea mammals. Seal bones were recovered from the Beaches, but were not clearly associated with cultural remains (Carignan 1975:39).

Shambler's Cove

The results of the Shambler's Cove excavation (Tuck 1983) have provided an interesting contrast with Beaches, and indeed all Dorset Eskimo sites considered thus far. Chert and slate endblades constitute 38% of the Shambler's Cove collection. Chipped specimens are quite similar to Beaches endblades, with their elongated form and straight or slightly concave bases. The grey rhyolite popular at the Beaches is present. The small Shambler's Cove assemblage also includes three ground slate projectiles, an unusually high

representation of this tool type. Microblades account for another 35.2%, while five endscrapers represent only 3.5% of the collection. The frequency of microblades compares well with Broom Point, and contrasts with other sites, where this tool type was found to constitute from 7% to 18% of the assemblage. The occurrence of endscrapers is unusually low. Other artifact types present at Shambler's Cove include preforms, tip-flute flakes, and biface knives (Ibid:62).

It has been suggested (Ibid:62) that the large representation of hunting equipment (i.e. endblades) at Shambler's Cove indicates it was a specialized seal hunting encampment, and the concurrent popularity of blades suggest that Shambler's Cove was also a butchering station. The low frequency of endscrapers, and the absence of several artifact types, would appear to indicate that the full range of maintenance activities seen at other sites did not occur at Shambler's Cove. The visual similarities between Shambler's Cove and Beaches endblades with respect to style and raw material, and the close proximity of the two sites, suggest that both sites were utilized by the same people.

Eastern Notre Dame Bay

The 1981 eastern Notre Dame Bay survey located three sites with large Dorset Eskimo components encompassing areas of 800 to 3000 square meters, the largest being the Dark Hole site. At least six smaller ones were also found

(Pastore 1982:164). Until the collections from these sites are analysed, however, their relationships to other Newfoundland sites will remain unclear. The locations of these sites, amongst the many small islands of Notre Dame Bay, stand in contrast to such locations as the Beaches and Shambler's Cove and suggest a different subsistence focus.

Discussion and Radiocarbon Dating

A radiocarbon date of 1650±95 B.P. (SI-1383) is available for the Beaches site, and a date of 1580 B.P. is reported for the Woodworth site in Notre Dame Bay (Carignan 1975). Shambler's Cove is dated 1890±100 B.P. (Beta-5369) (Tuck 1983). The first two dates fall within the early part of the range established in the west, while the Shambler's Cove date is older than west coast dates, and is presently the oldest Newfoundland Dorset radiocarbon date. It is tempting to hypothesize that the northeast coast was occupied earlier (and perhaps for a shorter duration) than was the west, indicating that the first migration of Dorset people into Newfoundland was along this coast, but the evidence to support this is scanty.

The Isthmus of Avalon

A number of sites are recorded in the vicinity of the Isthmus of Avalon. Stock Cove, excavated by the author in 1981, shows evidence of an extensive Dorset occupation, including structural remains. The Frenchmens Island site

(Evans 1981, 1982) produced a smaller Dorset assemblage comprising stylistically similar artifacts. An archaeological survey of Placentia Bay (Linnamae n.d.) located several sites producing comparable artifacts.

Stock Cove

The Stock Cove and Frenchmen's Island sites on the Trinity Bay side of the Isthmus of Avalon have been most extensively worked. The assemblages from these sites are quite similar with respect to stylistic forms of artifacts and raw material utilization. Harpoon endblades conform to the type observed in Bonavista Bay, with respect to outline form. The elongated shape, with a straight or slightly concave base is most popular. Unlike Bonavista Bay examples, many endblades from these sites are ground. Fifty-six percent of the Stock Cove endblades exhibit grinding. Most endblades, bifaces, and knives are manufactured from a chert that now exhibits a white or brown patina. Colourful, fine grained cherts popular in western sites, and grey rhyolite as found at the Beaches and Shambler's Cove are very rare. Endscrapers and microblades are commonly made from quartz crystal. The Stock Cove assemblage, comprising 1,367 Dorset tools, contains a large proportion of endblades (28.1%), numerous microblades (13.5%), 100 bifaces (7.3%), and, in comparison with other assemblages, comparatively few endscrapers (72 or 5.3%).

Frenchmen's Island

Frenchmen's Island has produced a collection of 142 Dorset Eskimo artifacts, including harpoon endblades, bifaces, endscrapers, microblades, preforms, and tip-flute flakes. Endblades, which constitute 16.9% of the assemblage, are visually similar to Stock Cove specimens, with respect to the type of raw material, outline, and occurrence of grinding. Endscrapers make up another 10.5%, and the most popular artifact type, the microblade, represents 26.1% of the Frenchmen's Island Dorset Eskimo assemblage. The composition of the Frenchmen's Island assemblage suggests hunting and butchering, together with other maintenance activities.

Placentia Bay Sites

Sites located in Placentia Bay by Urve Linnamae (n.d.) have yielded artifacts resembling Stock Cove and Frenchmen's Island. Notable is the presence of elongated, ground, patinated endblades, and quartz crystal endscrapers and microblades. The preliminary nature of the survey work in Placentia Bay makes further comparison of assemblages difficult, as sites were only briefly visited and intensive excavations not performed.

Discussion and Radiocarbon Dating

The Isthmus of Avalon is beyond the usual range of migratory seals, but was populated by non-migratory species including harbour and gray, and perhaps ringed seals.

There are no faunal remains from any of the Isthmus sites and therefore the subsistence routine of the Dorset Eskimo occupants remains hypothetical. The frequency of harpoon endblades and the specific locations of the sites, as discussed in the following chapter, are suggestive of sea mammal hunting, yet in the absence of harp seals hunting activities must have necessarily differed.

Four sites in the Isthmus region have been radiocarbon dated.

Frenchmen's Island:

1870±180 B.P. (Beta-2142) (Evans 1982)

New Grove:

1730±80 B.P. (GAK-1905) (Linnamae n.d.)

Bordeaux II:

1090±80 B.P. (GAK-1904) (Linnamae n.d.)

Stock Cove:

1560±60 B.P. (Beta-4064)
1280±60 B.P. (Beta-4062)
1280±60 B.P. (Beta-4065) (Robbins, this volume)

In absolute figures, these dates indicate that the Isthmus region witnessed the longest Dorset occupation in Newfoundland, from ca. A.D. 80 to A.D. 860. Occupation may or may not have been continuous throughout this period. Gaps in the chronology currently exist which might denote periods when the region was abandoned (for example between ca. 1280 B.P. and ca. 1560 B.P.), yet these might be filled through additional radiocarbon dating. Urve Linnamae originally

rejected the Bordeaux II date, on the basis it was too recent in comparison to the New Grove date, yet now the Stock Cove dates partly fill this 600-700 year hiatus. Consequently, the recent date from Bordeaux II now seems reasonable.

The South Coast

The south coast of the island - Bay D'Espoir west to Cape Ray - received little archaeological attention until quite recently. A series of surveys by Gerald Penney during the 1979-1981 seasons and an excavation of one site in 1980 have shown that southern Newfoundland was repeatedly occupied by prehistoric peoples, including Maritime Archaic Indians, Early and Late Palaeo-Eskimos, and, subsequently, an Recent Indian population termed the "Little Passage complex" (Penney n.d.c, 1981). The 1979 survey in Bay d'Espoir-Hermitage Bay identified Dorset Eskimo occupations at three coastal locations: Isle Galet, l'Anse a Flamme, and Eagle Head. A single harpoon endblade found in disturbed context at Branis Point, and three Dorset tools recovered from the eroded Copper Head site also indicate Dorset occupations (Penney n.d.b). Survey work to the west of Bay d'Espoir in 1980 and 1981 located several Dorset Eskimo sites in the Burgeo-Ramea area: Brimball Storehouse, Bay de Vieux, Island Cove, Sot's Hole, Sandbanks Island, Cuttail Island,

Morgan Island and, farther to the east, Cape La Hune (Penney 1982).

l'Anse a Flamme

Excavation at the l'Anse a Flamme site in 1980 produced a collection of more than 700 Dorset artifacts in addition to cultural remains relating to Maritime Archaic, Early Palaeo-Eskimo and Little Passage occupations. Two Dorset assemblages or components are present in the collection, distinguished according to the type of raw material used for making stone tools. One assemblage is manufactured from patinated chert - as seen in the Isthmus of Avalon collections - and contains tip-fluted and ground harpoon endblades, bifaces, ground slate projectiles, and crystal quartz microblades and endscrapers. The second assemblage is numerically larger and manufactured from colourful cherts, but comprises similar tool types (Penney 1981:99, pl.II). The relative frequencies of artifact types in both assemblages have yet to be determined.

Isle Galet, Eagle Head, Copper Head

Approximately 80 Dorset Eskimo tools were recovered from Isle Galet. This assemblage includes harpoon endblades, some of which are tip-fluted and ground, microblades, tip-flute flakes, and bifaces, all made of patinated white chert (Penney n.d.b). Five harpoon endblades, two quartz endscrapers, tip-flute flakes, and a possible Dorset burin-like tool were collected at Eagle Head (Ibid). At Copper Head a

ground slate tool and a quartz crystal microblade were found, along with a side-notched biface probably of Dorset origin (Ibid).

Burgeo-Ramea

Collections from sites in the Burgeo-Ramea area are very small, usually including only a few specimens, as these site were only briefly visited. An inventory of collected artifacts includes endblades, microblades, bifaces, tip-flute flakes, endscrapers, blade cores, and preforms. Patinated white chert occurs, along with green cherts, and black chert visually similar to Cow Head material.

Discussion and Radiocarbon Dating

In summary, archaeological surveys along the south coast of the island indicate the presence of numerous Dorset Eskimo sites, possibly extending along the entire coast as far west as Cape Ray. Most of these sites appear to encompass small areas and be relatively poor in cultural remains when compared to other habitation sites, especially those along the west coast. If the small samples available from these sites are representative, however, it appears that major artifact types are represented at each site - including harpoon endblades, bifaces, microblades, and scrapers. Many of the endblades are similar in outline to those recovered from Bonavista Bay and the Isthmus of Avalon regions, and have the grinding popular in the latter location. The single most popular raw material type is

patinated white chert, as found in the Isthmus region. Microblades and endscrapers fashioned from quartz crystal are also similar to those found around the Isthmus.

Two radiocarbon dates are available for sites in the Bay d'Espoir-Hermitage Bay area (Penney n.d.b):

Isle Galet:

1345±115 B.P. (Teledyne Isotopes 1-11, 076)

Eagle Head:

1660±85 B.P. (Teledyne Isotopes 1-11, 075)

These dates suggest that the south coast was occupied during the time of extensive western and northern Newfoundland occupations. The Isle Galet date may or may not indicate a recent (post 1300 B.P.) occupation similar to that seen in the Isthmus region.

The Application of These Data

This brief examination of Dorset Eskimo sites and assemblages in coastal Newfoundland indicates some trends with respect to:

1. The relative abundance of sites in different coastal sectors.
2. The comparative size and richness of sites.
3. The specific locations of sites with respect to resources.
4. Differential lithic material utilization.
5. Relative frequencies of major artifact types.

6. The variable stylistic form of at least one artifact type - the harpoon endblade.

These factors are considered significant with respect to Dorset Eskimo occupation of insular Newfoundland, and have been used by the author in formulating a hypothetical scheme of Newfoundland Dorset Eskimo settlement and subsistence. The following chapter reviews three means of settlement patterning put forth by Pastore (n.d.), Binford (1982), and Beardsley (1956), and considers their applicability to the Newfoundland Dorset case. The ecological and archaeological data currently available regarding the Dorset occupation of Newfoundland indicate that such schemes cannot be directly applied, as they do not adequately account for the existing diversity.

Chapter 6

SUMMARY AND CONCLUSIONS

REVIEW OF THE STOCK COVE PROJECT

Implications of the Stock Cove Site

The discovery of the Stock Cove site created a degree of surprise and puzzlement in some quarters. This was not an immediate reaction, but one which occurred after the site had been revisited and tested. The puzzling aspect of the Stock Cove site, especially with respect to the Dorset culture, was its location. Situated in a southern region of insular Newfoundland, it lies near the southernmost limit of the annual pack ice, the immense ice field which brought and still brings vast herds of seals to the shores of the island each spring. These migratory seals have long been considered the mainstay of prehistoric Newfoundland hunters, not without reasons. Dorset Eskimo sites are often situated in prime sealing locations, and faunal assemblages from the few sites where soil conditions permit organic preservation are characterized by a high frequency of sea mammal bones. Indeed, one usually thinks of Dorset people and harp seals as inseparable. The discovery of a Dorset Eskimo living site in a location not frequented by migratory harp seals raised questions as to the subsistence base of these people. Stock Cove is not only located in Trinity Bay, where harp seals are uncommon, but it is situated

in the innermost part of the bay, where the appearance of a herd of harp seals today would be exceptional indeed. There are two general explanations which might account for the presence of the site at Stock Cove. Climatic conditions 1300-1600 years ago may have been different, to such a degree that pack ice and harp seals were common at that time in Trinity Bay, or the Dorset inhabitants of Stock Cove may have successfully hunted other sea and/or land mammals, species which have not hitherto been considered mainstays of Dorset Eskimo subsistance in insular Newfoundland.

The surprising aspect of the Stock Cove site was its size. It was not a minor coastal encampment but in fact a quite large and rich site eclipsed in extent only by one other known site on the island - Phillip's Garden, Port au Choix. Thus it is necessary to not only provide an explanation for the presence of a Dorset site in a seemingly anomalous location, but also account for the magnitude of this Dorset occupation, as portrayed by the wealth of artifactual and structural remains.

Results of 1981 Excavations

Excavations in 1981 revealed that Stock Cove had witnessed repeated human habitation. Although the Dorset Eskimo culture was my primary concern, it was, as with most multi-component sites, impossible to ignore completely other components. The excavated area comprised about 1.4-2.8% of the entire site, and from this sample Maritime Archaic,

Groswater, Dorset Eskimo, Recent Indian and European artifacts were recovered. Maritime Archaic artifacts number only a few specimens and were unlikely to be *in situ*. Some occurred in the Dorset Eskimo midden deposit, while others were collected from the eroding bank. The bulk of the collection (approximately 80%) consists of Dorset Eskimo tools, with Recent Indian artifacts comprising about 18%. At least one artifact recovered from a deposit stratified below the Dorset occupation level probably pertains to Groswater phase Palaeo-Eskimo and a radiocarbon date of 2140±60 B.P. derived from wood charcoal associated with it supports this assumption.

One Dorset structure, constructed of flagstones and incorporating a hearth and a midden was exposed. Radiocarbon dating of both the hearth and the midden suggest that this structure was occupied 1280±60 B.P. (*ca*. A.D. 670). Another Dorset hearth was excavated and dated 1560±60 B.P. (*ca*. A.D. 390), and is believed to relate to an older and now partially destroyed structure. This latter hearth was overlain by a possible Recent Indian feature - a grouping of fire-cracked cobbles and other rocks - referred to as a "cobble hearth". The disturbance of the A.D. 390 Dorset structure may have been effected either by these Indians or by another Dorset group, perhaps the builders of the A.D. 670 house.

The collection of Dorset Eskimo lithic artifacts from Stock Cove includes weapons, a variety of cutting and scraping

instruments, manufacturing tools, unfinished forms of tools, fragments of soapstone vessels, and debris from tool-making. These categories include the range of stone artifacts usually discovered at Dorset sites, and indicate that a variety of activities occurred at Stock Cove. Maintenance activities, such as tool manufacture and upkeep along with general housekeeping chores are indicated, in conjunction with the hunting and butchering of land and/or sea animals. The high frequencies of harpoon endblades and microblades suggest that the site was a favoured hunting and butchering locale.

A distinctive chert was used for making most of the Dorset tools. Originally blue or blue-green in colour it now exhibits a white, brown, or mottled brown and white patina. Similar material has been recovered from Frenchmen's Island, 13 kilometres north of Stock Cove, from several sites in Placentia Bay, and at locations along the south coast of the island. It occurs rarely in assemblages from the Beaches and Shambler's Cove in Bonavista Bay.

This chert was frequently employed in making harpoon endblades and bifaces, and occasionally scrapers and blades. More commonly, however, the latter tool types are manufactured from crystalline quartz. Grinding is common on chert endblades. Some have body or basal grinding facets, while others are completely ground, after the fashion of a slate

endblade. A few bifaces and endscrapers (manufactured from the patinated chert) also show grinding facets.

No faunal remains were recovered from Stock Cove in Dorset Eskimo context. The subsistence routine of the Dorset inhabitants has been inferred from ecological and historical data, and thus remains open to revision. Spring harp seal hunting likely did not figure prominantly in Dorset subsistence at Stock Cove although the possibility exists that different climatic, or even weather, conditions once brought pack ice and harp seals into inner Trinity Bay, yet I prefer to exclude this possibility until it has been demonstrated. Since the existence of Dorset Eskimo sites along the south coast of Newfoundland clearly shows that harp seals were not vital to Dorset Eskimo survival, I prefer to hypothesize a subsistence routine centred around the resources which probably did exist, chiefly caribou and harbour seals, and secondarily gray seals, salmon, arctic hare, and several species of coastal fishes and birds.

SUBSISTENCE AND SETTLEMENT PATTERNS

Three Models and Their Applicability to Newfoundland Dorset Culture

A recent paper by Ralph T. Pastore (n.d.) discusses the distribution of aboriginal sites on the Island of Newfoundland. One observation made by Pastore in reference

to sites of Dorset Eskimo culture concerns the dichotomy between "base camps" and "exploitation camps". Large, extensive sites producing numerous artifacts and sometimes substantial structural remains are considered base camp locations; examples are the Cape Ray, Port au Choix-2, Beaches, and Stock Cove sites. A variety of activities, including hunting, butchering, tool manufacturing, and general maintenance, is inferred for these sites from their toolkits. Smaller and artifactually poorer sites are equated with extractive or procurement stations where specific activities occurred, e.g. harp seal hunting, without the population concentration and range of activities suggested for the base camps.

Another system of site patterning is expressed in Louis Binford's paper "The Archaeology of Place" (1982). Binford describes a pattern of "economic zonation" (pp. 6-8) which he has applied to the Nunamuit, and which includes a "residential camp", a "foraging zone", a "logistical radius", and a "visiting zone". From the residential camp, groups would scour the surrounding territory, procuring resources which were transported back to the residential camp. The countryside exploited in such a manner constitutes the foraging zone. Once groups or individuals travelled further distances from the residential camp, overnight stays would become necessary. The logistical radius incorporates this larger territory exploited, with the assistance

of temporary encampments, from the residential camp. The visiting zone lies beyond the boundaries of the logistical radius, and is the area contemporaneously occupied by related peoples. The pattern of residential camp, foraging zone, and logistical radius is repeated there.

On a more general level, Beardsley, et. al. (1956) have discussed seven primary types of community patterning, namely Free Wandering, Restricted Wandering, Central-based Wandering, Semi-permanent Sedentary, Simple Nuclear Centred, Advanced Nuclear Centred, and Supra-nuclear Integrated. The first three are applied by the authors to non-agrarian societies, and are of interest here.

Free Wandering involves unrestricted movement governed only by the availability of resources. The frequent relocation of camps resulted in dispersed and scanty archaeological remains (pp. 135-36). Restricted Wandering, a refinement of this pattern, denotes a degree of territoriality and possibly a planned seasonal round of activities. Restricted Wandering archaeological sites are not unlike those of free wanderers, yet may contain specialized tools indicative of a more intensive exploitation (pp. 136-37). A Central-based Wandering group established a central base, where a storable or abundant food source was available, for some of the year, and wandered for the remainder of the year. Central-base sites are distinguished from the preceding types by their

deep midden deposits, indicative of repeated occupations (pp. 138-39).

The categories of these settlement classification schemes cannot be equated as the first was generated archaeologically, the second was derived from ethnology, and the last combines archaeological and ethnographical data. Although their points of similarity are notable, and suggest an underlying accuracy, such schemes should be applied with caution.

On the basis of its size and richness Stock Cove has been judged (by Pastore, myself, and others) to conform to the concept of a "base camp". This designation does not seem entirely appropriate however, as the definition of a "base camp" is unclear. Is it: (1) a centrally located camp, whose primary feature is its strategic location with respect to other camps which are periodically and alternately exploited (after Binford); (2) a settlement near a plentiful and dependable resource, where the grouping of a large number of people was possible (as seen amongst Beardsley's Central-based Wanderers); or (3) a location combining both these features in some manner? It seems there may well be several "kinds" of base camps, if base camps are only identified on the basis of site size and the abundance of artifacts.

Dorset Eskimo people inhabited much of insular Newfoundland. There is not a major coastal area (perhaps excepting

the Burin and Avalon Peninsulas) where Dorset Eskimo sites have not been found. There are large sites with deep cultural deposits (e.g. Port au Choix-2, Stock Cove) and small sites with thin depositions (e.g. Broom Point, Shambler's Cove). Large and small sites are found in good harp sealing areas (northern and western Newfoundland) as well as in regions where harp seals were not available (southern Newfoundland). Harbour and gray seals were undoubtable more plentiful in some locations than others. Caribou were immediately accessible from some sites, but not from all. Some sites are located near salmon streams, while others are many miles from the nearest such river.

In other words, Dorset Eskimo sites throughout Newfoundland are not consistant with respect to relative size and richness, or resource orientation. Ecological factors may have determined whether or not a particular locale was suitable for Dorset occupation, and if so, whether it would be the location of a large settlement (numerous inhabitants and/or repeated yearly occupations), or a small encampment (few inhabitants and/or short occupation). A locale near a plentiful resource (e.g. harp seals) might support numerous people for a season (in this case the spring), but would be abandoned unless other resources appeared at the same location during other seasons, or could be obtained within a reasonable distance. If either were true, then the locale had the potential to become a large site, with an artifact assemblage indicative

of various hunting, butchering, and maintenance activities, and with substantial structural remains. If not, the site would likely exhibit less cultural deposition, and its depth and extent would be dependent upon the number of years the locale was revisited. As well, the tool assemblage would be expected to reflect the site specialization (seal hunting, in the example being used) instead of being indicative of various hunting and maintenance activities.

Subsistence involves making efficient use of the resources which are available, and logic suggests that subsistence must differ in the face of different resources. The specific tactics necessary to exploit harp seals, harbour seals, caribou, salmon, etc, are quite different. In Newfoundland, Dorset people made use of these resources, yet it cannot be assumed that <u>all</u> bands participated in these different activities to the same degree; almost certainly they did not. If the balance of resources was such that each band could spend the same season and the same amount of time doing the same thing, then there would be a single island-wide subsistence/settlement pattern discernable. In reality, however, regions of the island differed with respect to the resource availability, therefore subsistence and settlement were necessarily adapted to local conditions. It seems logical therefore to examine each region individually, with respect to its resource potential and archaeological

sites, and suggest local systems of adaptation rather than, or at least prior to, attempting generalizations.

For the sake of consistency, the same divisions of the island's coast are used here as in the preceding chapter.

The West Coast

Many sites have been documented along the west coast, including large sites at Cape Ray, Port au Port, and Port au Choix. In addition to Phillip's Garden, M.A.P. Renouf has located another large Dorset site with house remains at Port au Choix. Another substantial Dorset site probably existed at Cow Head (Wintemberg 1939), but has been destroyed by road construction. Numerous small sites along the west coast were located by Wintemberg (Ibid) and Harp (1964). Faunal remains from two of the large sites demonstrate a heavy reliance on sea mammals. The Phillip's Garden faunal remains consist predominantly of harp seal bones (Harp 1976:128). The Port au Port assemblage is also dominated by seal, there being three species (harp, harbour, and ringed) represented (Simpson pers. com.). Tool assemblages from large and small sites are similar, in that hunting weapons (endblades) and various types of butchering and maintenance tools (microblades, biface knives, endscrapers, etc.) are similarly represented at each site. No site specialization has yet been demonstrated, although the activities occurring at each site may have differed slightly.

For example, the relatively high frequency of blades at Broom Point as compared to Port au Choix-2 suggests a greater amount of on-site butchering at Broom Point.

It seems that the high biomass of seal herds, together with their availability for several seasons of the year, enabled Dorset people to congregate at several locations along the west coast. At each of these locations harp seals are obtainable during the spring as they moved north on pack ice. After the harp migration, harbour and gray seals return to the coast as the pack ice disappears, and can be taken on shore as they haul out to bask in the sun. These species abandon inshore locations in late fall/early winter, as landfast ice appears in coves and inlets. Such ice conditions are, in turn, preferred by the ringed seals, who maintain breathing holes and bask on landfast ice during winter months. In such a manner, seal resources may have been available to occupants of the west coast year-round, and permitted the establishment of large settlements maintained through most, perhaps all, of the year. "Budding" of communities may have led to the establishment of new, smaller encampments, (e.g. Broom Point) which functioned in the same ways as larger camps; i.e. were semi-permanent locations where several family groups lived for extended periods and participated in hunting, butchering, and maintenance activities. From each of these large and small villages, seals were hunted on the winter landfast ice, on the spring

pack ice, and on or near shore during the summer and fall. Summer and fall subsistence could have been significantly augmented by salmon fishing. This may have necessitated the establishment of temporary camps by salmon rivers, yet while Dorset sites have been located near such rivers on the northwest coast, nothing of the nature of these sites is known.

This pattern of marine resource exploitation is in accordance with the available faunal remains and the geographic locations of known sites. It does not, however, include the possibility of terrestrial resource exploitation. Caribou are not immediately accessible from the northwest coast, and no significant occurrence of caribou bone is noted by Harp in the Port au Choix-2 faunal assemblage. From this it might be inferred that either the Dorset people were not participating in caribou hunts, or they shifted to interior locations at some time of the year (possibly late fall/winter, when seal resources were at their lowest point and when caribou were migrating) to take caribou.

On the southern part of the west coast caribou are perhaps more accessible from the coast, as the southern interior of Newfoundland supports a large herd. Faunal remains from the Dorset site at Port au Port includes a minimal representation of caribou (Simpson pers. com.). One of the few known interior Dorset Eskimo sites is located at Long Pond, about 30 kilometres inland from the coastal

community of St. Georges, St. Georges Bay (Penney n.d.b). Little is known about this site, as it is now submerged and probably destroyed as a result of hydroelectric projects in the area. Endblades, microblades, an endscraper, and multi-notched bifaces were collected along the shore of Long Pond. The location may have been a Dorset Eskimo caribou hunting site.

The East Coast of the Great Northern Peninsula

This coast has not been explored to the extent the west coast has, and consequently any settlement/subsistence hypothesis is tentative. Resources are not unlike those of the west coast, in that numbers of migratory seals of the Front herd are found on the coast during the spring, along with non-migratory species at other seasons. On this basis alone one would expect a patterning of sites similar to that found on the west coast, and the little archaeological research that has been done appears to bear this out. Several large sites - Englee, Lanes Cove, and Pittman site - suggest large and/or repeated occupations. Toolkits from these sites indicate a balance of maintenance, hunting, and butchering activities, and are not indicative of site specialization. The impression is again of relatively large semi-permanent encampments centred around the intensive exploitation of sea-mammals. As was the case on the west coast, harp seals may have been taken during the spring,

harbour and gray seals during summer and fall, and ringed seals during the winter.

It is possible that the Dorset occupants of this coast hunted caribou since the interior plateau of the Great Northern Peninsula supports a caribou herd. The relocation of settlement from the coast to the interior may have been necessary if this herd was to be exploited, as the east coast of the Northern Peninsula is very rugged and difficult to travel. Alternately, the nature of the topography may have funnelled herds into restricted areas during their migrations to the coast, making caribou hunting possible from coastal sites. No survey work has been done in the interior of the Great Northern Peninsula, and therefore the existance of inland caribou hunting sites remains hypothetical.

The Northeast Coast

The northeast coast of the island is populated by migratory seals during the spring, by harbour and gray seals in the summer and fall, and ringed seals during the winter. Caribou do not usually reach the coast but are available in the hinterland. Numerous streams support large populations of brook trout and salmon.

The presence of a varied sea-mammal population on the northeast coast would seem to make it similar to the regions considered above, yet the archaeological data suggest

that a variant pattern of subsistence existed. In Bonavista Bay, Dorset sites at the Beaches and Shambler's Cove have been excavated. These sites exhibit remarkable similarities with respect to stylistic tool forms and lithic material utilization, but differ with regards to the representation of artifact types at each. The Beaches site has yielded a balanced assemblage with maintenance, hunting, and butchering tools represented, similar to assemblages from large sites in the west. Shambler's Cove, on the other hand, has produced an assemblage in which hunting and butchering equipment is over-represented, with harpoon endblades and microblades account for more than 73% of the assemblage. This would suggest that its primary use was as a seal hunting and butchering camp (Tuck 1983). Most artifact types associated with maintenance usually found at Dorset Eskimo sites (e.g. scrapers, various forms of knives, burin-like tools, soapstone), are either absent or under-represented in the Shambler's Cove collection. From this it might be concluded that the sea-mammal resources of Bonavista Bay differed in some manner from those of western regions. Herds may have been dispersed along shore, requiring a more widespread and mobile hunt than was necessary in the west. Such a hunt necessitated the establishment of temporary hunting encampments, such as Shamblers Cove. The absence of large sites (even the Beaches does not compare with Port au Choix-2) may be seen to support the suggestion that concentrated

hunts, which in turn allowed for the grouping together of numerous family groups, were not possible in Bonavista Bay. Further exploration of the numerous small sites will shed more light on this possibility. It is expected that some small sites will show balanced assemblages where a few family groups were able to congregate for part of the year, while others will prove to be specialized hunting camps like Shambler's Cove.

Other specialized sites, besides sealing stations, may have been established for caribou hunting and salmon fishing, yet there are presently no data to support this possibility. This lack of data is primarily due to the incomplete nature of survey work in the hinterland of Bonavista Bay, a state of affairs shared by all interior Newfoundland regions.

Notre Dame Bay, the interlying coastal region between Bonavista Bay and the Great Northern Peninsula, was partially surveyed in 1981 and the results of this survey suggested that the Dorset population relied heavily on sea-mammals. Migratory seals of the Front herd are numerous during spring, along with other species during summer, fall, and winter. Large Dorset sites exist. One, Dark Hole, ranks among the largest and richest on the island. Numerous small sites are also present, yet little is known about them. Excavations would reveal whether these are specialized sites, similar to Shambler's Cove, or budding communities

after the Broom Point pattern on the west coast, and would thus greatly clarify Dorset subsistence in Notre Dame Bay. It is felt that the an understanding of Dorset settlement and subsistence in Notre Dame Bay is crucial to an interpretation of the total Newfoundland occupation, and that further speculation at this point without supportive data would be unproductive.

The Isthmus of Avalon

A variety of resources were available to prehistoric inhabitants of the Isthmus region, including harbour and gray seals from late spring to fall, caribou, salmon and trout, capelin, and sea birds and their eggs. Omitted from this list are harp seals, which were likely absent or only sporadically present in small numbers. As well, ringed seals do not usually range as far south as the Isthmus region, yet their presence during prehistoric times cannot be entirely discounted.

The absence of Newfoundland's greatest potential sea-mammal resource (harp seals) from the Isthmus region would, at first consideration, appear to have restricted Dorset Eskimo occupation. Such, however, was not the case. Several Dorset sites are located in the region.

The presence of these sites may be explained by the fact that two resources having large biomasses - harbour seals and caribou - were present within close proximity

of one another. Coastal sites where harbour seals could be taken are only a few kilometers from interior locations where caribou were available. This situation is changed today, yet several sources of information suggest that such was the case in the past. The presence of harbour seals in Placentia and Trinity Bay is documented (Boulva and McLean 1979). Historical records show Beothucks were hunting caribou in this area during the early 1600's (Howley 1974:15), and a Fox Island, Placentia Bay, resident tells of caribou hunting in the inner Placentia Bay area within his lifetime. Unlike northern and western regions of the island, where coastal seal hunting and interior caribou hunting (if in fact the Dorset occupants of these regions were hunting caribou at all) required a major geographic shift of camp locations, sealing and caribou hunting in the Isthmus region may have been done from the same coastal camps locations. Marine mammal resources and interior caribou herds are separated by only short distances, and the nature of the terrain makes a shift from coast to interior relatively easy.

At least two and possibly three large Dorset sites are located near the Isthmus, along with several small ones. All the small sites are located on or adjacent to sandbars in sheltered places, locations which appear highly favourable harbour seal hunting sites. The harbour seal prefers such locations during the summer and fall, when

it hauls out to bask in the sun. The large sites in the Isthmus region, Stock Cove, New Grove, and possibly Dildo Island (very little information is available concerning the last site), are located in small coves with extensive beachfronts, all in relatively sheltered inner bay locations. These locations may have also been favoured harbour seal habitats, as well as central places from which other sites could be reached. Hunting and butchering equipment (harpoon endblades, microblades) is present in collections from all Isthmus of Avalon sites. Maintenance tools are variably represented.

Two sites on the Trinity Bay side of the Isthmus have been systematically excavated, and sites in Placentia Bay have been located. Frenchmen's Island, Trinity Bay, has produced an assemblage which, with respect to the frequencies of major artifact clases, is similar to assemblages from most western and northern Newfoundland sites. Harpoon endblades account for 16.9%, endscrapers 10.5%, and microblades 26.1%. The number of endblades and microblades suggests an emphasis on hunting and butchering, yet the frequency of endscrapers, together with the presence of several types of biface and uniface knives, blade cores, preforms, tip-fluting flakes, adzes, and a burin-like tool argue for maintenance activities as well. As such, Frenchmen's Island cannot be considered a specialized procurement station after the pattern of Shambler's Cove. Rather, it gives the impression

of a small community, established for sealing and perhaps caribou hunting, that was occupied for a major part of the year by whole family groups. Its location is an ideal departure point for excursions into the interior and across the Isthmus to Placentia Bay.

Stock Cove, Trinity Bay, has produced a much larger collection, including some 1400 artifacts. There is a predominance of hunting and butchering equipment, in the form of endblades and microblades. The extent of the Stock Cove site and the presence of substantial structural remains, however, argue against it being only a temporary sealing station. The occurrence of many tools and artifacts associated with maintenance (various biface and uniface knives, slate knives, endscrapers, preforms, hammerstones, burin-like tools, soapstone, much lithic debitage) supports this conclusion, yet the relative frequency of these artifact types is not as great as expected. Most notable is the infrequent occurrence of endscrapers. It should be recalled, however, that while numerous artifacts were recovered from the Stock Cove excavation, the excavation itself included only 1-2% of the site. It seems highly probable that this sample is not representative of all activities which occurred at Stock Cove, and other areas exist within the Stock Cove site where maintenance activities are more heavily represented. The 1981 work at Stock Cove may have, in effect explored a site within a site, i.e. a summer/fall house structure

occupied during the harbour sealing season. Unless the Dorset occupants performed all their activities inside the structure (where our excavations were concentrated), the full range of maintenance activities would not be represented. It appears unlikely that all activities would be done indoors during the season presenting the best weather conditions.

Along both shores of the Isthmus, it appears that Dorset people were pursuing harbour seals, and possibly grey seals during the ice-free months of late spring to fall. Hunting may have shifted from one site to the next as local populations were temporarily depleted or dispersed, while large sites such as Stock Cove and Dildo Island were maintained by resident populations. In this manner Stock Cove was a central base, strategically located with respect to surrounding sealing stations, and at some times a hunting station itself. Stock Cove may have also been a base from which hunting bands travelled into the interior uplands of the Isthmus in pursuit of caribou during their fall migration, or during the winter when herds may have congregated in favourable locations on the Avalon uplands. Frenchmen's Island, through its location, may have also provided access to caribou herds on the uplands, as well as to Placentia Bay, which is visible from the high ground behind Frenchmen's Island.

The nature of food resources in the vicinity of the Isthmus apparently allowed the Dorset population to gather for at least part of the year in fairly large groups. Unlike the west and the northeast, however, this occurrence cannot be attributed to the presence of a single abundant food resource - i.e. harp seals. Rather, it seems that a combination of resources in a restricted geographic area - seals, caribou, salmon, etc. - permitted the establishment of large semi-permanent sites, which were strategically located with respect to other sites, and were at some times themselves the focus of subsistence activities. It is expected that an examination of the many small sites in the vicinity of the Isthmus will demonstrate that several were specialized procurement stations, primarily for harbour sealing and salmon fishing.

The South Coast

The preliminary nature of Dorset archaeology along Newfoundland's south coast impedes settlement/subsistence hypotheses, and until further excavations are done any scheme remains tentative.

Migratory seals were and are now unavailable along the south coast. Harbour and gray seals are present, along with large herds of caribou in the hinterland. Salmon and trout are abundant in the many streams of Bay d'Espoir and Hermitage Bay, and at several location further to the

west. In general, the resource base appears essentially similar to that of the Isthmus region.

The recent surveys of the south coast have resulted in the discovery of many Dorset Eskimo sites. None, however, compares in size and richness to Port au Choix-2, Dark Hole, or Stock Cove, suggesting that the nature of food resources along the south coast did not permit the gathering together of large bands. Therefore, there must have been a basic difference with respect to resources between the south coast and the Isthmus region. Tentatively, this difference may have been the concentration of resources, in that marine resources along the south coast were sufficiently distant from land resources (caribou) to make it impossible to exploit both from the same coastal location. Marine resources - sea mammals and fish - were in themselves insufficient to permit numerous family groups to congregate at large coastal camps. Instead it seems that a chain of relatively small coastal sites was established and populated by small bands during seasons when sea-mammals were available. Caribou hunting probably required a settlement shift to inland locations, and a temporary abandonment of coastal sites.

Excavations at south coast Dorset sites will in the future add to our understanding of subsistence on this coast, if research includes a comparative study of sites and assemblages. The interior plateau of southern Newfoundland,

populated during winter by large caribou herds, seems to offer the greatest potential interior region of Newfoundland for Dorset Eskimo sites, yet much survey work remains to be done if sites are to be located, or their absence proved.

"REGIONALISM" AND THE NEWFOUNDLAND DORSET CULTURE

As the term "region" has been repeatedly employed in this work its usage deserves some consideration. In one sense a region is a convenience of archaeology, allowing for the grouping of data beyond the level of the individual site. The "west coast", "northeast coast", etc., as used in this chapter and the preceding one, are such regions. In another sense a region may be "... roughly equivalent to the space that might be occupied by a social unit larger than the community..." (Willey and Phillips 1958:19), and thus have social significance with respect to its inhabitants. The current status of Newfoundland Dorset archaeology suggest at least three such regional divisions of the island's Dorset population. These are hypothetical and remain open to further revision. These "regional expressions" presumably developed as responses to different regional ecologies, and can be distinguished archaeologically according to local settlement patterns, artifact styles, and lithic material utilization.

The "western expression" of Newfoundland Dorset culture is observed along the west coast of the island and the east coast of the Great Northern Peninsula. It is characterized by a subsistence routine involving the intensive exploitation of sea mammals throughout most seasons of the year, from permanent or semi-permanent encampments from which these mammals were readily available. Terrestrial resources, such as caribou, may have constituted a secondary focus of subsistence. The exploitation of terrestrial resources likely required a settlement shift into interior regions. The great potential of marine resources, however, probably discouraged an extended absence from the coast, and therefore Dorset Eskimo caribou hunting in western Newfoundland most likely occurred in the hinterland of coastal areas, rather than in remote interior regions.

Similar stylistic forms of artifacts are observable throughout the region, with the harpoon endblade being the best indicator of this unity. Endblades are relatively short and broad, each with convex sides and a markedly concave base. A variety of fine-grained, colourful cherts were employed in marking these and other tools.

The "northeastern expression" is seen in Bonavista Bay and, with further work, may prove to hold for the eastern part of Notre Dame Bay. Subsistence is again centred around sea-mammals, yet exploitive strategies differed in response to the availability of this resource. Large encampments

were not possible due to the dispersal of sea-mammal resources; instead, smaller groups practised a more mobile hunt, at times creating specialized seal hunting stations. Similar stations, established for caribou hunting, may exist in hinterland regions.

Some artifacts types from Bonavista Bay are stylistically distinct from western Newfoundland ones. The harpoon endblades are generally larger than those found in the west, with a greater length-width ratio, a slightly concave or straight base, and gently convex or straight sides. The colourful, fine-grained cherts found in the west are rare. Tools are most commonly manufactured from blue or grey rhyolite.

The "southern expression" may in fact incorporate two or more variants. It includes, for now, the entire Dorset occupation of southern Newfoundland from the Isthmus of Avalon to Cape Ray. In response to the absence of migratory seal herds, the Dorset occupants of this coast developed a subsistence routine utilizing, on a regular basis, a wider variety of resources. Neither single resource was sufficient in itself to provide ample subsistence, and consequently considerable mobility was necessary. Large population groupings were also not feasible, <u>except</u> in locations where two or more major resources occurred in close proximity to one another, as was the case along the Isthmus of Avalon. In the Isthmus region the proximity of marine and terrestrial resources permitted both to be

reached from the same coastal camp locations.

Artifacts, including harpoon endblades, are stylistically more similar to northeastern ones than western ones, yet differences are observable, most notably the presence of grinding on harpoon endblades. A single chert type is predominant at most sites. This material was originally blue or blue-green in colour, but now exhibits a white or brown patina. Quartz crystal is second in popularity and quite common, and was extensively used for making end-scrapers and microblades.

The Dorset Eskimos were the most populous group to have inhabited insular Newfoundland during prehistory. Their sites outnumber those of Maritime Archaic, Recent Indian, and Groswater people, and usually eclipse them in size and richness. With two or three exceptions, all Dorset Eskimo sites discovered to date are located on the coast, implying that Dorset subsistence was oriented primarily towards the sea. Future archaeological research in interior Newfoundland may disclose further evidence of Dorset Eskimo occupation, yet I believe that an extensive occupation of remote interior regions will not be demonstrated. Newfoundland Dorset subsistence was focussed on marine resources, and secondarily on terrestrial resources that could be reached through short journeys from the coast. The size of the Dorset Eskimo population, coupled with this coastal specialization, resulted in the appearance of regional

sub-populations that were differentiated by distinct regional adaptations. Decreased contact between regions led to the development of stylistic differences, observable today in the artifact assemblages. Contact between bands within each region resulted in the appearance of similar artifacts over an area larger than was travelled by any single band.

Sites on the boundaries between regions exhibit artifact assemblages that are stylistically more diverse than are assemblages from sites within the heartland of each region. Cape Ray is located on the boundary between the western expression and the southern expression. Elements of west coast and south coast assemblages are present in its Dorset artifact collection, such as at least two styles of harpoon endblades, as well as a mixture of fine-grained, colourful cherts and patinated chert. The Pittman site on Sop's Island may occupy a similar position between the western expression and the northeastern expression. The diversity in the assemblages from these sites may be due to actual contact between Dorset Eskimos from the different regions. Alternatively, temporally discrete occupations at each site may have occurred, with the range of artifact styles and raw materials resulting from mixed assemblages.

The concept of "Newfoundland Dorset" or "typical Newfoundland Dorset" became widespread following the research of Urve Linnamae (1975). It is perhaps no coincidence that this concept arose from Linnamae's work at the two sites

discussed above: Pittman site, Sop's Island, and the Cape Ray Light site. These sites have produced artifact collections exhibiting greater diversity than most Newfoundland Dorset assemblages, and have masked the regional distinctions that are now evident as a result of further research.

The data, if not the interpretations, presented in this work argue strongly against the concept of a "typical Newfoundland Dorset" culture. The concept originally arose as a generalization drawn from a minimal amount of data, and as new sites are found and explored, the complexity of at least 800 years of Dorset Eskimo history in insular Newfoundland becomes apparent. This complexity will only be clarified through additional excavations, and detailed comparative studies of sites and assemblages.

SUMMARY

Stock Cove is located on the geographic periphery of the harp seal migration, and consequently these seals must have constituted, at best, an undependable resource. Stock Cove is, however, one of the largest and richest Dorset Eskimo sites in Newfoundland. The presence of such a site in a location not frequented by migratory seals calls into question the long-held asociation between this sea mammal resource and the Newfoundland Dorset population.

Excavations at the Stock Cove site revealed evidence of occupation by Maritime Archaic Indians, Recent Indians,

and Groswater people, in addition to the Dorset Eskimo culture. Attempts were made to restrict excavation to areas of the site demonstrating clear evidence of Dorset occupation. One Dorset structure constucted of flagstones and including a midden and a hearth was exposed, and radiocarbon dated at 1280±60 B.P. (ca. A.D. 670). Nearby this structure, another Dorset hearth was excavated and dated 1560±60 B.P. (ca. A.D. 390). The collection of stone artifacts from these features included hunting, butchering, and maintenance tools, indicating that a variety of activities occurred at the site.

The presence of the Stock Cove site and the extent of its cultural deposition indicate that Dorset people were successfully existing in an area of Newfoundland that were not usually populated by migratory harp seals. This realization calls into question the mode of subsistence traditionally accorded the Dorset population, namely that they were predominantly hunters of migratory seals. Following from this, an examination of Dorset sites and assemblages in different regions of Newfoundland, in conjunction with a review of the ecological potentials of these regions, indicate that variant patterns of subsistence were possible, and probably existed. Three regional sub-populations of the Newfoundland Dorset population are suggested.

The "western expression" includes Dorset occupation on the west coast of the island and the east coast of the

Great Northern Peninsula, where extensive migratory and non-migratiory seal populations were available throughout most or all of the year. These resources permitted the established of large, permanent or semi-permanent sites, which often exhibit extensive structural remains. The "northeastern expression", as observed in Bonavista Bay, is distinguished by the occurrence of small, specialized hunting sites in addition to larger sites. It is suggested that the sea mammal resources of the northeast required a more mobile and dispersed hunting strategy than was necessary in the west, which necessitated the establishment of such specialized sites. The "southern expression" includes the Dorset occupation of southern Newfoundland, where migratory sea mammals were unavailable. In southern Newfoundland, large sites with structural remains occur only along the Isthmus of Avalon, for example at Stock Cove. West of the Isthmus, along most of the south coast, Dorset sites are small and artifactually poor. This situation is explained by the proximity of the major resources in southern Newfoundland. Along the Isthmus, land and sea resources are both accessible from a coastal camp. For the remainder of the south coast, a relocation of camps from coast to interior would be required in order to exploit sea and land resources. Consequently, Dorset sites along the south coast were temporary, seasonal encampments, unlike the permanent or semi-pemanent site at Stock Cove.

The unity among assemblages within a region, and the distinctions between regions, can be observed in artifact styles and raw material utilization. Generally, any one assemblage will resemble closely other assemblages from the same region, and contrast with assemblages from other regions. The harpoon endblade, perhaps the most clearly diagnostic artifact of the Dorset culture, best demonstrates the distinctions between regional expressions of Newfoundland Dorset culture. On the basis of raw material, style, and workmanship, the geographic origin of an endblade can be determined with considerable accuracy.

The Dorset culture was the most populous group to have inhabited Newfoundland. The Dorset people achieved this population size, and survived in Newfoundland for 800 years, because of their ability to respond to local ecological conditions. The diversity observed today amongst Newfoundland Dorset sites and assemblages is indicative of their adaptability.

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APPENDIX

Tabularized Artifact Data

TABLE 2

DORSET ESKIMO ARTIFACTS
FROM STOCK COVE, TRINITY BAY
(1981 EXCAVATION)

ARTIFACT TYPE	n	%
Harpoon Endblades: all types	366	26.8
Knives/Bifaces	100	7.3
Scrapers: all types	72	5.3
Blades/Blade-like Flakes	185	13.5
Quartz Crystal Cores	98	7.2
Quartz Crystal Core Debitage	90	6.6
Tip-flute Flakes	118	8.6
Preforms	129	9.4
Retouched/Utilized Flakes	158	11.5
Burin-like-tools	2	0.1
Ground Slate Knives	3	0.2
Ground Slate Endblades	18	1.3
Soapstone Vessel Fragments	10	0.7
Hammerstones	11	0.8
Abraders	7	0.5
	1,367	99.8

TABLE 3

CHIPPED ENDBLADES:
ATTRIBUTES OF MANUFACTURE AND FORM

ATTRIBUTE	BIFACIAL			UNIFACIAL			TIP-FLUTED			TOTAL		
	n	n'	%	n	n'	%	n	n'	%	n	n'	%
Surface Chipping	55			31			45			131		
complete		43	78.2		20	64.5		42	93.3		105	80.1
incomplete		12	21.8		11	35.4		3	6.7		26	19.8
Basal Thinning	51			21			37			109		
both faces equal		37	72.5		11	52.4		19	51.3		67	61.5
faces inequal		14	27.4		10	47.6		18	48.6		42	38.5
Notching	51	7	13.7	27	1	3.7	37	1	2.7	115	9	7.8
Outline	39			15			34			88		
symmetrical		25	64.1		7	46.7		24	70.6		56	63.6
asymmetrical		14	35.9		8	53.3		10	29.4		32	36.4
Edge Shape	61			34			45			140		
convex		40	65.6		26	76.5		39	86.7		105	75.0
straight		16	26.2		4	11.8		1	2.2		21	15.0
irregular		5	8.2		4	11.8		5	11.1		14	10.0
Base Shape	46			26			37			109		
concave		30	65.2		14	53.8		30	81.1		74	67.9
straight		16	34.0		8	30.8		7	18.9		31	28.4
irregular		0	0.0		4	15.4		0	0.0		4	3.7
Longitudinal X-section	45			31			40			116		
bi-convex		31	68.9		1	3.2		19	47.5		51	44.0
plano-convex		8	17.8		13	41.9		16	40.0		37	31.9
concave-convex		3	6.7		11	35.5		3	7.5		17	14.6
bi-plano		3	6.7		6	19.3		2	5.0		11	9.5
Transverse X-section	64			34			46			144		
bi-convex		54	84.3		4	11.8		12	26.1		70	48.6
plano-convex		10	15.6		29	85.3		18	39.1		57	39.6
triangular-convex		0	0.0		0	0.0		13	28.3		13	9.0
bi-plano		0	0.0		1	2.9		3	6.5		4	2.8
Completeness	79			35			48			162		
complete		31	39.2		15	42.8		32	66.7		78	48.1
base		22	27.8		12	34.3		5	10.4		39	24.1
midsection		7	8.9		1	2.8		1	2.1		9	5.5
tip		19	24.0		7	20.0		10	20.8		36	22.2

TABLE 4

CHIPPED ENDBLADES: METRIC ATTRIBUTES

		LENGTH	WIDTH	THICKNESS	LENGTH:WIDTH
	n	31	46	48	31
	X	38.8	16.4	4.2	2.5:1
BIFACIAL	range	20.6-55.7	8.1-23.7	2.2-5.8	1.2:1-3.6:1
	S	8.94	3.03	0.80	0.55
	C.V.	23.04	18.47	19.05	22.00
	n	14	26	26	14
	X	30.6	14.2	3.1	2.4:1
UNIFACIAL	range	17.1-52.8	8.9-21.5	1.7-5.5	1.6:1-3.4:1
	S	10.41	4.42	0.92	0.56
	C.V.	34.02	31.13	29.68	23.33
	n	28	37	41	26
	X	33.0	14.4	4.0	2.3:1
TIP-FLUTED	range	17.1-60.9	8.9-21.5	1.7-5.5	1.6:1-2.8:1
	S	8.69	2.47	0.97	0.34
	C.V.	26.33	17.15	24.25	14.78
	n	73	109	115	71
	X	35.0	15.4	3.9	2.4:1
TOTAL	range	17.1-60.9	8.1-23.7	1.7-7.8	1.2:1-3.6:1
	S	9.63	3.20	0.99	0.48
	C.V.	27.51	20.78	25.38	20.00

TABLE 5

GROUND ENDBLADES:
ATTRIBUTES OF MANUFACTURE AND FORM

ATTRIBUTE	n	n'	%	ATTRIBUTE	n	n'	%
Surface Grinding (more than 75% of surface)	98	98	100.0	Longitudinal X-section	72		
				bi-convex		23	31.9
Basal Grinding	77			plano-convex		4	5.6
both face equal		26	33.8	triangular-convex		20	27.8
faces inequal		51	66.2	triangular		15	20.8
				diamond		10	13.9
Post-Grinding Edge:	97						
retouch		19	19.5	Transverse X-section	107		
serration		78	80.4	plano-convex		6	5.6
				triangular		2	1.9
Notching	51	3	5.8	bi-convex		63	58.9
				triangular-convex		30	28.0
Outline	61			diamond		6	5.6
symmetrical		51	83.6				
asymmetrical		10	16.4	Completeness	107		
				complete		57	53.7
Edge Shape	79			base		21	19.6
convex		66	13	midsection		20	18.7
straight		13	16.4	tip		9	8.4
Base Shape	51						
concave		24	47.0				
straight		23	45.1				
convex		4	7.8				

TABLE 6

GROUND ENDBLADES: METRIC ATTRIBUTES

	LENGTH	WIDTH	THICKNESS	LENGTH:WIDTH
n	40	51	83	39
X	35.0	14.5	3.4	2.4:1
range	20.0-56.8	9.9-16.5	2.1-4.5	1.6:1-3.9:1
S	7.64	1.57	0.47	0.50
C.V.	21.83	10.83	13.82	20.83

TABLE 7

CHIPPED AND GROUND ENDBLADES:
ATTRIBUTES OF MANUFACTURE AND FORM

ATTRIBUTE	BIFACIAL			UNIFACIAL			TIP-FLUTED			TOTAL		
	n	n'	%	n	n'	%	n	n'	%	n	n'	%
Surface Grinding	32	24	75.0	26	21	80.8	32	15	46.9	90	60	66.7
Basal Grinding	30	25	83.3	19	17	89.5	26	26	100.0	75	68	90.7
Surface and Basal Grinding	30	16	53.3	19	12	63.2	26	14	61.5	75	42	56.0
Basal Thinning (type)	30			19			26			75		
chipped		22	73.3		11	57.9		19	73.1		52	69.3
ground		25	83.3		17	89.5		26	100.0		68	90.7
chipped and ground		17	56.7		8	42.1		15	57.7		40	53.3
Basal Thinning (degree)	30			19			26			75		
both faces equal		14	46.7		1	5.3		7	26.9		22	29.3
faces inequal		16	53.3		18	94.7		19	73.1		53	70.7
Post-grinding Edge Retouch	24	10	41.7	21	9	42.9	15	1	6.7	60	20	33.3
Edge Serration	32	3	9.4	26	1	3.8	32	3	9.4	90	7	7.8
Tip-flute Ridge Grinding		n/a			n/a		28	13	46.4	28	13	46.4
Notching	30	0	0.0	19	0	0.0	26	0	0.0	75	0	0.0
Outline	29			16			26			71		
symmetrical		27	93.1		13	81.2		16	61.5		56	78.9
asymmetrical		2	6.9		3	18.7		10	38.5		15	21.1
Edge Shape	31			26			32			89		
convex		29	93.5		24	92.3		30	93.7		83	93.2
straight		2	6.5		2	7.7		2	6.2		6	6.7
Base Shape	28			16			22			66		
concave		16	57.1		12	75.0		20	90.9		48	72.7
straight		8	28.6		3	18.7		1	4.5		12	18.2
convex		4	14.3		1	6.2		1	4.5		6	9.1
Longitudinal X-section	28			19			27			74		
bi-convex		20	71.4		6	31.6		14	51.9		40	54.0
plano-convex		1	3.6		5	26.3		4	14.8		10	13.5
concave-convex		0	0.0		2	10.5		3	11.1		5	6.7
triangular-convex		6	21.4		1	5.3		4	14.8		11	14.9
bi-plano		1	3.6		2	10.5		0	0.0		3	4.0
triangular		0	0.0		3	15.8		2	7.4		5	6.7
Transverse X-section	33			26			32			91		
bi-convex		31	93.9		2	7.7		16	50.0		49	53.8
plano-convex		2	6.1		21	80.8		9	28.1		32	35.2
triangular-convex		0	0.0		0	0.0		7	21.9		7	7.7
bi-plano		0	0.0		3	11.5		0	0.0		3	3.3
Completeness	37			27			33			97		
complete		22	59.5		13	48.1		21	63.4		56	57.7
base		11	29.7		4	14.8		5	15.2		20	20.6
midsection		2	5.4		4	14.8		0	0.0		6	6.2
tip		2	5.4		6	22.2		7	21.2		15	15.5

TABLE 8

CHIPPED AND GROUND ENDBLADES: METRIC ATTRIBUTES

		LENGTH	WIDTH	THICKNESS	LENGTH:WIDTH
BIFACIAL	n	20	29	29	20
	X	33.8	14.6	3.9	2.4:1
	range	18.8-56.7	9.6-20.3	2.5-6.0	1.6:1-3.6:1
	S	9.19	2.48	0.88	0.47
	C.V.	27.19	16.99	22.56	19.58
UNIFACIAL	n	13	16	19	13
	X	31.2	12.3	3.0	2.5:1
	range	19.4-41.4	8.9-15.4	2.5-3.9	1.9:1-3.9:1
	S	6.84	1.78	0.41	0.57
	C.V.	21.92	14.47	13.67	22.80
TIP-FLUTED	n	21	24	27	21
	X	37.8	13.7	3.9	2.8:1
	range	26.0-54.7	9.7-16.7	2.4-5.6	2.2:1-4.5:1
	S	6.78	1.70	0.70	0.55
	C.V.	17.94	12.41	17.95	19.64
TOTAL	n	54	69	75	54
	X	34.7	13.7	3.6	2.6:1
	range	26.0-56.7	8.9-20.3	2.4-6.0	1.6:1-4.5:1
	S	8.09	2.21	0.81	0.63
	C.V.	23.31	16.13	22.50	24.23

TABLE 9

ENDSCRAPERS:
ATTRIBUTES OF MANUFACTURE AND FORM

ATTRIBUTE	QUARTZ CRYSTAL			CHERT		
	n	n'	%	n	n'	%
Outline	45			21		
quadralateral		33	73.3		8	38.1
triangular		12	26.6		13	61.9
Working Edge Shape	47			21		
convex		38	80.8		19	90.5
straight		6	12.8		1	4.8
irregular		3	6.4		1	4.8
Working Edge Symmetry	47			21		
bevelled right		4	8.5		0	0.0
bevelled left		5	10.6		2	9.5
symmetrical		38	80.9		19	90.5
Surface Flaking	45			21		
dorsal		31	68.9		9	42.9
dorsal and ventral		7	15.5		3	14.3
absent		7	15.5		9	42.8
Non-working Edge Retouch	42			20		
complete		8	19.0		12	60.0
partial		23	54.8		7	35.0
absent		11	26.2		1	5.0
Spurs	47			21		
present		10	21.3		1	4.8

TABLE 10

ENDSCRAPERS: METRIC ATTRIBUTES

ATTRIBUTE	QUARTZ CRYSTAL					CHERT				
	n	X	range	S	C.V.	n	X	range	S	C.V.
Length	45	12.8	8.5-23.6	3.52	27.50	19	27.1	7.9-56.7	14.00	51.66
Width	45	13.6	8.1-21.7	3.20	23.53	20	19.5	12.1-36.5	6.00	30.80
Thickness	46	5.1	2.7-7.3	1.07	20.98	19	4.8	3.0-9.3	1.44	30.00
Edge Angle	47	60	40-60	9.51	15.85	21	57	15-95	21.01	36.86

TABLE 11

CHERT BLADES/BLADE-LIKE FLAKES

ATTRIBUTE		n	X	range	S	C.V.
LENGTH - COMPLETE SPECIMENS		24	45.7	19.6 - 66.4	12.01	26.28
LENGTH - PROXIMAL FRAGMENTS		14	28.8	12.2 - 45.2	8.23	28.58
LENGTH - MEDIAL FRAGMENTS		18	24.6	12.9 - 43.5	7.27	29.55
LENGTH - DISTAL FRAGMENTS		11	28.4	14.1 - 43.0	8.59	30.25
WIDTH - COMPLETE SPECIMENS		24	15.3	6.7 - 26.0	5.47	35.75
THICKNESS - COMPLETE SPECIMENS		24	4.1	2.1 - 10.5	1.91	46.59
NUMBER OF ARRISES:	1	39				
	2	27				
	3	1				

TABLE 12

QUARTZ CRYSTAL BLADES/BLADE-LIKE FLAKES

ATTRIBUTE		n	X	range	S	C.V.
LENGTH - COMPLETE SPECIMENS		58	18.3	10.9 - 24.5	3.33	18.20
LENGTH - PROXIMAL FRAGMENTS		36	14.4	10.3 - 19.4	2.53	17.59
LENGTH - MEDIAL FRAGMENTS		7	13.2	10.2 - 17.2	2.27	17.20
LENGTH - DISTAL FRAGMENTS		17	15.9	11.7 - 21.7	2.73	17.18
WIDTH - COMPLETE SPECIMENS		58	6.0	3.5 - 9.7	1.36	22.52
THICKNESS - COMPLETE SPECIMENS		58	1.4	0.6 - 2.6	0.42	30.66
NUMBER OF ARRISES:	1	41				
	2	70				
	3	5				
	4	2				

TABLE 13

TIP-FLUTE FLAKES:
INVENTORY

	LEFT	RIGHT	SINGLE	TOTAL
PRIMARY	10 (1 ground)	22 (3 ground)	1 (ground)	33
SECONDARY	26	30 (2 ground)	0	56
TERTIARY	13	16	0	29
TOTAL	49	68	1	118

TABLE 14

TIP-FLUTE FLAKES:
METRIC ATTRIBUTES

		LENGTH	WIDTH	THICKNESS
PRIMARY	n	21	31	33
	X	29.2	11.1	2.1
	range	17.5-46.1	6.5-15.1	1.1-3.2
	S	9.08	2.27	0.55
	C.V.	31.09	20.45	26.19
SECONDARY	n	36	53	54
	X	24.3	9.6	2.2
	range	16.4-36.8	6.9-12.6	1.0-3.1
	S	4.97	1.45	0.49
	C.V.	20.45	15.10	22.27
TERTIARY	n	23	28	29
	X	26.8	10.2	2.2
	range	18.0-44.0	7.8-13.8	1.4-3.1
	S	5.63	1.57	0.49
	C.V.	21.01	15.31	22.27
TOTAL	n	80	112	116
	X	26.3	10.2	2.2
	range	16.4-46.1	6.5-15.1	1.0-3.2
	S	6.65	1.84	0.50
	C.V.	25.28	18.04	22.73

TABLE 15

PREFORMS:
ATTRIBUTES OF MANUFACTURE AND FORM

ATTRIBUTE	CORE			FLAKE			TOTAL		
	n	n'	%	n	n'	%	n	n'	%
Tip-fluting	75			39			114		
present		25	33.3		0	0.0		25	21.9
absent		50	66.6		39	100.0		89	78.1
Surface Flaking	80			48			128		
bifacial		58	72.5		4	8.3		62	48.4
unifacial		19	23.7		25	52.1		44	34.3
absent		3	3.7		19	39.6		22	17.2
Edge Retouch	81			48			129		
bifacial		71	87.6		24	50.0		95	73.6
unifacial		9	11.1		24	50.0		33	25.6
absent		1	1.2		0	0.0		1	0.8
Basal Thinning	59			34			93		
bifacial		34	57.6		10	29.4		44	47.3
unifacial		12	20.3		6	17.6		18	19.3
absent		13	22.0		18	52.9		31	33.3
Edge Shape	77			45			122		
convex		46	59.7		30	66.6		76	62.3
straight		22	28.6		10	22.2		32	26.2
irregular		9	11.7		5	11.1		14	11.5
Base Shape	59			34			93		
convex		15	25.4		10	29.4		25	26.9
straight		33	55.9		14	41.2		47	50.5
concave		0	0.0		1	2.9		1	1.1
irregular		11	18.6		9	26.5		20	21.5
Outline	64			35			99		
symmetrical		33	51.6		15	42.9		48	48.5
asymmetrical		31	48.4		20	57.1		51	51.5
Transverse X-section	80			48			128		
bi-convex		60	75.0		17	35.4		77	60.2
plano-convex		17	21.2		20	41.7		37	28.9
bi-plano		3	3.7		9	18.7		12	9.4
triangular-convex		0	0.0		2	4.2		2	1.5
Longitudinal X-section	74			44			128		
bi-convex		44	59.5		12	27.2		56	43.7
plano-convex		20	27.0		14	31.8		34	26.6
bi-plano		7	9.5		13	29.5		20	15.6
plano-convex		2	2.7		1	2.3		3	2.3
concave-convex		1	1.3		4	9.1		5	3.9
Completeness	81			48			129		
complete		43	53.1		29	60.4		72	55.8
base		15	18.5		5	10.4		20	15.5
midsection		1	1.2		7	14.5		8	6.2
tip		19	23.4		7	14.5		26	20.2
edge		3	3.7		0	0.0		3	2.3

TABLE 16

PREFORMS:
METRIC ATTRIBUTES

		LENGTH	WIDTH	THICKNESS
CORE	n	42	65	69
	X	64.2	32.2	12.7
	range	36.7-106.1	18.4-74.4	6.0-34.8
	S	17.35	10.85	5.48
	C.V.	27.02	33.69	43.14
FLAKE	n	29	39	39
	X	70.7	37.9	12.1
	range	42.2-140.2	20.1-82.3	7.2-23.2
	S	23.85	14.04	4.19
	C.V.	33.73	37.04	34.60
TOTAL	n	71	104	108
	X	66.6	34.3	12.5
	range	36.7-140.2	18.4-82.3	6.0-34.8
	S	20.13	12.33	5.04
	C.V.	30.22	35.95	40.32

TABLE 17

HAMMERSTONES

ARTIFACT #	MAXIMUM LENGTH	MAXIMUM DIAMETER	MINIMUM DIAMETER	WEIGHT (g)	ENDS PECKED	ENDS SPALLED	SURFACE PECKING
CkAl-3: 1303	160.7	83.4	68.0	1428	2	1	present
1301	200.5	71.6	54.2	1288	2	1	absent
1290	157.5	62.5	53.6	900	2	2	absent
185	149.1	48.2	37.1	462	2	1	absent
814	148.0	58.1	33.0	452	2	2	absent
1302	142.5	51.3	35.2	480	2	2	absent
773	155.6	43.3	36.1	361	2	1	absent
769	134.0	51.1	32.3	394	2	2	absent
772	-	-	-	-	-	-	-
1719	69.8	39.3	35.6	155	2	none	absent
1575	31.6	30.8	15.1	23	2	none	absent

TABLE 18

ABRADERS

ARTIFACT #	LENGTH	WIDTH	THICKNESS	GROUND SURFACES/FACETS
CkAl-3:1291	180.5	72.6	73.2	4
1371	106.8	79.8	16.6	1
779	91.8	52.2	22.1	6
1077	67.1	55.3	16.5	4
446	106.6	27.0	13.4	6
505	81.0	37.2	18.7	4
525	47.7	44.3	14.8	2

PLATES

PLATE I

"Chipped" Harpoon Endblades

a - g bifacial

h - l unifacial

m - s tip-fluted

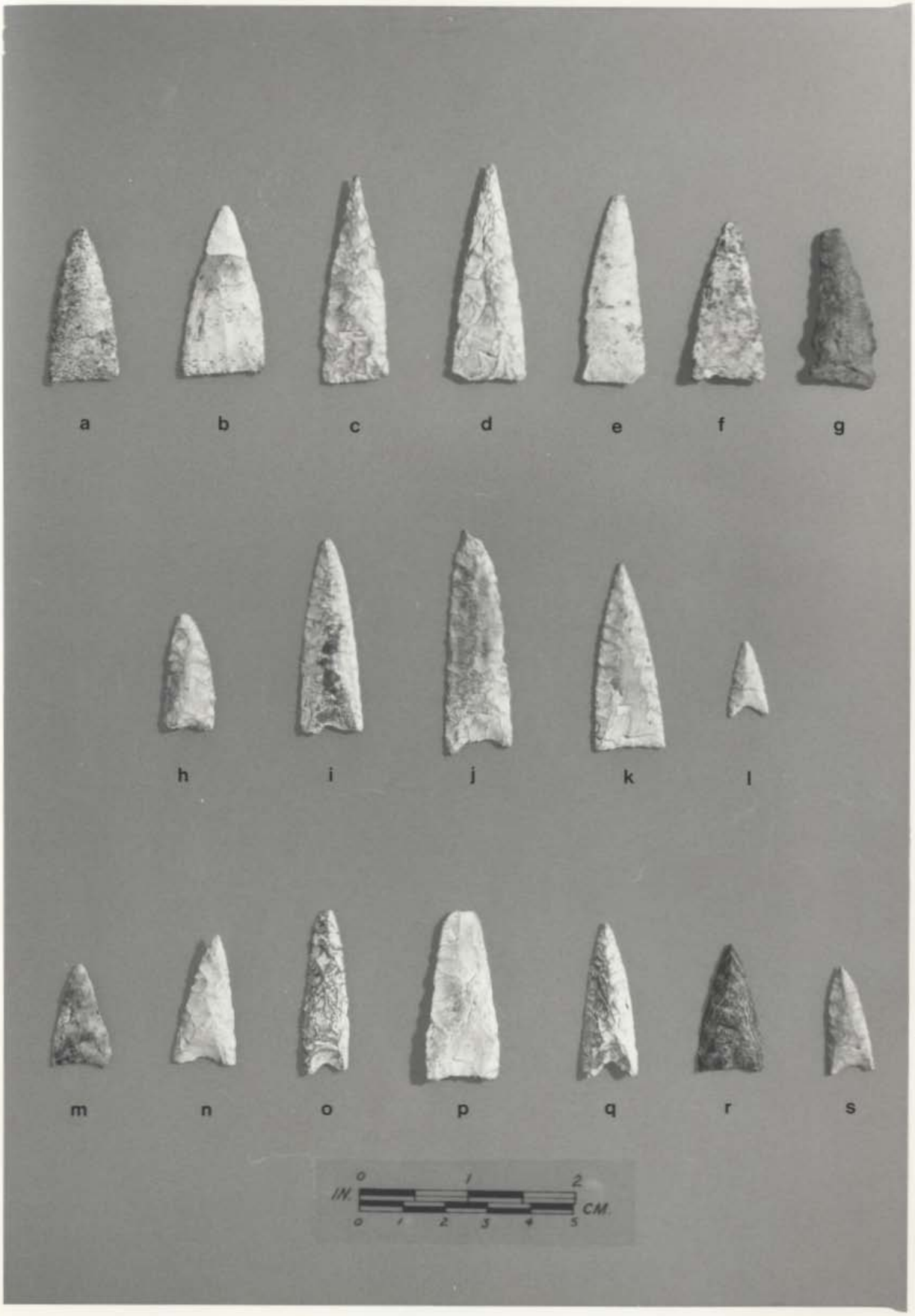

a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
IN.
0
1
2
CM.
0
1
2
3
4
5

PLATE II

"Ground" and "Chipped and Ground" Harpoon Endblades

a - j ground

k - r chipped and ground

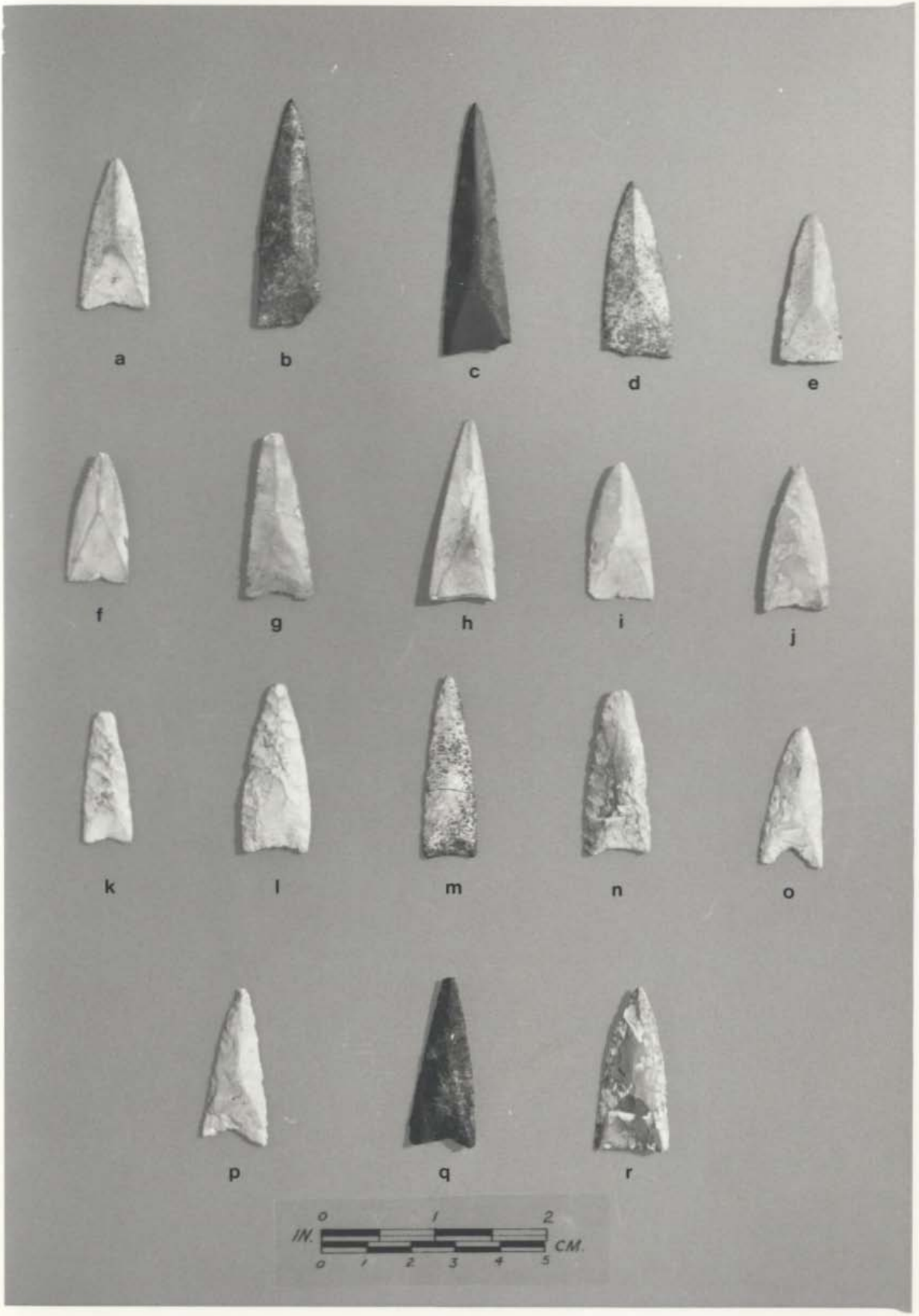

a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
IN.
0 1 2
CM.
0 1 2 3 4 5

PLATE III

Knives/Bifaces

a - c small, notched

d - f large, notched


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

PLATE IV

Quartz Crystal Scrapers

a	end-of-blade scraper
b - c	concave sidescrapers
d - e	triangular multi-edged scrapers
f - g	quadrangular multi-edged scrapers
h - l	triangular endscrapers
m - x	quadrangular endscrapers

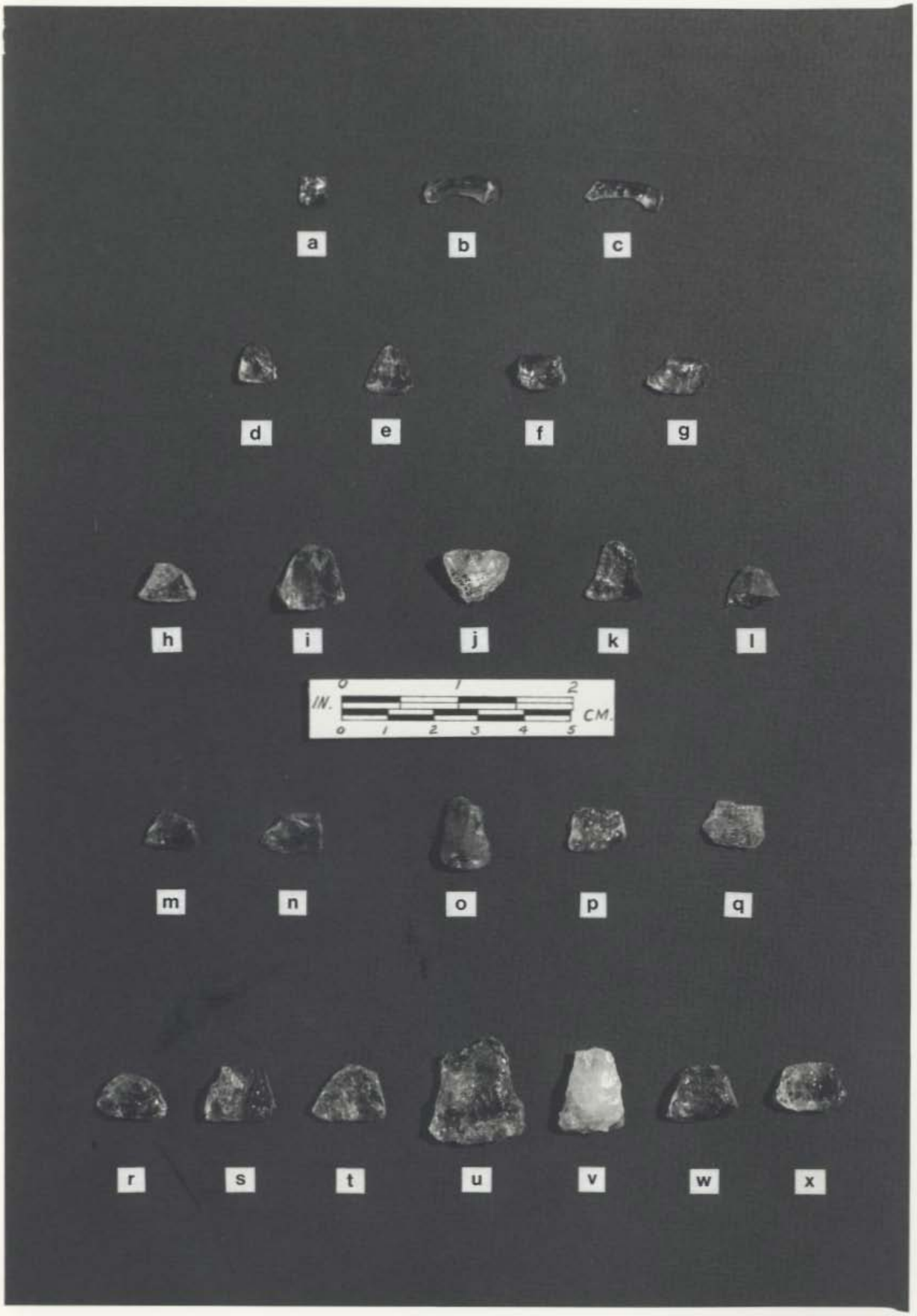

a
b
c
d
e
f
g
h
i
j
k
l
IN.
CM.
m
n
o
p
q
r
s
t
u
v
w
x

PLATE V

Chert Scrapers

a - g	large, three-sided endscrapers
h - j	small, three-sided endscrapers
k - n	four-sided endscrapers
o - q	flake endscrapers
r - u	composite end/sidescrapers

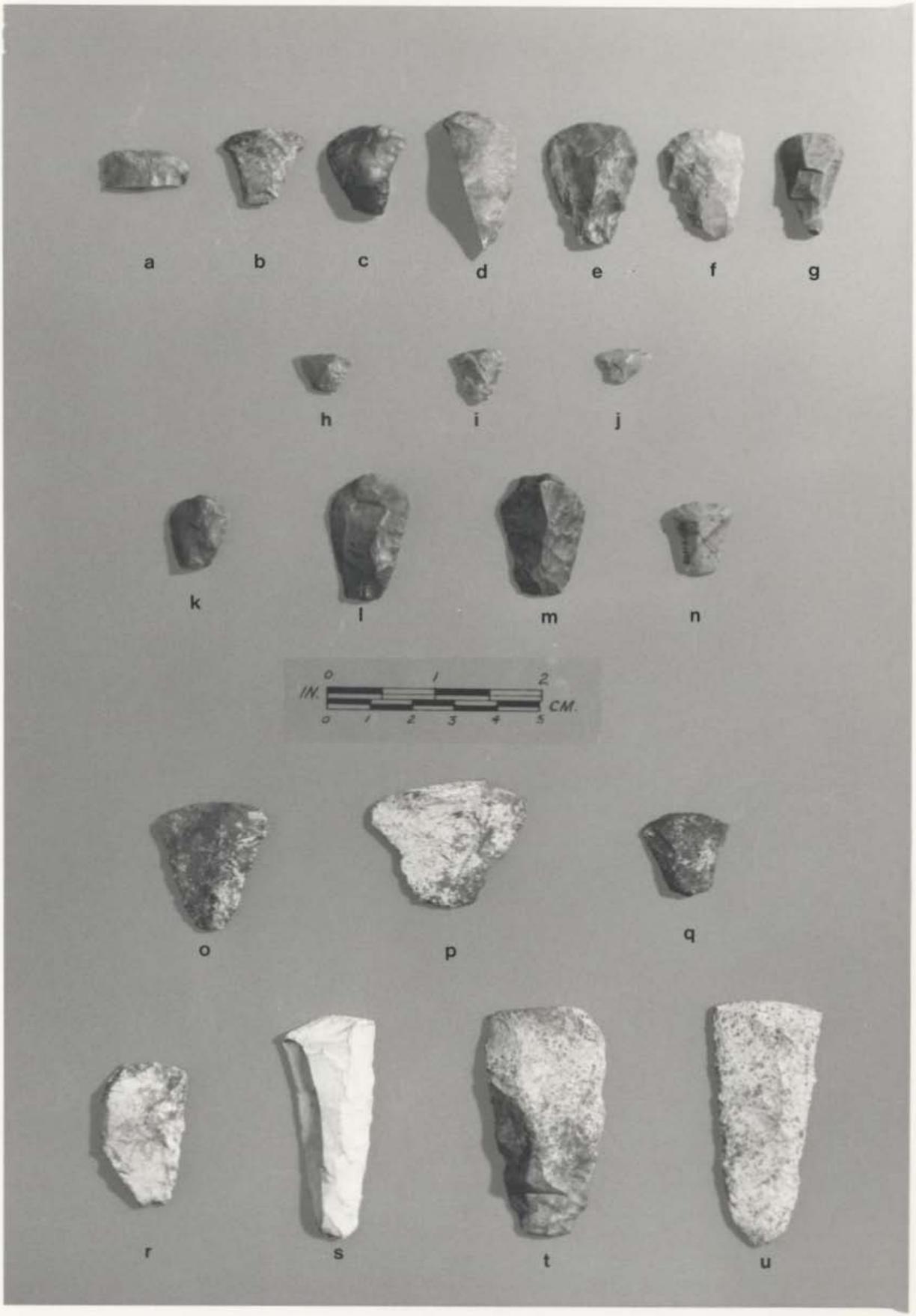

a
b
c
d
e
f
g
h
i
j
k
l
m
n
IN.
0
1
2
CM.
0
1
2
3
4
5
o
p
q
r
s
t
u

PLATE VI

Blades/blade-like Flakes

a - c	chert blades
d - i	chert blade-like flakes
j - l	quartz crystal blades
m - u	quartz crystal blade-like flakes
v - bb	quartz crystal cores

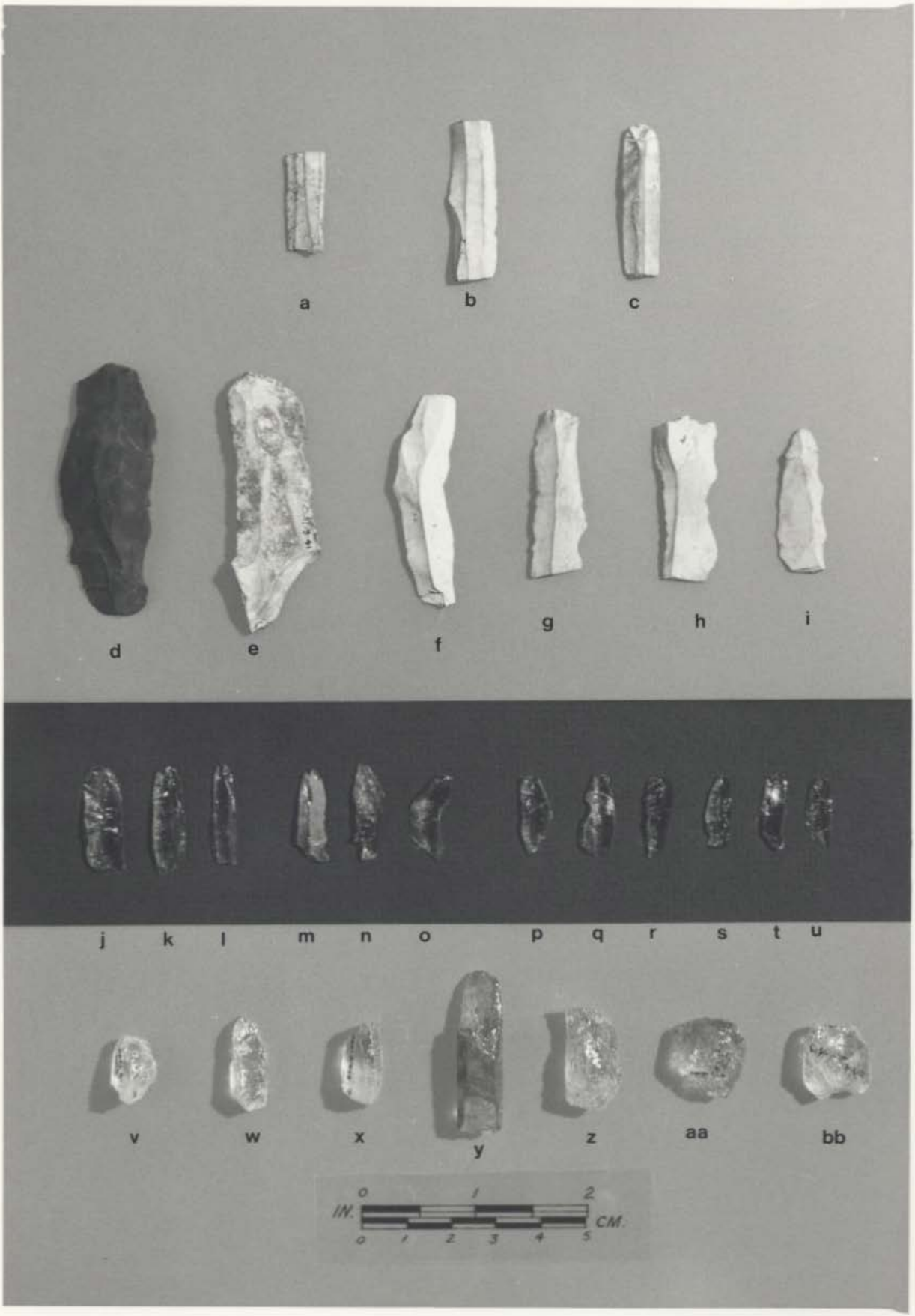

a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
v
w
x
y
z
aa
bb
IN.
CM.

PLATE VII

Preforms

a - e flake preforms

f - j core preforms


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

PLATE VIII

Ground Slate Tools

a - c triangular endblades with line holes

d "chisel"

e triangular endblade with side-notches

f endblade with rounded tip and line hole

g small convex based endblade

h large, bevelled-edge knife

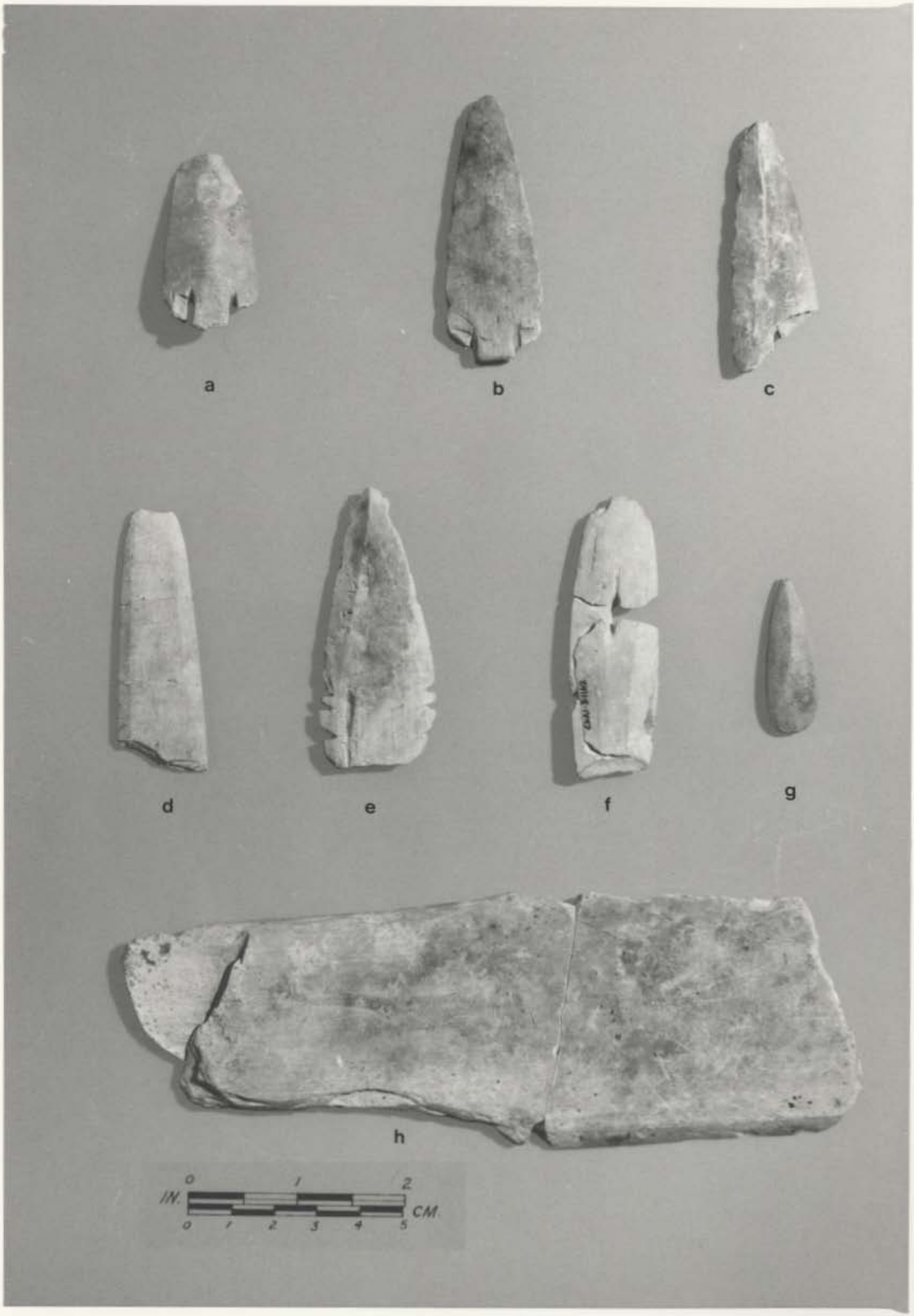
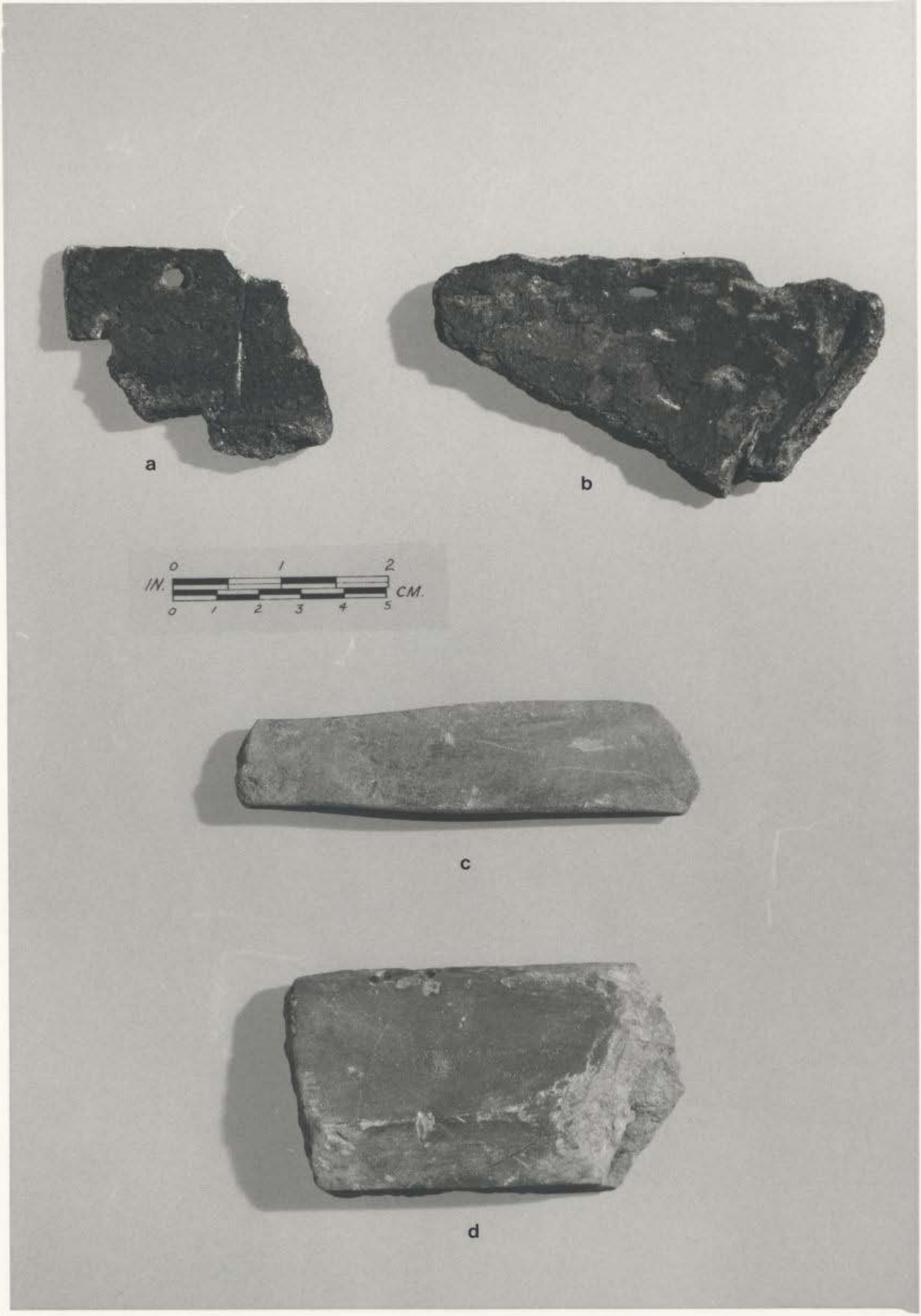

a
b
c
d
e
f
g
h
IN.
0
1
2
CM.
0
1
2
3
4
5

PLATE IX

Soapstone Vessel Fragments and Abraders

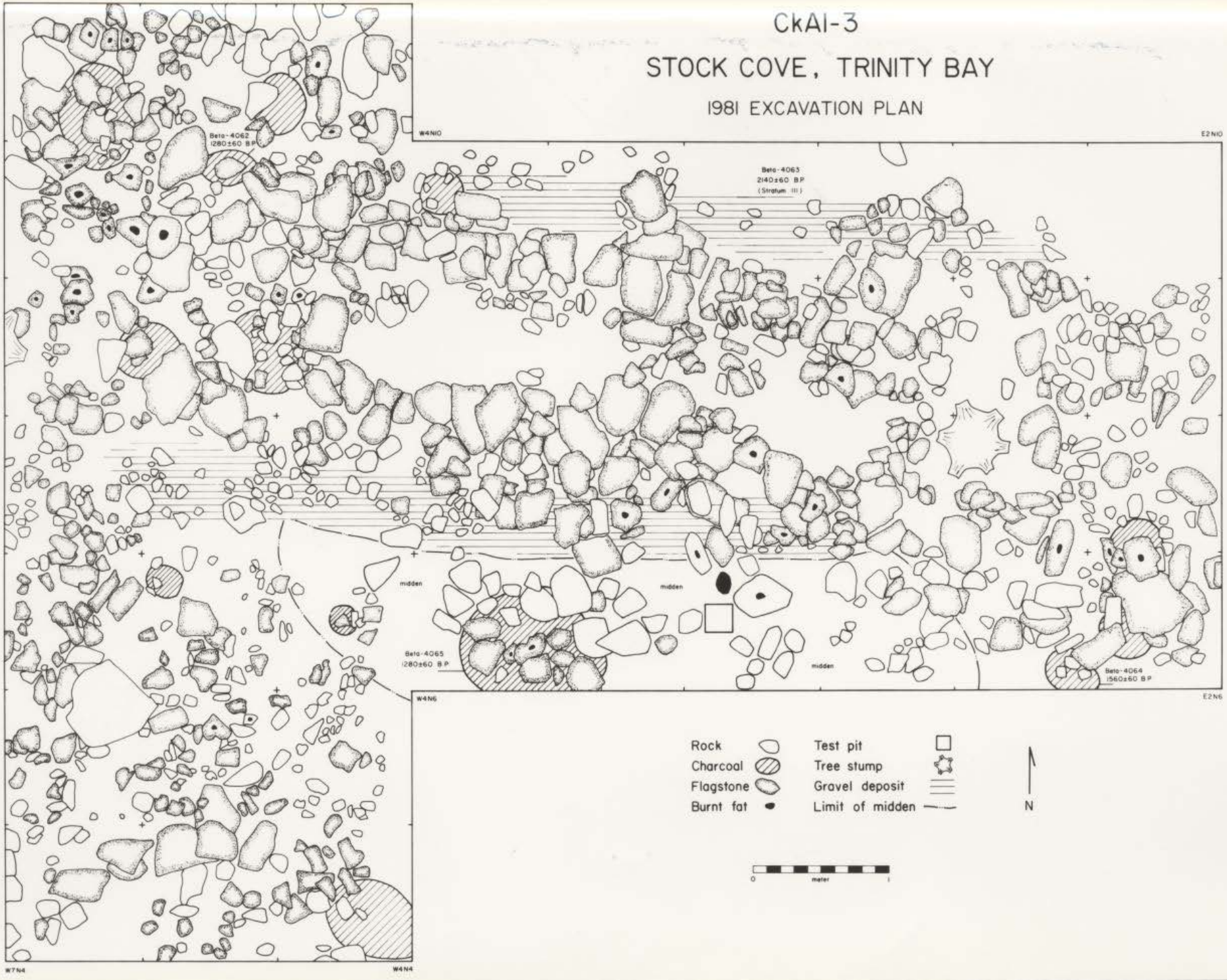
a - b soapstone vessel fragments: "a" is specimen 1726 (see text, p. 86)

c - d abraders


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

MAP I

Stock Cove Excavation Plan


CkAl-3
STOCK COVE, TRINITY BAY
1981 EXCAVATION PLAN
W4N10
E2N10
Beta-4062
1280±60 B.P.
Beta-4063
2140±60 B.P.
(Stratum III)
midden
midden
midden
Beta-4065
1280±60 B.P.
Beta-4064
1560±60 B.P.
W4N6
E2N6
W7N4
W4N4
Rock
Charcoal
Flagstone
Burnt fat
Test pit
Tree stump
Gravel deposit
Limit of midden
N
0
meter
1