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TITLE: The Early Palaeoeskimo Period in the Eastern Arctic and the Labrador Early Pre-Dorset period: a reassessment.

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ABSTRACT

By the end of the 1960s research in the Eastern North American Arctic had defined a single widespread Early Palaeoeskimo culture, dubbed Pre-Dorset since it preceded Late Palaeoeskimo Dorset culture. Subsequent investigations in Greenland resulted in the recognition of two other occupations, Independence I and Saqqaq, that, while different, were considered part of the Pre-Dorset manifestation. However, in the mid-1970s it was proposed that Independence I and Pre-Dorset should be considered culturally and temporally distinct. This classification system clearly divided the period and did not allow for interactions between the groups. While this proposal was initially questioned, it has come to dominate interpretation of the Early Palaeoeskimo period.

At the same time as this framework was being promoted, a small number of Early Pre-Dorset sites were excavated in Labrador. Classified as Pre-Dorset, these sites nonetheless exhibited Independence I and Saqqaq influences. The reasons for this could not be fully explained, though a relationship between Labrador and the High Arctic was proposed.

This thesis reevaluates the place of Labrador Early Pre-Dorset within the sphere of the Eastern Arctic following upon almost thirty years of archaeological work, both in Labrador and elsewhere in the Eastern Arctic. Recent evidence suggests that researchers must rethink their view of the Early Palaeoeskimo period and the vision of Independence I and Saqqaq relations. Only by viewing Independence I and early Saqqaq as part of the same cultural unit can the cultural sequence be reconciled with the archaeological data.

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Any errors, inconsistencies or false assumptions are, naturally, my responsibility.

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Chapter 1 The Issues Surrounding Clarification of the Early Pre-Dorset Occupation of Labrador

1.1 Introduction

This thesis was born from my own difficulties understanding the current cultural sequence used in the Eastern Arctic, a classificatory system that has been described as chaotic (Tuck and Fitzhugh 1986:161), ambiguous and inconsistent (Helmer 1994:16; Nagy 1994:2) and ordered with a "laissez-faire" attitude (Taylor 1968:38). Palaeoeskimo archaeology (involving the period of human occupation between 4500 and 1000 BP) has been particularly victim to this situation with the result that the taxonomic system used today is often times neither complementary nor standardised, while relationships between groups remain as contentious now as when they were first proposed.

Originally, classification of arctic cultures had followed a much more simplified method of identification, one historically known Neoeskimo population preceded by another, termed Palaeoeskimo, which dated to some indeterminate point in the past. But as the region and its human past became the focus of directed research by investigators in the High and Low Arctic of Canada and Greenland it became clear that occupation in the region had been much more complex than the initial two culture model permitted. The Canadian ethnographer Diamond Jenness was the first to define a specific Palaeoeskimo group, the Dorset (named for Cape Dorset on Baffin Island where his collection originated), as distinct from later Thule Inuit groups (Jenness 1925). Subsequent researchers would further categorise Dorset as Late Palaeoeskimo (2400 B.P. to 1000

B.P.) while other Palaeoeskimo cultures, including pre-Dorset (Giddings 1954), Saqqaq (Larsen and Meldgaard 1956), Groswater (Fitzhugh 1972), Independence I and II (Knuth 1967), were all classified as Early Palaeoeskimo.

Further division of the Early Palaeoeskimo period in the 1970s added to the confusion with the suggestion that two of the presumed variants, Independence I and Pre-Dorset, should be seen as culturally separable due in large measure to different regional origins and differences in material culture remains (McGhee 1976, 1979). Based on sites recorded around Port Refuge, Devon Island, Robert McGhee further justified this interpretation with temporal and spatial evidence in combination with differences in settlement patterns and artefact assemblages. Interpretation of the radiocarbon data indicated Independence I was the first group into the Arctic while Pre-Dorset was seen as a culturally and temporally separate manifestation that arrived some time following abandonment of the region by Independence I. According to this scenario the two groups were defined in opposition to one another and neither interacted nor contributed to one another's material culture or subsistence strategies (Bielawski 1988). It should not be possible to identify characteristics of one group in the other, nor should the two exhibit shared characteristics (the following chapter will deal with the reasons for this division in greater depth).

Given this scenario, several Early Palaeoeskimo sites from Labrador designated as Pre-Dorset with Independence I and Saqqaq influences (Cox 1978:103, 114 - 116; Fitzhugh 1976:113; Tuck n.d.:100 - 104, 1975:137 - 147, 1976:97 - 99) seemed anomalous. To a student just beginning her studies in the prehistory of this region, such a

classification was at the least puzzling given that Independence I and Pre-Dorset were supposed to be culturally distinct (McGhee 1976, 1979), while Saqqaq was restricted to southern-western Greenland (Maxwell 1985). How could sites in northern Labrador be attributed to one culture yet have attributes of another that has been defined as culturally and temporally distinct?

Initially I set out to answer the single problem of understanding the Labrador sites in terms of the commonly accepted cultural framework for the Early Palaeoeskimo period. However, it quickly became apparent that the Labrador sites did not exist in isolation, that the cultural material found in these sites hinted at a far larger sphere of cultural interaction for the Labrador palaeoeskimos than would be expected given the cultural framework currently in use. Clarifying the cultural affiliation of the Early Palaeoeskimos in Labrador evolved into the larger question of how the three Early Palaeoeskimo cultures identified in the Eastern Arctic existed and how this relationship manifested itself in both temporal and geographical terms. Once this larger question could be resolved I then hoped to return to my original focus, how the Labrador sites should be situated culturally in terms of the larger Early Palaeoeskimo world.

1.2 Early Palaeoeskimo occupations in Labrador

At about the same time that the concepts of a core area of Palaeoeskimo evolution and cultural separation of Independence I and Pre-Dorset were solidifying (see papers in Maxwell 1976), researchers began venturing into largely unknown territory in northern Labrador. Interpretation of the Early Palaeoeskimo sites in the region was strongly

influenced by these theoretical developments. James Tuck, working in Saglek Bay, noted the resemblance of the assemblages he recovered with Independence I and Saqqaq assemblages known from Greenland and also with Pre-Dorset material in the Igloolik region (Tuck 1975:137-147). He in fact stated that had McGhee not recently distinguished between Independence I and Pre-Dorset, he would have ascribed these sites as a local variant of the Pre-Dorset manifestation (Tuck 1976:97-99).

Working north of Nain, William Fitzhugh (1969, 1972:130, 1976) also believed he recognised elements of Saqqaq in the Pre-Dorset sites he was excavating. The predominance of killaq (a siliceous slate) in the lithic assemblages, small numbers of microblades and the presence of small serrated endblades (Fitzhugh 1976:107) hinted at influences beyond the immediate northern Labrador region. Situating these sites culturally was difficult given that the material had little in common with other Eastern Arctic Pre-Dorset assemblages although a closer relationship with Independence I material was possible (Fitzhugh 1976:113).

Other Early Palaeoeskimo sites from northern Labrador also proved to be equally ambiguous in terms of their cultural traits. Steven Cox, working in the Okak area, located Pre-Dorset dwellings and associated artefact assemblages that resembled Independence I from the High Arctic, though there were a number of subtle differences (Cox 1978:98, 103). As with sites in Saglek Bay (Tuck 1975, 1976) there were elements of Saqqaq culture, including adzes and the form of some end- and side-scrapers, in this region as well (Cox 1978:103). Cox interpreted Independence I, Saqqaq and Labrador Pre-Dorset

as "genetically related" but localised manifestations of a common parent group (rather than as stages in an evolutionary progression).

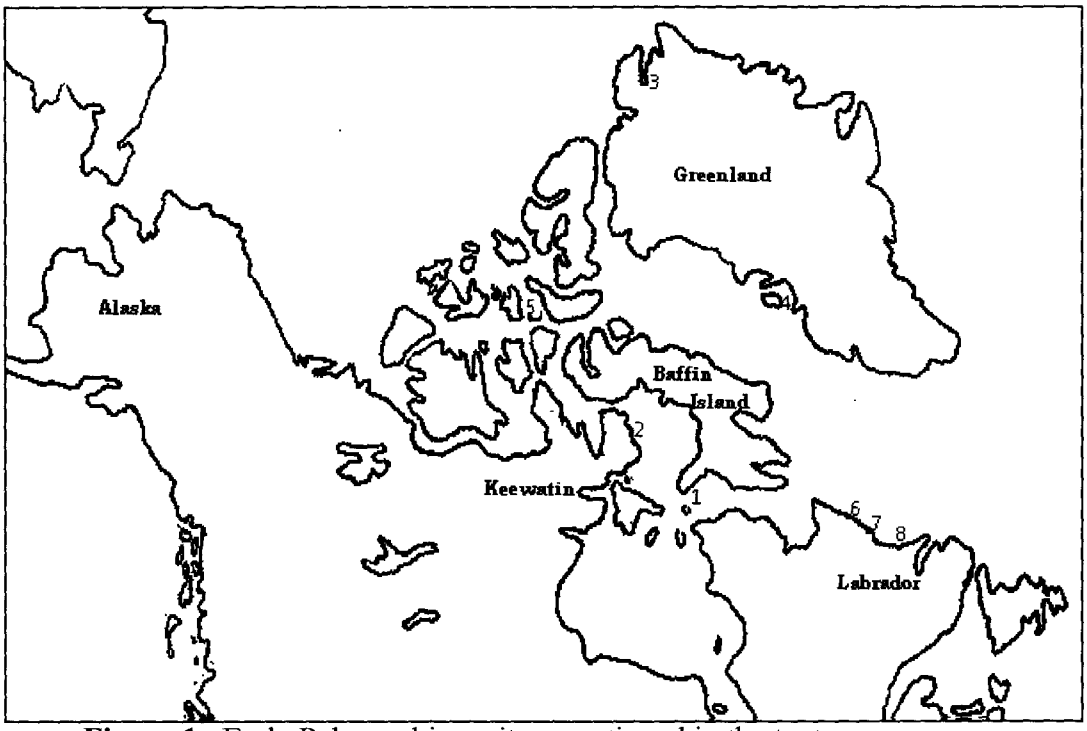


Figure 1. Early Palaeoeskimo sites mentioned in the text.

1. Cape Dorset, Baffin Island
2. Igloolik Island, Foxe Basin
3. Independence Fjord, Peary Land, Greenland
4. Saqqaq, Disko Bay, Greenland
5. Port Refuge, Devon Island
6. Saglek Bay, Labrador
7. Okak, Labrador
8. Nain, Labrador

Describing some northern Labrador Pre-Dorset sites as Independence I- or Saqqaq- like goes against the very heart of McGhee's proposal. If the Port Refuge sequence really is indicative of events across the Eastern Arctic then Independence I must precede Pre-Dorset, with a break of several hundred years between the latest Independence I and earliest Pre-Dorset occupations. Saqqaq culture has recently been

recognised outside Greenland (Schledermann 1990; Sutherland 1996) but never in the Low Arctic (several Foxe Basin sites identified by Meldgaard (1956) as Saqqaq are no longer classified as such) and so also should not be recognisable in a Labrador context. How could Pre-Dorset sites from northern Labrador bear characteristics of these separate cultural groupings that according to the accepted cultural sequence did not come into contact with one another?

Whether these early occupants were contemporaneous or sequential inhabitants of the region remains unclear. While absolute dating methods, in particular the radiocarbon method, have been an invaluable asset for clarifying occupational sequences in many areas, arctic researchers have not been so fortunate. The following section will outline the difficulties of the absolute dating method in this region and the repercussions for our understanding of prehistoric events in the Eastern Arctic.

1.3 Chronological placement of Early Palaeoeskimo sites in the Eastern Arctic

One of the major impediments to a clearer understanding of the sequence of occupation during the Early Palaeoeskimo period is the suspect nature of radiocarbon dates in the Eastern Arctic. McGhee and Tuck (1976), Arundale (1981) and Tuck and McGhee (1983)have previously outlined the problems of this method with specific reference to the Eastern Arctic where the range of organic materials preserved in archaeological sites poses the greatest difficulty for obtaining reliable dates on cultural deposits.

The most commonly recovered organic materials derive from sea mammals (seal, walrus, whale and polar bear) and typically constitute fat, skin, baleen, bone or ivory. Dates derived from these materials are particularly subject to variability, McGhee and Tuck (1976:6) noting that dates can be between four hundred and a thousand years older than expected. As Arundale (1981:246 - 248) discusses, this is a consequence of the reservoir effect which introduces 'old' carbon in to ocean water at a rate that varies from region to region in a way that is neither completely understood nor predictable. Stuiver *et al.* (1986) propose a correction for the reservoir effect but this has limited application in an arctic context given the reservoir effect may be even more pronounced at polynyas (Park 1994:31), areas of permanently open water that were focal points for prehistoric human occupation (Schledermann 1980).

Such discrepancies in the radiocarbon method are especially relevant for the Early Palaeoeskimo period. As Maxwell (1985:77) has pointed out, "[m]uch of the controversy about Independence I and Pre-Dorset could be resolved by adequate carbon dates". McGhee and Tuck (1976:7, 12 - 14) proposed three different methods for adjusting sea mammal dates in an effort to produce a more reliable dating sequence, favouring exclusion of all marine dates with a resultant temporal precedence for Independence I.

Arundale (1981:258-259, 265) has, however, taken issue with this scheme on several fronts, two of which are particularly relevant for the Early Palaeoeskimo period. She feels that the authors' suggestion that archaeologists disregard all marine dates has been shaped by their own belief that there should be a gap between Independence I and Pre-Dorset, which such a process produces. She notes that by correcting all marine dates

according to a process outlined in her article the two groups are not sequential but contemporaneous.

Compounding the situation are problems with organic materials with a terrestrial origin. Driftwood dates must be considered suspect given the impossibility of estimating the time between a tree's death, transportation and deposition on an Arctic beach, and incorporation in a site. Knuth (1984) for example has dated driftwood in Peary Land, northern Greenland, in excess of 35 000 years. Terrestrial mammal bone is also vulnerable to natural contamination from the surrounding matrix and may yield dates that are too late, although this may be less so with carbonised material (Arundale 1981:252-253). Antler too can be problematic as it can yield dates younger than expected (Arundale 1981:265). This "terrestrial reservoir effect" (McGhee 2000a:188; Park 1994:31) is a frequently overlooked problem and adds to an already complex situation.

The manipulations that are suggested by McGhee and Tuck (1976) and Arundale (1981) do little to clarify the position of Independence I and Pre-Dorset in terms of the occupational sequence of the Eastern Arctic. The former promotes a sequence where Independence I represents the pioneering group into the region with a break of a couple of hundred years, followed by a Pre-Dorset occupation. The latter suggests a process whereby the two groups occupied the Eastern Arctic contemporaneously. As Maxwell (1985:43) points out, in this situation the data can be manipulated to suit the particular viewpoint of researchers and it should be clear that radiocarbon dates alone have not assisted archaeologists in clarifying whether Independence I and Pre-Dorset should be considered culturally and chronologically distinguishable.

For the purposes of this thesis sea mammal dates will not be included since, as Tuck and McGhee (1983:9 – 10) note, the variables that must be considered when attempting to adjust for fractionation and the reservoir effect cannot be dealt with in more than a very basic manner. Dates on driftwood will also be disregarded. Generally speaking, most archaeologists agree on a sequence in the Eastern Arctic that places the beginning of the Independence I period sometime just prior to 4500 B.P. and ending shortly after 3500 B.P., although these dates vary by region (Maxwell 1985). The Saqqaq culture in western Greenland has been dated to between 4400 B.P. and 2900 B.P. (Elling 1996) while Pre-Dorset appears at either 4200 B.P. or 3800 B.P. (Maxwell 1984:359), evolving into or being replaced by the Dorset culture between 2800 B.P. and 2500 B.P. (Taylor 1968:89 – 90).

1.4 Theoretical and Methodological Considerations

The organisational approach developed in pursuit of the research goals described above is qualitatively oriented with an analytical approach to ordering the data, allowing subtle chronological and geographical patterns to be more easily discerned. This process was achieved through a comparative perspective based on an inductive organisation of the data where a theory was developed to explain variability within and between regions and assemblages. These data, in the form of published and unpublished reports on extant collections from various areas of the Eastern Arctic, were then used to support a reinterpretation of specific sites recorded and excavated in northern Labrador. This reinterpretation, addressing variation seen in the data set, underwent several

developmental stages before reaching the form that will be expounded through the course of this thesis.

This approach really exists in two parts; the first section addresses problems with the cultural sequence in the Eastern Arctic in its entirety, especially as it pertains to the cultural classification currently favoured by many archaeologists. The second part of the theory deals specifically with how an alternate explanation for the variability in the archaeological record impacts localised areas such as northern Labrador.

While my approach may echo previous research, especially regarding the use of particular traits as a means to identify the cultural affiliation of Early Palaeoeskimo sites, such an approach does carry a number of benefits. Foremost amongst these is the idea that a re-examination of the criteria originally used to justify division of the Early Palaeoeskimo period might result in an equally (if not more) legitimate explanation of the diversity in the archaeological record during this period, particularly with reference to the Labrador sites. Given the fact that many reports typically make specific reference only to elements traditionally used to affiliate a site with a specific culture, taking a markedly different approach from that which has typically been taken would have very mixed results in a study that relies on published reports. The goal is to show there is greater variability than previously suspected, and this objective can be met following the process outlined above.

In combination with this approach several key components of *Annaliste* thought, as developed most notably by Fernand Braudel (1980), were incorporated to achieve a view of the archaeological record that is both chronologically and geographically larger

in scope than has typically been considered. By this I mean that my study is not restricted to a particular study area like northern Labrador; instead there is an attempt to incorporate information from all areas of the Eastern Arctic and from the Early Palaeoeskimo period in its entirety. Borrowing from "total history" (Braudel, in Hodder 1987:2) this study will use information from all segments of the archaeological record including settlement-subsistence data, house form, site location and layout, artefact types and attributes and where possible chronological placement. In the case of the Arctic, total history has great potential for resolving the relationship between the Early Palaeoeskimo populations by establishing a sequence of pertinent events including the impact of long-term climatic change, resource fluctuations and the effects of short-term weather changes in relation to the archaeological record. It should then be possible to identify the factors and cultural attributes that are of particular relevance for archaeologists attempting to understand the total sequence of events during the Early Palaeoeskimo period in both the Eastern Arctic in general and Labrador in particular.

Taking a long-term approach to the archaeological record also allows for differences in the archaeological record to be seen not as evidence for cultural discontinuity but instead as variation within a continuum, a single culture dealing with markedly different areas in terms of geography and environment. A tendency to use both narrow timeframes and to focus on geographically isolated study areas, typical for the Early Palaeoeskimo period, tend to accentuate differences whereas large-scale analyses allow the process of adaptation by a vibrant group to an environment with shifting resources to be revealed. Identifying the complexity of causal factors affecting the

behaviour of prehistoric groups under study is invaluable to archaeological research. Such a strategy avoids an approach where the findings of a small number of sites are often extrapolated to an entire region. By dealing with the complexity of causal factors influencing adaptation less emphasis need be placed on traditional artefacts, typically harpoon heads (Meldgaard n.d.; Mathiassen 1927; Taylor 1968) and burins (Taylor 1968; Gordon 1975), as a means to demonstrate change through time within and between cultures.

A final analytical plan is the use of multi-scalar analysis in an effort to avoid the potential minefield associated with the application of data from one localised zone over vast regions on the assumption that what happened in one area occurred simultaneously in other areas of the Eastern Arctic. Multi-scale analysis provides a more inductive approach that gives a generalised overview of prehistoric events throughout the larger area and can then be applied to specific regions. By examining settlement patterns and site locations, house structures, faunal / subsistence strategies, artefact attributes, presence / absence of specific material culture elements and assemblages, changes in settlement and subsistence as well as long-term adaptive strategies can be identified. This relates to two main goals, the first involving the relationship between the three identified Early Palaeoeskimo groups in the Eastern Arctic, the second the way in which the northern Labrador Early Palaeoeskimos should be situated within this sequence.

1.5 Organisational Framework

Whether some sort of relationship did exist between the Labrador Pre-Dorset and Independence I and Saqqaq groups to the north, as originally suggested by Tuck (1975:141-147), remains unclear. Certainly the situation has not been resolved using the current system of classification based on concepts of a 'core area' of palaeoeskimo development (see Maxwell 1976) and cultural separation of Independence I and Pre-Dorset (McGhee 1976, 1979) and Independence I and Saqqaq (Knuth 1967, Larsen and Meldgaard 1956). The remainder of this thesis will examine Labrador Pre-Dorset from a slightly different perspective, one that does not use the Independence I – Pre-Dorset dichotomy or the existence of a single core region of innovation as the theoretical foundation.

With this goal in mind, Chapter 2 will summarise the pioneering research begun in the High and Low Arctic of Canada and Greenland over fifty years ago that produced the taxonomic system still in use today. The programs of survey and excavation carried out in geographically (and institutionally) restricted areas led to the definition of specific cultural groups that were then imposed on the rest of the Eastern Arctic. The purpose of this chapter is primarily to introduce how these cultures were defined and subsequently refined to exclude one another. As will be shown, these definitions were formulated in large measure to exclude characteristics of other groups who were perceived as both unrelated in an evolutionary sense and isolated in terms of social interaction.

Chapter 3 will then outline work conducted since this pioneering phase with the goal of revealing how new information collected from previously unknown areas has

impacted our perception of the prehistory of the region. It will become clear that a number of attributes formerly considered hallmarks of an individual cultural group no longer appear so unique. It will be suggested that these traits really exist as points along a gradient and few if any characteristics can clearly be regarded as culturally discrete, undermining the validity of a taxonomic system which bases its division of the Early Palaeoeskimos on these supposed differences.

Chapter 4 will address how the conclusions reached in the previous chapter affect our view of the relationship between Labrador Pre-Dorset and its contemporary groups elsewhere in the Eastern Arctic. Is Labrador Pre-Dorset truly aberrant or is it indicative of a larger truth concerning Independence I, Saqqaq and Pre-Dorset, namely that elements of these groups can be identified in Labrador sites because they represent a continuum through time and space of a single diverse culture? Finally, how does this interpretation impact the doctrine that has dominated Eastern Arctic palaeoeskimo archaeology for decades, the idea of three culturally and temporally distinct groups?

The final chapter will summarise and reiterate how the Early Palaeoeskimo period in Labrador and the Eastern Arctic can best interpreted by abandoning the current cultural framework, one which is unable to deal with the variability identified in the Early Palaeoeskimo period.

Chapter 2 Early Palaeoeskimo Variability: Pioneering Research and Cultural Divisions

2.1 Introduction

The primary purpose of this chapter is to outline the beginning of research into the Early Palaeoeskimo period of the Eastern Canadian Arctic and Greenland, a time when researchers first became aware of the diversity present in this stage of prehistory and proposed a system of cultural classification, based on available information, to better understand the archaeological record. The Early Palaeoeskimo period, currently dated between 4500 and 2800 B.P. (dates vary by region), encompasses the first recognisable human occupation of the Arctic and is part of the Arctic Small Tool tradition (ASTt), first defined by William Irving (1957) as a cultural tradition spanning northern North America from Alaska south to the Barrengrounds of Keewatin and east to Greenland. Included in this tradition is the Denbigh Flint Complex, named for the Cape Denbigh (Alaska) site excavated by Giddings in the 1940s (Giddings 1964). A microlithic stone tool complex, the Denbigh Flint Complex provided the first evidence of a Mesolithic Siberian origin for the North American material.

Within the Early Palaeoeskimo tradition of the Eastern Arctic there are three archaeologically defined variants, Independence I, Saqqaq (or Sarqaq) and Pre-Dorset. Independence I and Pre-Dorset are generally viewed as distinct cultural units while Saqqaq is most often seen as an offshoot of the more widespread Pre-Dorset

manifestation (Bielawski 1988:54) and was thought to be restricted to western Greenland (though Sutherland 1996; Schledermann 1990 and Helmer 1984 have since identified Saqqaq outside of Greenland). There has been no satisfactory resolution regarding the question of their relationship to one another, nor are the factors which shaped the settlement and subsistence strategies of each complex easily understood (Maxwell 1985). Some researchers support the interpretation most clearly put forth in the 1970s by McGhee (1976, 1979) advocating cultural division of Independence I and Pre-Dorset on the basis of temporal and artefactual considerations. Alternately, others feel the Early Palaeoeskimo period cannot be divided along such clearly demarcated cultural lines since much of the evidence used to support or deny cultural separation is ambiguous (Bielawski 1988 presents perhaps the best overview of the debate). A large number of researchers fall somewhere in the middle, avoiding a clear decision regarding the occupational sequence and instead straddling the cultural classificatory system as it currently stands.

In order to understand why this has occurred it is first necessary to review the original definition of the variants before addressing the problems as highlighted by recent work. This chapter will present an overview of the three Eastern Arctic Early Palaeoeskimo variants as originally recognised in terms of their material culture remains, settlement patterns, technology and subsistence focus. The following chapters will document recent work which has shown that this original framework has become increasingly unable to accommodate variations in the archaeological record or account for their causes.

2.2 Independence I (c. 3950- 3750 B.P.)

2.2.1 Peary Land, Greenland

Independence I was initially defined by Eigil Knuth on the basis of extensive surveys and excavations beginning in 1947 in the Peary Land region of northeastern Greenland where the first conclusive evidence for a human presence in the High Arctic predating the historically known Thule Inuit was located (Knuth 1952, 1954, 1958, 1966/67, 1967, 1977/78, 1981, 1983). Archaeological work conducted in Greenland previous to this had identified cultural remains that were recognised as being older than Thule; however, this research was in large measure ignored and discredited after the Fifth Thule Expedition (see Bendix Thostrup (1911), Rasmussen (1915), Mathiassen (1927, 1928, 1930); Birket-Smith (1930)) had failed to identify cultural material earlier than Neo-Eskimo. Mathiassen had even gone so far as to deny the possibility of a pre-Thule occupation of the region, ignoring previous finds and reports in western Greenland which seemed to clearly indicate a stone-using culture of some antiquity, resulting in a "goodbye to all notions of a stone age ... the very existence of the Paleo-Eskimo" (J. Meldgaard 1996:14). It would take almost half a century, with the work of Eigil Knuth, for the concept of a Palaeoeskimo occupation in Greenland to once again become generally accepted.

Compounding the bias of researchers against finding evidence of occupation preceding the Thule culture were more practical factors, including a general absence of visible structural remains (Larsen and Meldgaard 1958:5-6) and a failure to understand

the impact of post-glacial uplift on the land. Isostatic rebound, where active beach terraces are raised up and away from the sea as the land rises following the retreat of glacial ice, was a little understood phenomenon during this pioneering period of research (see Clark and Fitzhugh 1992; Andrews *et al.*1980 for discussion of the impact of this on the location of archaeological sites). Researchers instead concentrated their efforts near the contemporary coastline, leaving areas at greater elevations and distances from the sea, "places where one normally would not even have begun to search for human settlements" (Knuth 1967:13) unexplored. Knuth noted that even when evidence of human occupation was recognised in the form of tent rings it was typically dismissed as unworthy of serious investigation, the primary aim of study being the much more substantial winter houses of the Thule culture. But faced with only tent rings in his study area, Knuth had no alternative but to investigate the ruins and what he found revolutionised our perception of the prehistoric Arctic.

Knuth's view of the origin of his Independence I people, named for the Independence Fjord region where they were first identified, had been shaped by H.P. Steensby, a Danish ethnographer who suggested human occupation by people he dubbed "paleo-eskimos" must have occurred prior to the appearance of historic Inuit peoples in the region (Steensby 1910, 1916). These palaeoeskimos possessed an economy that was focussed on the hunting of land mammals (mainly musk-oxen and caribou) to the exclusion of sea mammals. Originating to the west in the Canadian Arctic, the colonisers migrated via Ellesmere Island to Greenland along a route Steensby had dubbed "the

musk-ox way" in deference to a hypothesised reliance on this terrestrial species. The route travelled across the northern tip of Greenland and down the eastern coast (Steensby 1916: map in appendix), passing through Peary Land and Independence Fiord. This movement was made possible due to a interval where warmer than present temperatures allowed musk- oxen, their human predators and vast quantities of driftwood to travel north and east to far northern Greenland (McGhee 1996:110).

The most celebrated type of Independence I dwelling (located between 11 and 21 metres above sea level in Independence Fjord) typically exhibits a central axial or mid-passage feature, constructed by setting thin stone slabs on edge into the beach gravel to form two parallel sidewalls. The axial feature runs along the short axis of the oval-shaped dwelling, dividing the dwelling into two living areas and points to the ocean or other nearby body of water (Knuth 1983:8). Knuth noted that sometimes only the axial feature remained with no evidence of peripheral walls while in other cases an oval perimeter was suggested by the presence of hold-down rocks. The axial feature was further divided into three chambers, the outer divisions serving as storage compartments while the central compartment functioned as a box hearth. This hearth served a three-fold purpose, providing heat, light and energy to cook food. Analysis indicates fires were fuelled by driftwood, indigenous willow, musk-ox bones and perhaps dried musk-oxen dung. There was no clear evidence to indicate differentiation in the construction of axial shelters for consideration of warm or cold seasons. Knuth suggests that unstructured fire-cracked flagstones covered with charcoal and burnt bone occurring in isolation, in groups or in

front of more substantial structural remains may represent warm-season occupations given their open nature and informal hearths. Cold season sites may be those which have associated caches (Knuth 1966/67:194).

The near complete dependence of Independence I people on terrestrial resources, mainly the highly mobile and gregarious musk oxen, is demonstrated in their sparse middens (though Schledermann (1990:318-319) disputes the importance of musk-ox in the Independence I economy). Seal was recovered from a very restricted number of sites, caribou (with the exception of antler fragments) was completely absent, arctic fox, arctic hare and anadromous fish were common, as were several species of migratory waterfowl (Knuth 1967:30-32). A focus on musk-oxen would have several important implications for the settlement patterns and seasonal round in the Peary Land region. Musk-oxen are a non-migratory species and as such have no set foraging pattern, instead wandering about a large range in search of an adequate food source. Any human group basing all or a significant part of its economy of such a resource must of necessity duplicate such a highly mobile existence, which Knuth feels explains the large number of seemingly short term Independence I sites in Peary Land's coastal and inland areas (Knuth 1966/67:194).

The lithic technology associated with these dwellings appeared to Knuth (1967:27) to be very uniform, with great similarities between sites in terms of raw material, style and morphological considerations. Lithic tools included points for arrows and lances, sideblades, bifacial knives, adzes and various forms of scrapers. Burins, burin spalls and microblades, along with bone needles with round drilled eyes constituted

approximately 70% of the Greenland assemblages and were interpreted as the tools of women due to their close proximity to the mid-passage axial feature (Knuth 1967:34). Organic tools included arrow heads, side prongs, hafts for burin spalls, flakers, round-eyed needles and needle cases and bodkins. Harpoon and lance heads were not recovered by Knuth from Peary Land though he felt this was largely due to chance. The lack of soapstone vessels or sherds from the region could not in Knuth's view be accounted for in a similar manner and so was used to justify separation of Independence I from more southerly Saqqaq groups while at the same time demonstrating its link to the Denbigh Flint Complex, also lacking soapstone vessels (Knuth 1967:34, 1977/78:21-22). When comparing his Independence I material to other known material from Greenland and Alaska, Knuth noted two characteristics which made it distinguishable: the overall large size and marked side notching on lithic artefacts, both of which were explained as the result of the special requirements of musk ox hunting (Knuth 1967:34, see also 32a, Statistical Table of Independence I material).

Like the Alaskan Denbigh sites (Giddings 1964), those from Peary Land yielded no evidence of an artistic tradition. Radiocarbon dates on indigenous willow charcoal from Knuth's Peary Land sites suggest a maximum occupation of approximately 500 years, from 4500 to 4000 B.P. (Knuth 1983: 24-25).

2.2.2 Port Refuge, Devon Island

The picture of Independence I remained much as Knuth had originally envisioned

from northeastern Greenland until the work of Robert McGhee at Port Refuge, Devon Island, in the Central Canadian Arctic (McGhee 1976, 1979). It was here that excavation and survey work seemed to support the separation of Independence I from the more geographically and temporally widespread pre-Dorset cultures as defined by Collins (1956) to include all occupations prior to the advent of the Dorset Late Palaeoeskimo manifestation.

The Port Refuge Independence I sequence is composed of five sites (Upper Beaches, Cold, Cape Hornby, Lake and Whale) located between 22 and 24 metres above sea level and comprises 55 structural ruins occurring in groups ranging from five to twenty-two. Port Refuge Independence I shares in common with Peary Land the square box hearth constructed of slabs set on end into the beach gravel. In a couple of instances a single row of slabs between one and two metres in length radiated outward from the hearth but no double parallel rows of slabs, as reported by Knuth in Greenland, were recorded (McGhee 1976:16). However, some kind of axial feature seems to have been present in several instances as suggested by the growth of vegetation. As in Peary Land, the presence of storage caches and house construction was used at Port Refuge to identify some features as cold season habitations. Most of the structures at Port Refuge are in McGhee's opinion warm season structures because of their location near a fresh water source. Two cold season sites were suggested as house remains were slightly dugout, have nearby storage pits and caches and are not clearly associated with a fresh water source (McGhee 1976:16).

Both the proposed winter and summer dwellings at Port Refuge are rectangular in shape; the depressions of winter dwellings range from 2 by 3 metres to as large as 2.5 by 4 metres, summer dwellings lack depressions though patterns of vegetation growth suggest a similar dimension. Neither type exhibited periphery hold down rocks although scatters of small boulders both inside and outside the presumed structures were recorded. Independence I dwellings from Port Refuge were also constructed along the edge of the beach terrace on which the occupation was situated in a linear pattern that distinguishes it not only from Peary Land Independence I but also the other occupations identified in the Port Refuge area.

Lithic artefacts include the range reported from Peary Land: burins, burin spalls, microblades, endblades (straight and contracting stemmed, bipoints and thin triangular types), sideblades, concave and straight-edged sidescrapers and various forms of bifaces. All are made of chert and edge serration on endblades and distal ends of burins is a shared characteristic with the Peary Land Independence I components. The large microblades and lance points recovered from Peary Land were not found at Port Refuge though McGhee felt this could be a problem of sampling and may not be indicative of a complete absence of these types from the Port Refuge area (McGhee 1976:18).

Organic artefacts include bone needles with circular cross-section, several fragments of worked bone of uncertain function and five complete or fragmentary harpoon heads (all illustrated in McGhee 1979: Plate 4). No harpoon heads were found in Peary Land and so these Port Refuge examples provided the first glimpse of this aspect of

Independence I technology.

Both the complete ivory specimen and the slightly smaller fragmentary antler example from the Upper Beaches Component are non-toggling and have asymmetrically placed drilled line holes at the proximal end. The complete example also has a bifurcate barb on the same side as the line hole and an endblade slot at the proximal end. McGhee (1976:18) notes that two similar examples lacking endblade slots were found at the Saqqaq site of Itiverna in western Greenland by Jorgen Meldgaard. The Cold Component produced one complete and two fragmentary examples (McGhee 1979:48-49). The complete antler specimen is non-toggling, has a centrally-placed gouged line hole located outside and above the open-socket of the proximal end, has a single bifurcate barb and is self-bladed. A similar design was used for the incomplete ivory example which also has a small non-functional sideblade slot. The third harpoon head, more delicately made, is thought to be for bird hunting. Non-toggling harpoons distinguish Independence I (and Saqqaq) from other groups in the Arctic who used toggling harpoon technology (McGhee 1976:18).

The subsistence pattern in Port Refuge was geared towards exploitation of marine resources (primarily seal) but also included arctic fox and migratory waterfowl. Two seal species (ringed and bearded) account for over ninety percent of the food bone from the Cold Component, which also contained fox, dog or wolf, waterfowl and perhaps larger mammals such as walrus and whale (McGhee 1979:34). The Upper Beaches Component, the only other to yield faunal material, may have been a warm season occupation of short

duration given its high proportion of bird bone (McGhee 1979:61). Hunting was most likely accomplished through a *sina* or ice-edge strategy, though boats may have also been used. Based on the quantity of bone in the middens of the Cold Component the minimum occupation of the structures ranged from less than one week to over three months.

Radiocarbon dates from Port Refuge are problematic as all dated material is either from sea mammals which yield dates centuries older than the actual age of the material, or driftwood which produces dates centuries too young (see Arundale 1981 for discussion of fractionation and the reservoir effect). On the basis of elevation and artefact styles it is estimated that the Independence I occupation of Port Refuge lasted only one or two centuries, contemporaneous with the Peary Land and northern Ellesmere Island Independence I sites (McGhee 1976:25), themselves radiocarbon dated to between approximately 4000 and 3500 B.P. (Knuth 1967:63). The Cold Component is unique in that it produced a bone artefact thought to be a carving of a whale (illustrated in McGhee 1979: Plate 8, k).

2.2.3 Summary of Independence I

Independence I was originally identified through the work of Eigil Knuth in Peary Land where radiocarbon dates on indigenous willow support an interpretation that this is the earliest recognisable human migration into the Eastern Arctic. Although Port Refuge lacks a comparable suite of radiocarbon dates the material recovered from the five Independence I components supports this interpretation.

Populations in the two areas are seen to be part of the same cultural tradition despite the fact that Peary Land and Port Refuge are separated by over 800km (as the crow flies). The Peary Land and Port Refuge Independence I populations share a number of similarities including slab-lined box hearths, midpassage or axial features, fine flaking and careful edge serration on endblades and bifaces, deep serration or notches on some bifaces and burins, bow and arrow technology and bone needles with drilled eyelets.

Maxwell (1985:68) has noted that variation in tools and settlement-subsistence patterns within a single culture should not be unexpected when geographically widespread and varied environments are involved. The Independence I people of Greenland and Devon Island are no exception. Differences between the two areas include the shape of dwellings (oval in Peary Land and rectangular at Port Refuge), economic focus on terrestrial resources in Peary Land versus a marine orientation at Port Refuge, more substantially constructed dwellings in Peary Land, and an absence of large lithic blades and lances in Port Refuge. Another possible point of contrast involves harpoon head technology. Harpoon heads at Port Refuge were designed for seal hunting (McGhee 1979:48); how the rarity of sea mammals in both the frozen waters and middens of Peary Land would affect technology in this region is unclear. Perhaps the absence of harpoon heads and the presence of large heavy stone lance blades (which Knuth believes are an adaptation to musk-ox hunting) may hint that in this area at least the economic focus on terrestrial resources has made a visible impact on the Independence I tool kit.

2.3 Saqqaq

2.3.1 Disko Bay, Greenland

As with Independence I, Saqqaq was also identified and defined from cultural deposits in Greenland, in this case the Disko Bay region of western Greenland. A Palaeoeskimo presence in this area was suggested to have predated the historically known Inuit population (Solberg 1907; Holtved 1944) and collections of lithic material had been known for decades from the area (Pingel 1839) but these had either been grouped with the Thule occupation or dismissed as a localised and unique development of no real significance to the prehistory of the region (Larsen 1956). It was not until a collection of material from the community of Saqqaq was brought to a local museum in 1949 that a pre-Thule occupation, linked to the Denbigh Flint Complex and Arctic Small Tool tradition, was reestablished (Meldgaard 1952). Excavations in Disko Bay during the 1950s finally established a stratigraphical and chronological separation between Saqqaq and more recent Dorset and Thule layers (Meldgaard 1952; Larsen 1956; Larsen and Meldgaard 1958; Mathiassen 1958).

Saqqaq was granted status as a distinct cultural deposit after excavations at Sermermiut, a two-metre thick midden occupied discontinuously from the earliest period of Palaeoeskimo occupation through to the Thule period. Meldgaard (1952) had suggested Saqqaq should be considered separate from Dorset previously and so one of the prime goals of excavation was to locate an undisturbed profile which would clearly show stratigraphically the relationship between the two Palaeoeskimo groups. A 20 metre cut

at the edge of the midden provided this in the form of three distinct cultural deposits; a Saqqaq layer overlain by a sterile layer, two layers containing Dorset artefacts, another sterile layer, followed by a Thule layer (with intrusive Dorset artefacts redeposited during excavation of Thule semi-subterranean dwellings) (Larsen and Meldgaard 1958:12 - 15).

The Saqqaq layer could be distinguished from the overlying deposits not only by the chronological separation indicated by the stratigraphic profile but by the artefacts contained within the deposits. Meldgaard felt that this conclusion was further supported by the fact that none of the tool types found in one layer were duplicated by the people in the other (Larsen and Meldgaard 1958:17-18). The Saqqaq layer produced only lithic artefacts, including burins, burin spalls, small triangular bifaces (with both straight and rounded bases), symmetric tanged bifaces (with pointed and rounded tips), large asymmetric tanged bifaces, concave sidescrapers, retouched flakes, fragments of large bifaces, symmetric slender oval sideblades, slender asymmetric bipoints, small adze blades and triangular convex endscrapers made on long blades. Small bifacial points, interpreted to be arrow points, demonstrated that Saqqaq people had bow and arrow technology. Burins, the dominant tool form, were typically bifacially worked and of a consistently oblong shape. The distal edge of many burins was also ground after spalls were removed. Edge grinding or polish over half of the burin (or more) was also typical. Burin spalls were sometimes retouched and probably served as extremely fine gravers or punches. Angmâq, a locally available siliceous slate, dominated the assemblage with a percentage of approximately 97% (Larsen and Meldgaard 1958:16-18).

At the same time that Meldgaard was excavating at Sermermiut, Larsen was surveying the Disko Bay region for additional Early Palaeoeskimo sites. He found a number of sites which contained artefacts similar to those from Sermermiut and which were identified as Saqqaq but only two, Igdluluarssuk and Saqqaq, were found to be pure Saqqaq sites without intrusive Dorset material. Saqqaq sites or artefacts were distinguished from Dorset on the basis of an absence of microblades, microblade cores, polished points, burin-like tools, endscrapers (flaring, trapezoid and heavy), as well as chipped and notched bifaces (Larsen and Meldgaard 1958:51).

In addition to the lithic types from Sermermiut were several new additions to the known Saqqaq toolkit. Oblong and rounded endscrapers, straight and convex expedient sidescrapers, asymmetric tanged bifaces and bipoints, large symmetric bifaces, spatulate and transverse-edged blades, awls or bodkins, pumice whetstones, stone sinkers or weights and stone lamps were recovered from a number of sites. Edge serration on bifaces, small symmetric lanceolate triangular bifaces and slender symmetric bifaces was also recognised on a number of examples. As at Sermermiut the use of angmâg predominated, approaching 100% of all tools and debitage (Larsen and Meldgaard 1958:51).

Larsen's survey and excavation work in Disko Bay added a new dimension to the known range of Saqqaq material culture in that he identified three Saqqaq dwellings which, although disturbed, provided the first glimpse of their shelters. From the site of Igdluluarssuk Larsen identified two dwellings, both with central box hearths constructed

of stones set on edge into the ground and containing hand-sized stones, probably functioning as cooking or heating stones. The first house, with a secondary corner hearth, also exhibited the remains of a possible floor pavement near the central hearth but no walls or other periphery markers (the edges of the apparently oblong structure were determined by sterile sand and a lack of flakes). The second house, better preserved and overlapping the first slightly, was also of an oblong rounded shape and faced the water. Part of a wall, in the form of a broken double row of head-sized stones, marked the dwelling's edge. The single box hearth was paved with smaller stones and contained cooking stones both in and outside the hearth. Both structures were identified as Saqqaq based on the predominance of angmâq and the similarities of the toolkit to the Sermermiut finds. (Larsen and Meldgaard 1958:44-46)

The second site to yield a Saqqaq dwelling was Tuperssiut, where three fireplaces were recorded although the site was so heavily damaged that the size and shape of the possible dwellings could not be discerned. The best preserved of the three dwellings had a corner box hearth similar to those from the other two known Saqqaq structures, containing cooking stones and ash (Larsen and Meldgaard 1958:34-37). The similarities of these structures to those of the Peary Land Independence I, especially in terms of the oblong shape and square hearth box, were noted by the excavator "but the absence in Disko Bugt [bay] of their characteristic "mid-passage" probably means that there is no connection between the dwelling remains in the two areas" (Larsen and Meldgaard 1958:67).

Larsen's survey work also led the authors to a conclusion regarding the settlement locations chosen by Saqqaq peoples. All identified Saqqaq sites in the Disko Bay area were situated at the base of rocky points which extended outward into the surrounding ocean. Such a location would offer two advantages, providing a good vantage point to watch for sea mammals congregating in the spring near cracks in the pack ice and also providing shelter for possible watercraft (Larsen and Meldgaard 1958:66). Summers may have been spent inland hunting caribou and other terrestrial resources; winter meant a return to the coast (Larsen and Meldgaard 1958:31).

A western origin for Saqqaq was suspected as there were similarities between Disko Bay and sites near Churchill Manitoba (as reported by Giddings 1956). An origin within the Igloolik beach levels of Foxe Basin was ruled out since western Greenland assemblages did not yield microblades while Igloolik lacked the characteristic slender lanceolate Saqqaq bifaces. Therefore a date either younger (within the first millennium B.C.) or older (greater than 4000 years ago) than Igloolik was proposed, the authors favouring the younger date. Saqqaq was also believed to predate the Denbigh Flint Complex of Alaska due the lack of core and flake technology in Saqqaq. The prevalence of grinding (absent in Denbigh material) was also used by Larsen and Meldgaard to support a greater antiquity for Saqqaq (1958:68-69). The length of the Saqqaq occupation in Disko Bay was unclear, as were possible reasons to account for its disappearance.

2.3.2 Foxe Basin, Central Canadian Arctic

Meldgaard's pioneering work at Kapuivik, Jens Munk Island in the Foxe Basin had categorised the material remains from four sites as Saqqaq based on similarities in tool morphology to west Greenland assemblages, though differences between the two areas motivated him to call both the west Greenland and Kapuivik sites different stages of the Saqqaq culture "[i]n order to avoid formulations of a number of pre-Dorset cultures" (J. Meldgaard 1956:591). However, subsequent Canadian researchers have chosen not to maintain this cultural affiliation and instead refer to the material as Pre-Dorset.

As with west Greenland, silicified slate was the material of choice, burins dominated the toolkit, small symmetrical and asymmetric tanged bifaces were common, and (unlike the west Greenland sites) a small number of microblades were recovered . Organic tools were found and included small bone flakers, ivory needles with round eyelets and three toggling antler harpoon heads with open sockets (two were barbed and self-pointed, the third had a slit for an endblade). Bow and arrow technology was also known here. (J. Meldgaard 1956)

2.3.3 Summary of Saqqaq

Saqqaq was first recognised in western Greenland, its geographic range extending to the Foxe Basin region of Canada with the continued work of Jorgen Meldgaard in the Igloolik area. Saqqaq was defined by Helge Larsen and Meldgaard in Disko Bay to exclude later Dorset and Thule migrants and was also felt to be unrelated to the

Independence I culture to the north and west, given a lack of midpassage axial dwellings in Saqqaq.

Lithic tools include burins, burin spalls, symmetric and asymmetric tanged bifaces, symmetric oval sideblades, asymmetric bipoints, large and small symmetric bifaces, end and sidescrapers (concave and straight-edged), awls, transverse-edged blades, stone sinker weights and stone lamps. Serration occurred frequently, as did grinding. The Saqqaq sites from Foxe Basin contained the same basic range of tools, as well as microblades and microblade cores. Organic tools were only recovered from Foxe Basin and include small bone flakers, round ivory needles with round eyelets and toggling antler harpoon heads.

Saqqaq houses appear to have been oblong or oval, with a slab box hearth typically in the centre (though a secondary corner hearth may have also been used). Cooking or heating stones were found both inside and out of the hearth, a floor pavement may have also been constructed and the entrance appears to have faced the water.

Based on their known settlement pattern, Saqqaq people combined a dual terrestrial and marine economy more fully than the marine-oriented Port Refuge or terrestrially-based Peary Land Independence I.

2.4 Pre-Dorset

Collins (1956) had originally defined pre-Dorset as a term including all human populations prior to the appearance of Dorset culture. Today this designation includes not

only a "Pre-Dorset" manifestation as defined in opposition to the other Early Palaeoeskimo groups but also Groswater in Newfoundland (Auger 1984, 1986; Kennett 1990; LeBlanc 1996; Renouf 1994), Labrador (Fitzhugh 1972, 1976; Cox 1978; Loring and Cox 1986), the Lower North Shore of Québec (LeBlanc 1996; Pintal 1994; Plumet 1990) and the southern Hudson Strait region of Québec (Gendron 1990, Plumet 1994). Independence II in Greenland (Knuth 1966/67, 1967, 1981) and High Arctic Canada (McGhee 1976, 1979, Schledermann 1990; Sutherland 1996) and, some would argue, Early Dorset (Tuck and Ramsden 1990; Tuck n.d.) are also seen as pre-Dorset. Independence I and Saqqaq are generally seen as variants of the more temporally and geographically widespread pre-Dorset grouping.

2.4.1 Port Refuge, Devon Island

A single site, the Gull Cliff Component, was used by McGhee as the basis upon which to distinguish Pre-Dorset from the Independence I manifestations at Port Refuge, Ellesmere Island and the Peary Land region of northern Greenland. He used the term Pre-Dorset for this material due to similarities to the "core area" cultural grouping of the same name (McGhee 1976:18). An unexcavated single-feature site, Lookout, was also classified as Pre-Dorset on the basis of elevation alone as none of the artefacts collected were diagnostic (McGhee 1979:106) and cannot be used to support or refute the proposed Port Refuge sequence.

Structural remains at the Gull Cliff Pre-Dorset site, covering approximately 300m

by 50m at an elevation of between 19 and 28 metres above sea level, were classified by McGhee as Pre-Dorset based on dwelling form, layout of settlements, lithic and organic tool variations and a presumed temporal separation in the occupation sequence with Independence I. The Pre-Dorset housing pattern at Gull Cliff is clustered in comparison to the linear pattern reported from the Independence I settlements (McGhee 1976:18). Shelters were not dug into the beach though vegetation growth suggests an irregular rounded form approximately 4 m in diameter. Frequently there is a fan-shaped midden area extending in front of dwellings down the terrace edge. There is no evidence of any permanent walls or periphery markers (sometimes there are unpatterned boulders in and outside of the dwelling) nor is there a formalised hearth, although scatters of burnt bone and charcoal were recorded. McGhee (1976:18) notes that both the style and structure of these houses "contrasts sharply" with the Independence I ruins.

Approximately half as many lithic artefacts were collected from the Gull Cliff Component (n= 463) compared to the five Independence I sites (n= 915) (McGhee 1979: Tables 4 and 8). There were some similarities between the two assemblages but as Bielawski (1988:54) notes, "Pre-Dorset is defined as much by the absence of distinctive attributes ... as by the presence of specific traits". Burins, burin spalls, microblades, microblade cores, endblades (straight stemmed), asymmetric ovate sideblades, endscrapers, concave and straight sidescrapers, drills, unremarkable bifaces and unifaces, biface and uniface fragments and retouched flakes were produced by the Pre-Dorset. Burins were rarely completely bifacially worked and even more rarely exhibit grinding or

polishing. The form of the distal edge also differs from those recovered from the Independence I sites. Some of the burin spalls were retouched distally, microblades are on average smaller than Independence I examples, edge serration is absent and the overall quality of knapping compared to Independence I is decreased (McGhee 1976:18,20).

Organic tools include bone needles with round eyes, barbed antler shaft fragments (possible trident side-prongs), a possible flesher, a possible burin haft, a perforated sea mammal tooth, a piece of polished bone with incised lines in a criss-cross pattern, cut or worked bone and antler and two toggling harpoon heads made of antler. The complete harpoon head (97mm in length) strongly resembles those recovered by Meldgaard on the upper levels of the Igloolik sequence (McGhee 1979:104 and Plate 12, a,b). It has an open socket, a single side barb, two basal spurs, a drilled(?) line hole at the top of the socket, lacks an endblade slit and is self-pointed. Two non-functional sideblade slots on the lateral surfaces are also distinguishable (McGhee 1979:103-105).

Food bone from the middens is proportionally the same as that from the Cold Component (which provided the bulk of Independence I fauna), except that Gull Cliff yielded arctic hare, musk-oxen and fragments of large (unidentified) sea mammal bone in addition to the ringed and bearded seal, polar bear, arctic fox, caribou, dog or wolf and migratory waterfowl also found at the Independence I sites. As with Independence I, ringed seal was the species of choice, foxes were taken in large numbers and waterfowl were fairly uncommon (though the Independence I site of Upper Beaches produced a larger proportion of this type of bone). The faunal remains at this site could not be used to

indicate season of use (McGhee 1979:93 and also Faunal Tables 1,7 and 9).

2.4.2 Summary of Pre-Dorset

The Gull Cliff Component at Port Refuge was classified as Pre-Dorset because there appeared to be closer ties to groups in the Foxe Basin core area than to more northerly populations in Greenland and Ellesmere Island. Round structures with no evidence of a formalised hearth and set in a linear settlement pattern are a major point of difference between Pre-Dorset and the other Early Palaeoeskimo variants. Toggling harpoon heads, an absence of edge serration, less finely made lithic artefacts and a low frequency of grinding also serve to set this occupation apart. Although the Port Refuge sequence remains without absolute dates, on the basis of elevation above sea level Pre-Dorset would appear to have entered the area after the Independence I groups had occupied the terraces at higher elevations.

2.5 Discussion

Division of the Early Palaeoeskimo period in the Eastern Arctic was based on single "type" sites for both the Saqqaq and Pre-Dorset complexes and a "type" region for Independence I. One of the most significant repercussions of this approach is that these cultures were defined on the basis of specific deposits in specific and geographically isolated areas, relatively small sets of data intended to order all subsequent finds into narrowly defined groups. This classificatory system remained adequate so long as the

known range of variability allowed sites and their contents to be assigned to one of the three defined variants. Little room was left for diversity, particularly when a culture was defined to exclude distinctive features or patterns of behaviour.

This means that subsequent material must either fit into the previously defined range or be classed as aberrant, with the risk that such variability can then be ignored or deemed inconsequential to the overall picture. Models intended to order the archaeological record and aid in understanding prehistoric diversity instead became stagnant doctrines into which all subsequent information is forced to fit. Hood (1998:8) has observed that research in the Eastern Arctic has "developed with several regional research circles built around central individuals, each group exhibiting its own conceptual or methodological signature". Whichever group gets its message out first can usually play a leading role in the direction of future research and interpretations.

There has been a tendency in Arctic archaeology to see the Early Palaeoeskimos in exactly this manner, for as research has continued an increasing number of sites have been excavated which display more variability than the existing system of classification can explain. Such sites are typically listed as anomalous (Helmer 1994) or transitional (Nagy 1994) given our inability to clearly assign them to one of the three defined groups. Instead of questioning the model the archaeological record has frequently been disregarded with the result that a great deal of variability has and continues to be ignored in favour of maintaining the existing system of classification.

In subsequent chapters I will develop a picture detailing how the separation of

Independence I, Saqqaq and Pre-Dorset can no longer be so clearly maintained. Explanations based on theories involving a succession of cultures migrating into the Eastern Arctic with little or no relation to each other no longer presents the best explanation for the variability apparent in the record. The Early Palaeoeskimo "cultures" might be better seen as local manifestations of a more widely spread cultural tradition which developed in response to a series of locally applicable factors, with the consequent variability. A model based on processes of continuity and social change appears more suitable than does one content to explain diversity as the result of cultural change, "[r]ather than thinking of these phenomena as things which actually exist, I suggest that it might be useful to conceive of them as components of a shared myth which has been gradually developed and believed with increased firmness over the decades" (McGhee 1983:24).

Chapter 3 Recent Research into the Early Palaeoeskimo Period

3.1 Introduction

Elmer Harp (1964:184) stated in the mid-1960s that the "quickening pace of archaeological research throughout the North American Arctic in recent years has destroyed many of the comfortable, uncomplicated views formerly held about the development of prehistoric cultures there". More recently it has been pointed out that there has been a tendency for the original work of a small number of researchers to be expanded upon initially before stagnating when "the research circle resists new developments [and] is unable to resolve emerging anomalies" (Hood 1998:8).

These observations, made over a period of almost 35 years, question the willingness of the research community to consider or accept findings that contradict the established interpretation of prehistoric events. But should research conducted since the development of the tri-culture system impact our perception of the Early Palaeoeskimo occupation in the Eastern Arctic, and if so, in what ways? Is this information sufficiently compelling for archaeologists to re-evaluate their conception of Independence I, Pre-Dorset and Saqqaq cultures and their relationship to one another? Sutherland (1996:271) has noted that while archaeologists have subdivided the Early Palaeoeskimo period there has been little clarification concerning how each culture was formed or their relationship to one another. How would a revised cultural sequence affect the interpretation of sites in areas such as northern Labrador, which contain a mixture of Pre-Dorset, Independence I

and Saqqaq elements?

The key purpose of this chapter is to answer the above questions by presenting recent work that cumulatively challenges previous conceptions of the Early Palaeoeskimos in the Eastern Arctic. Particular focus will be given to the impact of regional variability on our understanding of prehistoric interactions and the terminology currently in use. While the recognition of specific elements has traditionally been used to assign cultural affiliation and forms the foundation upon which division of the Early Palaeoeskimo period is based, the points of similarity that exist between these three groups have been largely downplayed. Taking a large-scale view, I intend to show that there is more variability within, and similarity between, each of the defined groups than has previously been considered. This indicates that the Early Palaeoeskimo period might be more usefully viewed as a collection of locally adapted groups sharing a base set of common traits rather than as three widespread cultures with uniform technological and subsistence strategies.

While there is general agreement that revision of the taxonomic system is needed (refer to Helmer 1994), attempts to revise the scheme have met with anything but universal approval (see for example Appelt 1997). Initial research focussed on constructing a culture-historical framework in the largely unknown arena of the Eastern Arctic via comparative studies of cultural deposits and artefact typologies from localised areas. Since then a growing body of information has indicated that, rather than geographically widespread but uniform cultures, the Eastern Arctic was actually a highly variable area with a series of locally adapted groups that shared a few key elements while

adapting themselves to their particular ecological zone (Maxwell 1985:98-106).

In order to facilitate discussion concerning the increased variability present in the archaeological record since the division of the three Early Palaeoeskimo cultures this chapter will be subdivided into High and Low Arctic areas, which will then be further divided by geographical area.

3.2 High Arctic

3.2.1 Greenland

As was outlined in the previous chapter, research conducted in Greenland resulted in the definition of two of the three cultural groupings in the Early Palaeoeskimo period. Knuth (1967, 1984) defined Independence I based on his survey and excavation work in the Peary Land region while Larsen and Meldgaard (1958), worked further south in Disko Bay, clarifying the Saqqaq variant. Separation of Saqqaq and Independence I was based on a number of considerations (refer to Table 3.1) which suggested that the northern and south-western Greenland occupations were quite different, leading researchers in both areas to conclude these differences were the result of two separate migrations from the west. Meldgaard (1977:19) later noted, however, that "archaeologists have divided the Eskimo prehistory into an extraordinary number of 'cultures', emphasizing differences at the expense of similarities and relationship". If this is a valid statement, research conducted in the ensuing years may determine if the points of similarity between Independence I and Saqqaq have indeed been minimised.

Following Eigil Knuth's long-term research into the prehistory of Peary Land little new work has been conducted (or at least published) on Independence I material

from this region, more recent work focussing on occupations to the south and east. For this reason little new data has been offered from the area which defined and lent its name to the Independence I occupation and so much of the ensuing discussion will focus on recent work on the Saqqaq culture conducted predominantly in the Disko Bay area but also extending northward. Research in areas relatively new to archaeological reconnaissance has suggested that occupations between the Peary Land and Disko Bay areas may provide the best opportunity to interpret the variability between Independence I and Saqqaq in Greenland.

Cultural Characteristics	Independence I	Saqqaq
Temporal range	Radiocarbon dates place Peary Land occupations between 4070 and 3730 B.P. (Knuth 1966/67:191).	Larsen and Meldgaard (1958) estimate a date either older than 4000 B.P. or within the first millennium, favouring the younger date.
Artefacts unique to each group.	Microblades, large lithic lance blades, various organic tools (see Chapter 2), harpoon heads.	Soapstone lamps and harpoon heads (both toggling and non-toggling).
Treatment of artefacts	Edge serration on distal ends of burins and points. Lithic tools generally large.	Prevalence of grinding on many lithic tools.
Structural form	Oval dwellings with compartmentalised axial features.	Slab box hearths with no axial feature, structures thought to be oblong.
Raw material preference	Chert	Killiaq / Angmâg

Table 3.1 Criteria developed in Greenland for separating Independence I and Saqqaq.

One of the strongest arguments for separating Saqqaq from Independence I was the presumed antiquity of the latter. However, radiocarbon dates from recently excavated sites have not only pushed the date of earliest human occupation back to 4500 B.P. (Møberg 1999:461), but these dates are from Saqqaq (not Independence I) sites, making

Saqqaq the first known occupation of Greenland (refer to Appendix A for a list of dates). The Saqqaq occupation of Greenland was quite long-lived, at least 1200 years (Grønnow 1994) with the first six- to seven-hundred years the most heavily occupied (Kramer 1996b:86). If sheer numbers of radiocarbon dates can be used to gauge the intensity of occupation, the period between 3400 and 3800 B.P. was especially intense (Figure 3.1). Although Independence I lasted a maximum of only 400 years (Knuth 1967), the two do overlap chronologically.

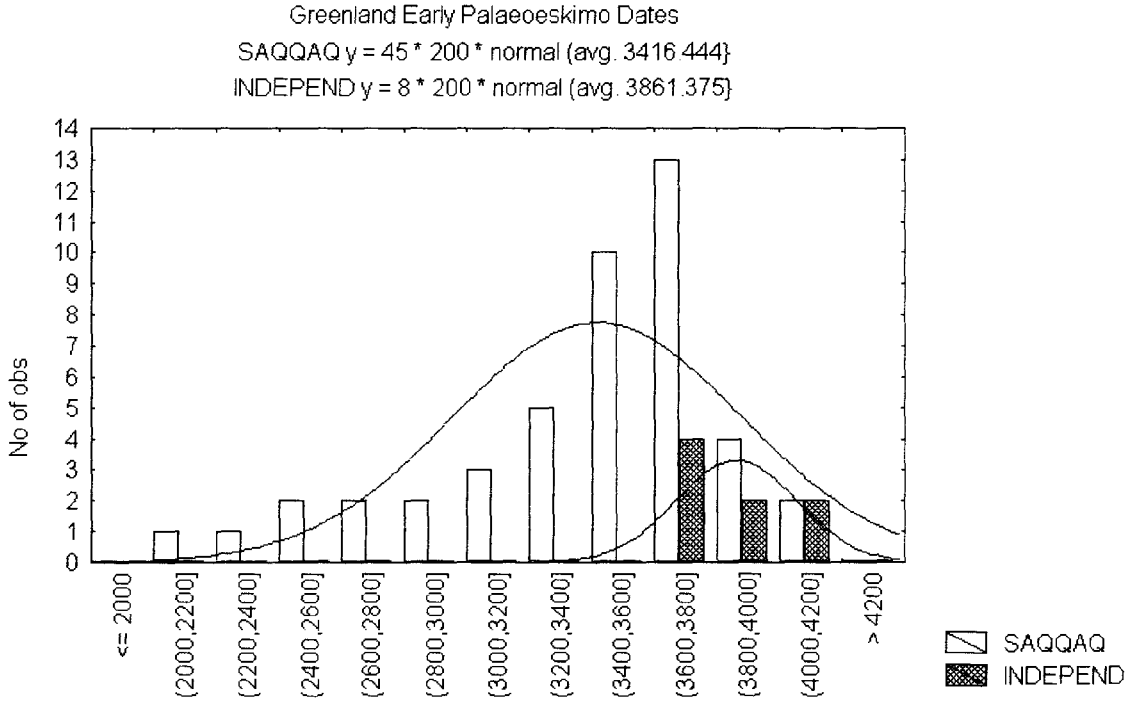


Figure 3.1 Radiocarbon dates for Early Palaeoeskimo sites in Greenland (dates taken from published sources only and exclude driftwood and marine dates). Refer also to Appendix A.

A major impediment to cross-regional comparison of human occupation in Greenland is a general absence of systematically conducted inter-site research (Olsen

1998:109), indeed "knowledge of the early prehistory is still so scanty that nearly every new excavation provides important new data for understanding the Saqqaq culture" (Møberg 1999:452). Bearing this in mind, survey and excavation work has been quite prolific, especially within the past twenty years. Research has shifted away from a strictly culture-historical approach and turned to localised site- and regionally-oriented studies that are beginning to form the foundation upon which future comparative studies will be based (Grønnow 1994:233; 1996:18).

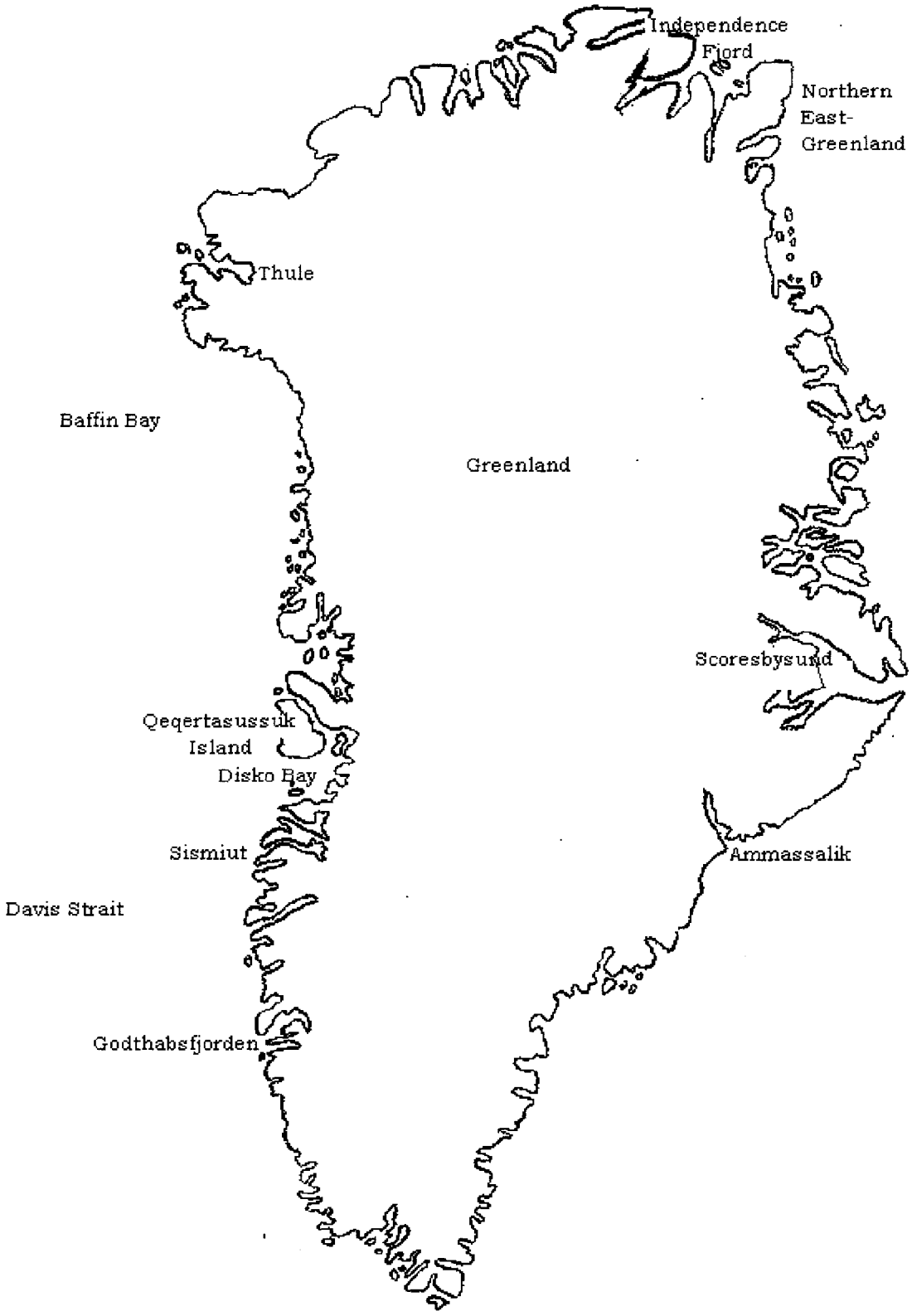
The picture of the Saqqaq culture emerging as a result of this new work would seem to confirm the initial impression of homogeneity (Maxwell 1985:103) through the entire occupational span in western Greenland (Grønnow 1994:232, 1996:29-30). The known Saqqaq tool-kit, both lithic and organic, has been expanded and includes the addition of microblades (Appelt and Pind 1996:135; Møberg 1986:38, 1999:154; Kramer 1996a,b), slender lanceolate to rhomboid projectile points (Appelt and Pind 1996) and flake knives (Møberg (1986: 38) notes they have not previously been found in Greenland and resemble those from Port Refuge (McGhee 1979: Plate 11, j – o). Conical soapstone wicks (Meldgaard 1977:29), soapstone weights and sinkers for fishing (Møberg 1999:456) and serrated-edged tools (Kramer 1996b:86; Møberg 1999:461) have also been identified.

The range of organic tools has been greatly increased as a result of the excavations at Qeqertasussuk, a site in Disko Bay (refer to Map 3.1), where permafrost has provided near ideal conditions, at least in the earlier layers, for organic preservation (Grønnow 1994, 1996, 1997). A variety of driftwood and antler handles (some with lithic

artefacts held in place by baleen lashing) for bifaces, scrapers, microblades and burins were recovered (Grønnow 1994: Figures 7 – 14, 1996: Figure 3.7), as were driftwood ladles (Grønnow 1994: Figures 16 and 17), antler and whale tooth spoons (Grønnow 1994: Figures 18 and 19), bird spears (Grønnow 1996: Figure 3.11) and whalebone atlatls (Grønnow 1994:232; Møberg 1999:456). Fragments of bows and arrow shafts, kayak frames, boat oars and knotted and looped lengths of baleen (possible snares) were also identified at Qeqertasussuk (Grønnow 1994:216 - 217).

Perhaps one of the most surprising developments was the expansion of the known range of harpoon heads. Both toggling and non-toggling closed-socket and open-socket harpoon heads have been identified at Saqqaq sites, the greatest range being reported from Qeqertasussuk (Grønnow 1994, 1997). This site has yielded approximately fifty complete and fragmented examples, which on the basis of stratigraphy and absolute dating have been divided into four related types. Type QT-A are toggling and open-socketed; Type QT-B are tanged, close-socketed, with an asymmetrically-placed line hole in the tang and typically have a blade slit; Type QT-C are tanged with a closed-socket and symmetrically-placed line hole in the tang while Type QT-D are tanged, close-socketed and have a line hole in front of the barb (halfway between the tang and distal end) (Grønnow 1997:129 - 130).

Types A through C were found in all layers of the site (B being the most common) while Type D was more restricted (Grønnow 1997:129 –130), though none were temporally localised (Grønnow 1994:212). The small size of these implements suggests they were used on smaller prey such as harp and ringed seal (Grønnow 1997). A



Map 3.1 Map of Greenland showing areas mentioned in the text.

fifth type of harpoon head was recently identified (but not illustrated) from the youngest component of Nipisat, Sismiut district, by Møberg (1999:456) and was probably used for larger prey such as walrus and whale.

Caribou antler was the preferred material for harpoon heads, although several examples were fashioned on ivory or driftwood, and the design (similar to a caribou's cloven hoof or terrestrial predators such as fox or wolf) reflect a possible terrestrial focus, despite their use predominantly for marine animals (Grønnow 1997:128 - 129). Harpoon heads are quite small (Grønnow (1997:129) reports the average length is under 65mm) and the technology as a whole was quite light and probably involved use of an atlatl throwing board, several or which have been recovered from sites other than Qeqertasussuk (Grønnow 1994:232; Helmer 1986:192; Møberg 1999:456). Small ground endblades were wedged into harpoon heads with end-blade slits while self-pointed toggling examples may have been the most heavily reworked and "probably had changed function during their 'life-time'" (Grønnow 1997:129). Kramer (1996b) and Meldgaard (1977:28) have also reported harpoon heads from sites in Sismiut and Godthåbsfjord districts that fit into the range reported from Qeqertasussuk.

The seasonal round of Saqqaq peoples is becoming better known, indicating a dual marine and terrestrial focus (Andreasen 1996:180 – 181; Kapel 1996:41 – 42; Kramer 1996a:42 – 43; Møberg 1986:21,50) in areas that, for at least the earlier part of the Saqqaq occupation, were rich and ecologically diverse (Grønnow 1996:27; Møberg 1999:462 - 463). Most known Saqqaq sites are coastal (Møberg 1986:21), a situation no doubt influenced by the fact that most archaeological reconnaissance has traditionally

been focussed on the coastal margin. Despite this restriction, Saqqaq people appear to have exploited inland locations quite regularly in a pattern not unlike that reported amongst historically known Inuit groups (Grønnow *et al.* 1983).

Saqqaq sites have been located in three predominant zones; outer coastal, inner fjord and inland locations. Fitzhugh (1984:535 – 536) notes identification of site types (such as base camp, hunting station or butchery location) has typically been based on topographical and ecological considerations as well as the size and amount of material recovered, supplemented by ethno-historical information (Olsen 1998:109). Outer coastal locations, often on headlands near polynyas or areas experiencing early break-up, are most commonly associated with summer sea mammal hunting (Andreasen 1996:178 – 181; Larsen and Meldgaard 1958:66; Meldgaard 1977:30; Møberg 1986:50), and may have been areas of social gathering during the winter (Kramer 1996b). Inner fjord locations were probably occupied from spring through autumn when spawning char could be caught and where access to both outer fjord and inland zones could be maintained (Kramer 1996a:42 – 43, Møberg 1986:50). Inland locations were used primarily for caribou hunting (Appelt and Pind 1996; Grønnow *et al.* 1998; Møhl 1972; Olsen 1998), possibly during the summer and autumn (Kramer 1996a:42).

Some sites, notably Qeqertasussuk in Disko Bay, were occupied year-round initially before becoming seasonal (Grønnow 1994:218) as part of a more wide-ranging and mobile pattern in later Saqqaq times (Olsen 1998:218). Generally speaking, the Saqqaq subsistence base was quite diverse and involved exploitation of a wide range of marine and terrestrial animals (Grønnow 1996; M. Meldgaard 1991; Møberg 1999).

The known range of shelters used by Saqqaq people has also been supplemented, though the majority of reported shelters date to the earliest part of the Saqqaq period (Møberg 1999:457; Olsen 1998:122). Saqqaq dwelling types are now known to include axial features with or without a surrounding tent ring, tent rings with or without central hearths and platform-type structures (Olsen 1998:116). Negative axial features (constructed with an open rectangular-area between two semi-circular stone pavements instead of the typical parallel-walled feature) have been reported east of Peary Land in Northern Eastgreenland (Andreasen 1996:180). Turf or other materials (possibly snow) may have been used to form part of the outer wall (Meldgaard 1991; Olsen 1998:109). The majority of identified dwellings contain large numbers of egg to fist-sized rocks, often exhibiting signs of thermal damage, used for cooking and heating purposes (Olsen 1998:84).

At least one researcher has interpreted the variability reported in the types of dwellings constructed by Saqqaq peoples as due, at least in part, to chronological factors (Olsen 1998). Structures with axial features constructed with thick stone slabs and associated with abundant deposits of cooking stones may have been built during the earliest phase of Saqqaq occupation (Olsen 1998:109). Axials using thinner flagstones, with fewer boiling stones and "expansions" of the box hearth were constructed slightly later. Platform dwellings (where a stone platform was constructed between the hearth and wall, used for sleeping or sitting) were used during the final period of occupation, at least in Disko Bay (Olsen 1998:123). However, only two platform dwellings have been recognised in all of Greenland, making this a highly localised occurrence (Olsen

1998:103 – 105,123).

Possible chronological indicators have also been identified in the lithic technology of Saqqaq groups. While Saqqaq culture has typically been seen as very homogenous (Maxwell 1985:103), a small number of researchers believe it is possible to recognise some chronological change. Such chronological markers, to be briefly outlined below, may include choice of raw material, artefact form and frequency of artefact types.

Region (refer to Map 3.1 for locations) / Reference	Dwelling type(s) reported				
	TR with hearth	TR without hearth	Platform	Axial	Negative Axial
Gothåbsfjorden / Nuuk (Appelt and Pind 1996; Møberg 1999	YES	YES	NO	YES	NO
Northern Eastgreenland (Andreasen 1996)	YES	YES	NO	YES	YES
Disko Bay (Grønnow 1994; Møberg 1999; Olsen 1998)	YES	YES	YES	YES	NO
Sismiut (Kapel 1996; Kramer 1996b; Møberg 1999	YES	YES	NO	YES	NO

Table 3.2 Saqqaq structural types reported from various areas of Greenland (TR = tent ring).

Working in the Sismiut district of western Greenland, Kramer (1996a,b) has reported that the sites he has investigated show changes in the frequency of killiaq (previously referred to as angmâq) through time. It was found that killiaq frequencies were the highest (between 70% and 100%) for sites at the highest elevations, presumably early Saqqaq, while the percentage fell as sites decreased in elevation (Møberg

(1999:456) notes the same pattern at Nipisat, Sismiut District). In contrast, the use of both quartzite and agate (a general term for a number of minerals, including chert) increased during the later stages of Saqqaq in the area (sites with 15% or more quartzite are considered late Saqqaq) (Kramer 1996a:51).

Kramer (1996a:55) also attempted to link variation in tool types with temporal change. Two sites from the Sismiut region (Akia from the earlier part of Saqqaq and Nipisat was from a later period) suggest there is a reduction in the size of burins and other killiaq artefacts during the Saqqaq period (although the author notes differences may result from functional or seasonal considerations). Transverse-edged tools and small triangular harpoon points were not found at Nipisat, Kramer (1996b:86) suggesting the latter were no longer necessary due to a switch from harpoon heads with a blade slit to a type that was self-pointed (Appelt (1997:35) also notes that these two tool types disappear by the beginning of the late Saqqaq period). Grønnow (1994:228, 232) has also proposed that burin shape changed during the occupational span of the Qeqertasussuk site, from large and square-shaped in early Saqqaq to more slender and tapering by late Saqqaq times. Grinding, apart from that on burins and adzes, is absent at older sites and seems to become a common treatment only during the later period of Saqqaq (Kramer 1996b:86).

Akia and other early Saqqaq sites in the district also lack soapstone, prompting a suggestion that this "might indicate that lamps and vessels of soapstone were not common elements in the artefact inventory of the initial Saqqaq inhabitants of Western Greenland" (Kramer 1996a:86). It has also been suggested that lithic points with marked

tangs (some with edge serration) are type artefacts for the early Saqqaq period while those lacking marked tangs and serration occurred later in the Saqqaq period (Kramer 1996a:58).

		Characteristics unique to each period.
Period	Early Saqqaq (c. 4500 – 3400 B.P.)	Atlatls, elongated points with marked stems and tangs, larger range of raw materials(?), burins larger and square-based, transverse-edged tools, triangular endblades, transverse-edge tools, grinding rare, edge serration.
	Late Saqqaq (c.3400 – 2500 B.P.)	Soapstone lamps, pots, sinkers and weights. Bevelled and polished stone tools, harpoon head for larger marine prey, switch to self-pointed harpoon heads(?), burins smaller and tapered, predominance of killiaq(?), no edge serration, grinding common.

Table 3.3 Traits used to distinguish Early and Late Saqqaq sites in Greenland (dates for Early and Late periods are approximations as the start / end dates vary by region).

These proposed chronological shifts in the Saqqaq lithic toolkit do not appear to be universally applicable. Working slightly to the south of Sisimiut on a late Saqqaq site in Godthåbsfjord, Appelt and Pind (1996:142) note that the high percentage of killiaq artefacts recovered should, according to Kramer's proposal, indicate an early Saqqaq affiliation. The Qeqertasussuk site in Disko Bay also shows increased use of killiaq in the younger layers of the site and an overall trend for greater uniformity (Grønnow 1996:31), again reversing the chronological trends observed in Sisimiut. It could be argued that killiaq frequencies remain high in Disko Bay because the killiaq outcrops are located in this region (Grønnow 1996:19), making access to the source in later periods less of problem for those living at Qeqertasussuk than for those in Sisimiut. However, given that

killiaq frequencies also increased in Godthåbsfjord (Applet and Pind 1996:141 - 142) which is further from the killiaq source than Sisimiut, access problems appear to be less of a problem than other unknown or unrecognised considerations.

While Gulløv (1985) discusses north-south trading patterns in the early historic period and factors governing access to specific resources, no such study has yet been attempted for the prehistoric period in western Greenland. Whether such a study might reveal the beginning of regionalism during the Saqqaq period, with raw material choice one indication of group affiliation, .

3.2.2 Ellesmere Island

Independence I was first reported from this area when Knuth (1965) conducted a survey of the region as an extension of his work in contiguous Greenland. While the cultural affiliation of these sites has been associated with the Peary Land populations, it has been noted that there does exist some measure of variation between populations in the two regions (Sutherland 1996:274). Further south in the Bache Peninsula area are a number of sites most clearly linked to Greenland's Saqqaq culture (Schledermann 1990:56 – 85) while Late Pre-Dorset sites, considered distinct from earlier Saqqaq occupations, were located in the mid-1970s (Schledermann 1978; 1990:118).

Work on Ellesmere Island has been concentrated in two areas (refer to Map 3.2), the Eureka Upland area to the far north (Sutherland 1996) and the Bache Peninsula region approximately halfway down the eastern coast (Schledermann 1978, 1990). Research in the Eureka Upland area has identified an Independence I occupation that, as in Peary Land, was terrestrially focussed (extensive sea ice cover precluding the spread of sea

mammals to this region for much, if not all, of the year) and followed a highly mobile existence (Sutherland 1996:271 – 272). Analysis of artefact types recovered from sites in the area (Sutherland 1996: Table 22.1) demonstrates that the basic tools identified by Knuth (1967 and Chapter 2) are present in northern Ellesmere Island. There is slight variation both in terms of artefact style (for example the manner in which burins were treated for hafting) and raw materials but the implications of these differences are not understood (Sutherland 1996:275).

Although Sutherland (1996) argues for population continuity between 4500 and 2200 B.P., it has been difficult to establish a link between changes in the artefact assemblages from the Eureka Upland area with chronological factors. It appears that early sites such as Sojourn I and II, dating between 4700 and 4300 B.P. (Sutherland's unpublished date of 4900 B.P. (pers comm. to Hood (1998:17) places occupation even earlier) possess elements, such as adze blades, not found in later sites. Younger sites like Westwind, Daylight and the Kettle Lake sites have an average date of c. 3800 B.P. and posses slightly different assemblages (Sutherland 1996:278 – 280). A trend towards uniformity from older to younger sites (as was reported by Kramer (1996a,b) for Saqqaq sites in Sismiut district, Greenland) in both raw materials and artefact forms is also evident in Independence I sites in the Eureka Upland (Sutherland 1996:280).

The arrangement of Independence I structural remains from the Eureka Upland have been recorded as both linear along fossil beach terraces (as reported by McGhee 1976, 1979 for Port Refuge) and clustered where such ridges do not exist (Sutherland 1996:276). These structures are subdivided into four types; tent rings with central hearths,

tent rings without central hearths, slightly dugout areas without evidence of a structured hearth, and axial features (Sutherland 1996:276). Reasons for this structural variability are unclear, attempts to link this variability with site function have generally proven unsuccessful (Sutherland 1996:279).

Sutherland (1996:278) believes it may be possible to establish the season of use for sites or components based on faunal remains. She interprets warm season sites to be those containing elements of sub-adult musk-ox and migratory waterfowl while cold season occupations would be those sites or components that lack such season-specific material (this interpretation assumes that meat was consumed in the season it was killed and not stored for later use). The use of faunal remains is one of the few ways to establish season of use, for as in Peary Land, selection of sites, irrespective of dark / winter or light / summer seasons, did not seem to require different selection criteria. While Independence I groups in both areas depended heavily on nomadic musk-oxen it is currently impossible given present knowledge to conclude whether the Independence I settlement pattern on Ellesmere Island is comparable to that in Peary Land, involving large numbers of short-term sites covering vast expanses of territory.

Excavations in this region have pointed to population continuity rather than replacement in the Early Palaeoeskimo period given sites cannot be clearly distinguished culturally and where "cumulative small differences ... suggests a process of gradual stylistic change through a long-lasting local tradition, rather than one of cultural replacement" (Sutherland 1996:280).

Further south on the Bache Peninsula (refer to Map 3.2), research has identified a

Saqqaq presence in addition to Independence I and late Pre-Dorset (Schledermann 1990). The Independence I occupation in east-central Ellesmere Island was quite short, possibly less than 100 years, making an Independence I presence in this region much briefer than occupations in Peary Land and Port Refuge (Schledermann 1990:316). The three dates (excluding a rejected ivory date and three on driftwood) tightly place the occupation between 3900 B.P. and 4000 B.P. (Schledermann 1990: Appendix B).

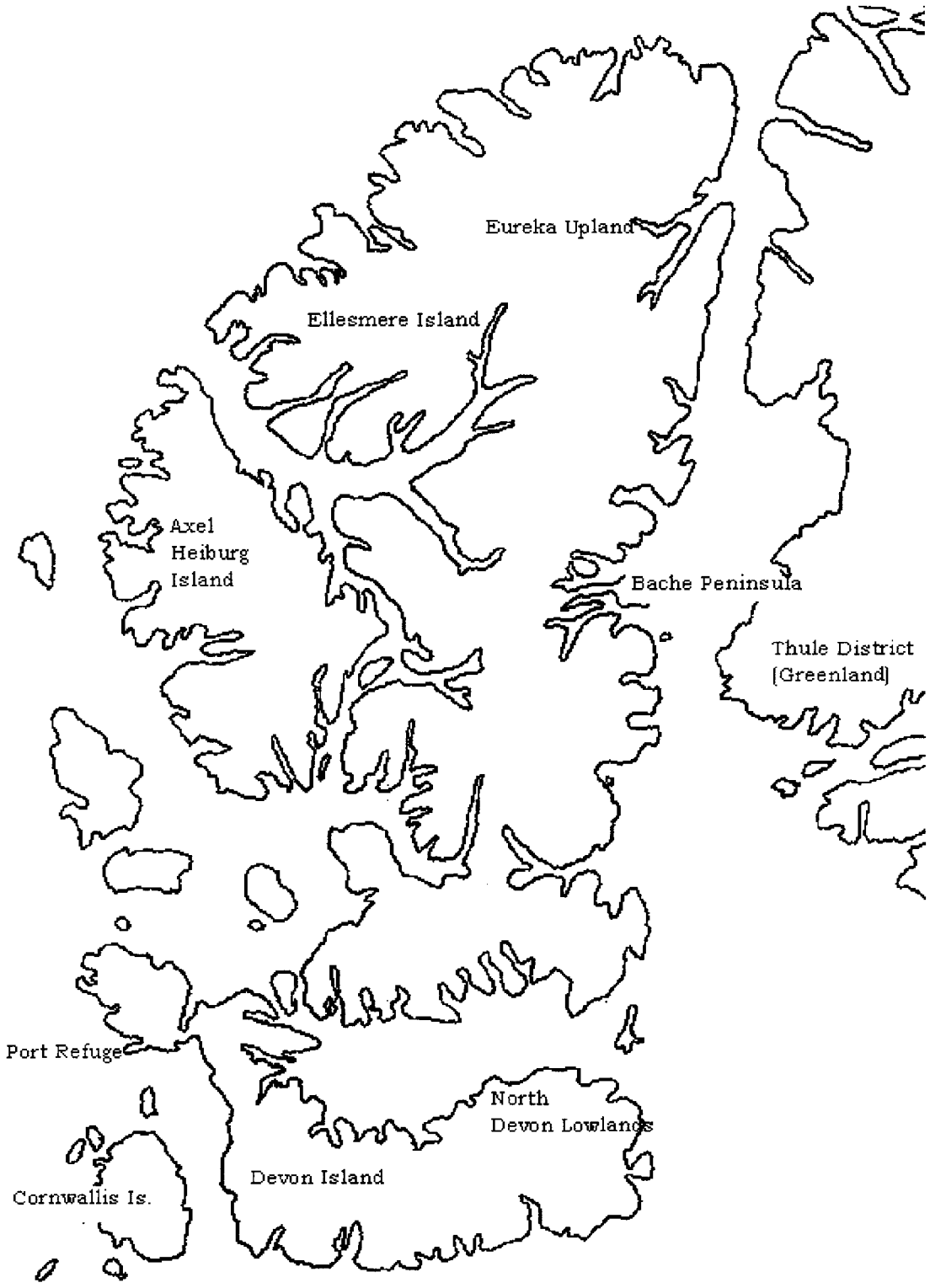
In comparison to Early Palaeoeskimo groups further north there are a number of readily apparent differences, notably a shift away from terrestrial resources and towards the marine environment, reflected in a preference for sites located on the coast or near polynyas (Schledermann 1980; 1990:314). Various seal species were the target of choice and an apparent open water hunting strategy would seem to dictate the need for some sort of watercraft, though none was preserved (Schledermann 1990:50). Terrestrial mammals in this area were a smaller element of the overall Early Palaeoeskimo occupation although they were still utilised and may have supplemented the diet when marine resources failed or were unavailable (Schledermann 1990:50 – 51). Connections with Greenland were maintained, particularly when the North Water polynya extended into Kane Basin (Map 3.2) and the area could boast a concentration of resources, especially in seasons when late break-up of pack-ice forced animals to linger in this region (Schledermann 1980, 1990:315).

It is possible to identify the season of use for many of the Independence I sites on the Bache Peninsula. Warm season locations are thought to be those sites located in coastal zones on fairly exposed headlands where activities off of the coast could be

monitored and where easy access was assured (Schledermann 1990:317). Structures associated with such occupations contain a limited number and range of artefacts, have small associated middens and generally involve lightly constructed ephemeral structures or slightly more substantial tent rings either bounded by anchoring stones or a raised gravel wall (Schledermann 1990:317).

Independence I cold season dwellings would appear, as in other areas (Knuth 1967; Maxwell 1985; McGhee 1976, 1979), to be structures that were more solidly constructed with a slab-lined axial feature (Schledermann 1990:317). Interpretation of these features as winter season structures is further justified by the location of such dwellings in sheltered locations, often positioned to catch the maximum amount of sunlight. As in Peary Land the majority of artefacts were found in close association with the axial feature (Knuth 1967:49) although in general a paucity of artefacts argues against long-term occupation of such dwellings (Schledermann 1990:317). Occupation of this type of structure may have been restricted to the late fall and early winter before being abandoned for snow houses on the sea ice (Schledermann 1990:318) or snow-banked tents (McGhee 1979:125).

In total, five types of structural remains were associated with Independence I in this area; irregular stone arrangements with thin middens, round / oval dwellings with raised gravel walls and central hearths with boiling stones, isolated hearths with boiling stones, round / oval raised gravel walled structures with a central hearth and associated boiling stones, and slab-lined axial features with a central box hearth (Schledermann 1990:51). Generally, axial features were constructed by setting flat flagstone rocks on



Map 3.2 Map of the High Arctic showing places mentioned in the text.

end (sometimes with support rocks to make the wall more stable), although in one example a combination of angular flagstones and small boulders were used to create the parallel axial row (Schledermann 1990:47).

None of the recorded structures from the Bache Peninsula are comparable to the slightly dug-out and gravel-rimmed rectangular structures published from the Port Refuge sites (refer to McGhee 1979: Figures 7, 10 and 17). Instead, Independence I structures from this region of Ellesmere Island resemble the more northerly Early Palaeoeskimo sites with a predominance of axial type structures (Schledermann 1990:317). Schledermann does note that there are structures further to the south at Cape Faraday that more closely resemble those reported from Port Refuge, except these seem to have a closer affiliation to the Saqqaq variant (1990:317). Another point of departure between Bache Peninsula and Port Refuge is an absence of the linear settlement pattern recorded for Port Refuge Independence I sites (McGhee 1976:25).

The Saqqaq presence in the region seems to be nearly contemporaneous with the Independence I occupation, with dates (excluding one on driftwood) averaging c. 3625 B.P. (Schledermann 1990: Appendix B). This average date falls well within the range recorded for Greenland and well within the period of most intensive occupation of that region by Saqqaq peoples (Kramer 1996b:86, also refer to Figure 3.1). As in Greenland, there were at least periodic instances where specific locations had sufficient resources to support a year-round permanent human population, polynyas appearing especially attractive to prehistoric human groups (Schledermann 1980). But in general the pattern of

settlement in the region during the Saqqaq period is best viewed as a number of brief occupations by single family groups (Schledermann 1990:314). Whether this is a case where Saqqaq groups in Greenland expanded to the Bache Peninsula via Kane Basin during optimal periods before retracting when conditions became less advantageous (much like the scenario proposed for the Foxe Basin, see papers in Maxwell (1976a) for discussion) is not currently known.

As with Independence I groups in the area, the Saqqaq settlement-subsistence pattern was based in large measure on coastal resources, though terrestrial mammals were also exploited. Similarities with the Independence I occupation include grinding of specific artefact types (notably burins and some bifaces), similarities in the style of burins, the presence of bipointed and shouldered projectile points (Schledermann 1990:71) and serration of some bifaces (Schledermann 1990:72). Flake knives (as reported by McGhee (1979:Plate 11, j – o) for Independence I and Møberg (1986:38) for Saqqaq) were also recorded, as were microblades (Schledermann 1990:59 – 79). It is notable that grinding of lithic tools may have only become common in the later stages of Saqqaq in this area (Schledermann 1990:71), a pattern also recorded for some early Saqqaq sites in Greenland (Kramer 1996b). In general, the artefact range reported for the Bache Peninsula fits rather nicely into the range recorded for Saqqaq sites in Greenland.

Saqqaq housing is also quite variable in this region and includes tent rings with gravel walls and no central hearth (Schledermann 1990:59 – 63), tent rings with central hearth (Schledermann 1990:79) isolated box hearths with boiling stones (Schledermann 1990:77 –79) and axial features (Schledermann 1990:77 – 79, 83). As with Greenland, a

combination of these types of dwellings can be located within one site, and as with Greenland Saqqaq sites the significance of this observation (potentially chronological or seasonal factors) is not understood.

The final Early Palaeoeskimo culture reported from Ellesmere Island is a Late Pre-Dorset manifestation on the Bache Peninsula, with two radiocarbon dates (which were slightly older than expected) averaging c. 3075 B.P. (Schledermann 1990:Appendix B). There is a chronological gap between Saqqaq and Late Pre-Dorset, with reoccupation of the Bache Peninsula area following abandonment of eastern Ellesmere Island and perhaps the Smith Sound region in general from 3150 – 2850 B.P. (Schledermann 1990:323). While Ellesmere Island was largely depopulated, Saqqaq culture continued in Greenland until approximately 2500 B.P. (Møberg 1999:460) and there are some indications that Greenland Saqqaq and Late Pre-Dorset groups might have had some contact with one another (Schledermann 1990:323, 326).

Attributes of Saqqaq culture that may have been transmitted to the Late Pre-Dorset population include the style of burins and projectile points, surface grinding of lithic tools and the axial dwelling (Schledermann 1990:322, 326). Such transmission from a "fringe" to a "core" area population (see papers in Maxwell 1976) contradicts the general view of contact between these two regions. The possibility that a High Arctic culture could influence events in the Low Arctic core region (centring on the Foxe Basin) is a novel idea in need of further investigation (Schledermann 1990:323 – 324). Furthermore, it may be possible that clarifying Saqqaq's relation with Late Pre-Dorset in

the area might help to reveal the true relationship between Late Pre-Dorset and subsequent Dorset groups, where the idea of continuity and discontinuity in the archaeological record has been hotly contended for decades (Nagy 1994).

While Saqqaq's possible role in the development of Late Pre-Dorset traits, along with the role the latter might have in the evolution of the Late Palaeoeskimo Dorset culture, is an intriguing idea it is beyond the scope of this thesis which struggles to contain itself to the Early Palaeoeskimo period.

Contrasting the culture sequence, anchored on continuity, in northern Ellesmere Island, Schledermann's interpretation of prehistoric events on the central east coast of Ellesmere argues for population discontinuity and replacement of earlier cultures (Independence I and Saqqaq) by later Pre-Dorset groups originating in the Foxe Basin "core" region (Schledermann 1990:118). Variation in the intensity of occupation of this area of the Eastern Arctic in many ways appears typical for the Eastern Arctic as a whole, demonstrating that "broad regional models ... proposed in the past are empirically inadequate and should be abandoned in favour of more particularistic local reconstructions" (Schledermann 1990:316).

3.2.3 Devon Island

Working in the Devon Lowlands (refer to Map 3.2) to the north-east of Port Refuge (where McGhee (1976, 1979) initially argued for cultural discontinuity between Pre-Dorset and Independence I groups), James Helmer (1986, 1991, 1992) has recorded a number of sites that typologically fit none of the Early Palaeoeskimo cultures as currently

defined. Work in this region has prompted Helmer (1994:16) to largely reject current models of culture history as encumbered by "terminological ambiguities and logical inconsistencies".

The recorded sites have allowed for the construction of five complexes, each hinting at external relations with both the High and Low Arctic regions. Four of these complexes can be associated with the Early Palaeoeskimo period; Far Site (Early Pre-Dorset), Icebreaker Beach (Early – Middle Pre-Dorset), Twin Ponds (Middle Pre-Dorset) and Rocky Point (Late Pre-Dorset). The Far Site complex is the oldest with dates of c. 4200 – 4000 B.P., followed by Icebreaker Beach with a range of dates between c. 4500 – 2800 B.P., Twin Ponds (c. 3650 – 3300 B.P.) and finally Rocky Point (c. 3200 – 2800 B.P.) (Helmer 1991:305 – 312).

All of the complexes have been classed as Pre-Dorset, though the presence of external influences in the material culture remains has prompted Helmer (1991:316) to suggest each of these complexes was influenced at different times by different regions of the Eastern Arctic. Helmer sees elements of Independence I in the oldest Far Site complex, while Icebreaker Beach sites have components of Independence I and Saqqaq as well as more southerly Pre-Dorset elements, and Twin Ponds more closely resembles Middle Pre-Dorset sites to the south and west and may represent an *in situ* development from the earlier period (Helmer 1991:316). The Late Pre-Dorset Rocky Point sites again seem more closely aligned with southerly populations, though there are indications of a northern influence (Helmer 1991:316).

Independence I elements as defined by McGhee (1976:25) in the Far Site complex

assemblages include axial features, serration on endblades, stemmed and bipointed bifaces, multiple notching of burins and scrapers and larger overall size of the lithic material (Helmer 1991:304). The Far site complex does lack two notable Independence I characteristics, endblade bipoints and tapering stem bifaces, both of which have been recorded in Independence I assemblages elsewhere in the Eastern Arctic (Helmer 1991:305). Radiocarbon dates ranging from 4360 – 3620 B.P. (Helmer 1991:305) agree with dated Independence I components elsewhere in the region (refer to Appendix A).

Icebreaker Beach was termed "ambiguous" by Helmer (1991:316) because of the mixture of elements that have been recorded. Pre-Dorset elements are apparent in the presence of straight-stemmed bifaces, open-socketed self-pointed toggling harpoons (Helmer 1991:Figure 8, c,d) that call to mind Saqqaq examples, and there is also an absence of serration on some bifaces (Helmer 1991:307 – 308). An Independence I influence was suggested by the presence of small triangular straight-based endblades (often with edge serration), small bipointed endblades, tapering-stem bifaces and ovate sideblades, as well as non-toggling harpoon heads, considered to be diagnostic of Independence I culture (McGhee 1976:25). Saqqaq elements include tapering stem bifaces, bipointed endblades (Helmer 1991:308) and both toggling and non-toggling harpoon heads (Grønnow 1997). Unlike the Saqqaq material reported from Greenland (see section 3.2.1 on Greenland) and Ellesmere Island (section 3.2.2), extensive polishing of artefacts is not apparent in the Icebreaker Beach complex.

Additionally, Icebreaker Beach has yielded elements of material culture found in both Independence I and Saqqaq contexts. These include flakes knives like those reported

for Independence I (McGhee 1979:Plate 11, j – o) and Saqqaq (Møberg 1986:38) and the non-toggling barbed harpoon head with endblade slit (Helmer 1991:Plate 8:a, b) recovered from other Early Palaeoeskimo sites (McGhee 1979:Plate 4,q; Grønnow 1997:Figure 3). Structures include tent rings with one or more hearths similar to those recorded by Larsen (Larsen and Meldgaard 1958:44 - 46) for Saqqaq sites in Disko Bay, a potential snow shelter as reported by Olsen (1998:109) and McGhee (1979) and a very disturbed possible axial dwelling (Helmer 1991:305).

While the sites associated with this complex have been dated to between 4500 and 2800 B.P., Helmer (1991:306) notes that the oldest and youngest dates may be problematic, instead believing a range between 3850 and 3700 B.P. is more accurate. These dates are roughly contemporaneous with the Bache Peninsula Saqqaq dates (Schledermann 1990:Appendix B) and coincide with the period of greatest intensity in the Saqqaq occupation of Greenland (Kramer 1996b:86). It is unclear if migrating Saqqaq groups could have played a direct role in developments on the North Devon Lowland at this time or if this presumed influence was more of a secondary nature. Helmer feels the variability apparent in this complex indicates a transitional phase between Independence I and Pre-Dorset, although he notes this opinion may be an over-simplification of the relationship between the Early Palaeoeskimo populations in the Eastern Arctic at that time (Helmer 1991:308).

The Early/Middle Pre-Dorset Twin Ponds complex sites (estimated to date between 3500 and 3300 B.P.) resemble the Gull Cliff component at Port Refuge (Helmer 1991:309). Shared traits include tapering and straight stemmed bifaces and endblades,

flared end scraper and flake knives, differences include a lack of small concave-based endblades and open-socketed toggling harpoon heads at Twin Ponds and triangular sideblades and open-socketed barbed harpoon heads in the Port Refuge sites (Helmer 1991:309). Continuity between Icebreaker Beach and Twin Ponds is suggested given "the degree of typological overlap is so great as to complicate taxonomic placement of some of these assemblages" (Helmer 1991:309). There appear to be no obvious links between this complex and Saqqaq assemblages further north (Helmer 1991:310).

As with the Pre-Dorset assemblages reported from Bache Peninsula (Schledermann 1990:91 - 126), the final complex identified at Devon Island, Rocky Point, is very late in the Pre-Dorset sequence and appears to have no direct linkage to the earlier Palaeoeskimo occupations to the north or south. The relevance of this complex to the current issues revolving around the Early Palaeoeskimo period are not apparent and this complex will not be discussed further.

An important development of the North Devon Lowlands research is a reiteration of the difficulties associated with the continued use of a classification system based on localised areas of the Arctic. This system assumes that the solutions reached by one population dealing with the challenges of one environment would be virtually identical in other areas, where populations might face an entirely different situation.

3.2.4 Summary of High Arctic Research

Greenland and the Arctic islands north of the Parry Channel were home for both Independence I and Saqqaq peoples, as well as later Pre-Dorset groups originating to the south in the Foxe Basin region (Maxwell 1985:80). Similarities between Independence I

and Saqqaq groups had been noted by investigators, though initial research suggested they were sufficiently different to be considered culturally distinct. But subsequent research has indicated that many of these perceived differences are in fact an artefact of the state of archaeological investigation at the time.

Independence I and Saqqaq have long been considered distinct on the basis of artefact types (Table 3.1). However, the presence or absence of edge serration and grinding of lithic artefacts as well as the use of soapstone vessels may be linked to chronological considerations. Earlier Saqqaq groups, like their Independence I counterparts, appear to have ground very few of their stone tools although this manufacturing technique is reported in both areas. Elling (1996:194 – 195) has also suggested the softer killiaq material used by Saqqaq was more easily ground than was the harder chert favoured by Independence I groups. Edge serration was not uncommon in early Saqqaq assemblages, and this treatment was also practised later in the period. Soapstone has never been recovered from an Independence I site, although Schledermann (1990:318) notes that soapstone finds from Early Palaeoeskimo sites are in general quite rare throughout the Eastern High Arctic. Soapstone is also absent in early Saqqaq assemblages and, like Independence I, Saqqaq people appear to have depended on open fires in box hearths for heat and light.

Both Saqqaq and Independence I groups shared similar harpoon head technology, as a comparison of harpoon heads found by McGhee (1979:Plate 4,q,s – v) and Helmer (1991:Figure 8,a d and Figure 11,oo) on Devon Island with those reported by Grønnow (1997) will attest. A survey of excavated sites in the Eastern Arctic has also shown that

the use of axial features, tent rings and the box hearth was a common feature of Independence I and Saqqaq occupations.

Finally, despite many problems associated with the radiocarbon dating method (refer to Chapter 1.3 for an overview) it is now clear that Independence I and Saqqaq occupied the Eastern High Arctic at approximately the same time, the latter apparently persisting until the beginning of the Late Palaeoeskimo period. The later Pre-Dorset occupation, although hampered by a lack of dates on non-marine material, appears in the region slightly later (as represented on Figure 3.2) and may have encountered resident Saqqaq groups.

The Pre-Dorset dates plotted in Figure 3.2 show a remarkable correspondence with the Saqqaq dates from Greenland and Ellesmere Island. With the exception of the two earliest dates relating to the later Pre-Dorset period on the Bache Peninsula of Ellesmere Island (Schledermann 1990:91 – 126), the others are from excavations on the northwestern coast of Devon Island (Helmer 1986, 1991, 1994). These sites have not been considered pure Pre-Dorset given the influence of Independence I and Saqqaq occupations to the north on developments in this region (Helmer 1991:305 – 312). Situating the dates from this region against the larger picture of the Eastern Arctic certainly demonstrates that such contact was extremely likely, given the long period of overlap between the Early Palaeoeskimo occupation of the North Devon Lowlands and those to the north.

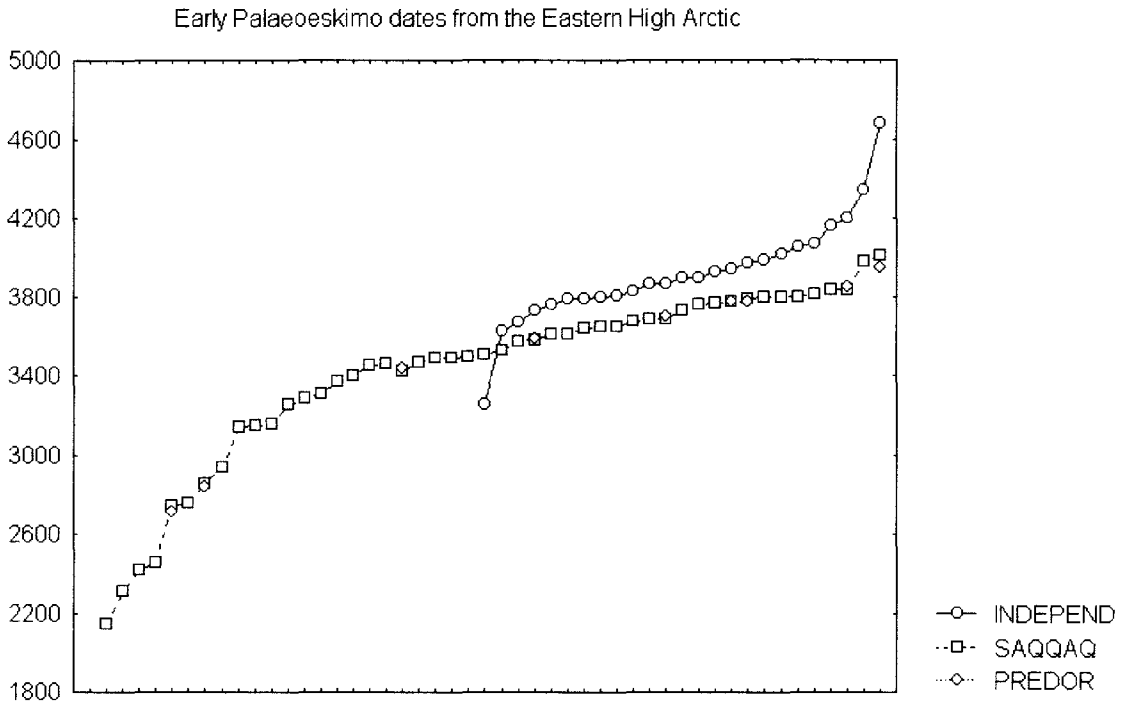


Figure 3.2 Early Palaeoeskimo radiocarbon dates for the Eastern High Arctic (dates taken from published sources only and exclude driftwood and uncalibrated marine dates). Refer also to Appendix A.

In conclusion, the Early Palaeoeskimo occupation of the High Arctic was a long and varied one, this variability indicating a closer relationship between the three Early Palaeoeskimo cultures in the region than was initially suspected. Indeed, McGhee (2000b) has recently commented that Saqqaq and Pre-Dorset might more usefully be seen as members of the same cultural family rather than as completely separate cultural manifestations. Saqqaq would appear to be the link that units the Early Palaeoeskimo 'cultures'; early Saqqaq and Independence I share many more traits than they do differences, while later Saqqaq and High Arctic Pre-Dorset groups in the region also have much in common.

3.3 Low Arctic

3.3.1 Baffin Island

Research on Baffin Island has been largely restricted to the north coast, in the Pond Inlet region (Mary-Rousselière 1976), and on the southern Hudson Strait coast at Lake Harbour (Maxwell 1973, 1976). Survey work conducted along the intervening eastern coast has failed to locate any identifiable Early Palaeoeskimo sites, possibly the result of coastal subsidence (Maxwell 1985:80) while little published work has been done along the western coast of Baffin Island in the Foxe Basin. The lack of cultural material from such a large geographic area (whether indicative of a real absence of settlement during the Early Palaeoeskimo period or the result of other factors hindering discovery of sites) presents a serious problem for any attempt to understand the prehistoric occupation of Baffin Island. Despite such an impediment, it is possible to reach several conclusions regarding how Pre-Dorset occupations fit into the larger Early Palaeoeskimo world.

Our understanding of Pre-Dorset occupations on the northern coast of Baffin Island has been rather accurately described as "scanty" (Mary-Rousselière 1976:42). Archaeological work was first carried out here as part of the Fifth Thule Expedition (Mathiassen 1927) at a time when the existence of a pre-Thule presence in the Eastern Arctic had just been suggested (Jenness 1925). Work conducted in the years following the introduction of the Palaeoeskimo to Arctic archaeology has suggested a small early Pre-Dorset presence that was similar and yet different from Pre-Dorset sites to the west (notably those reported by McGhee 1976, 1979).

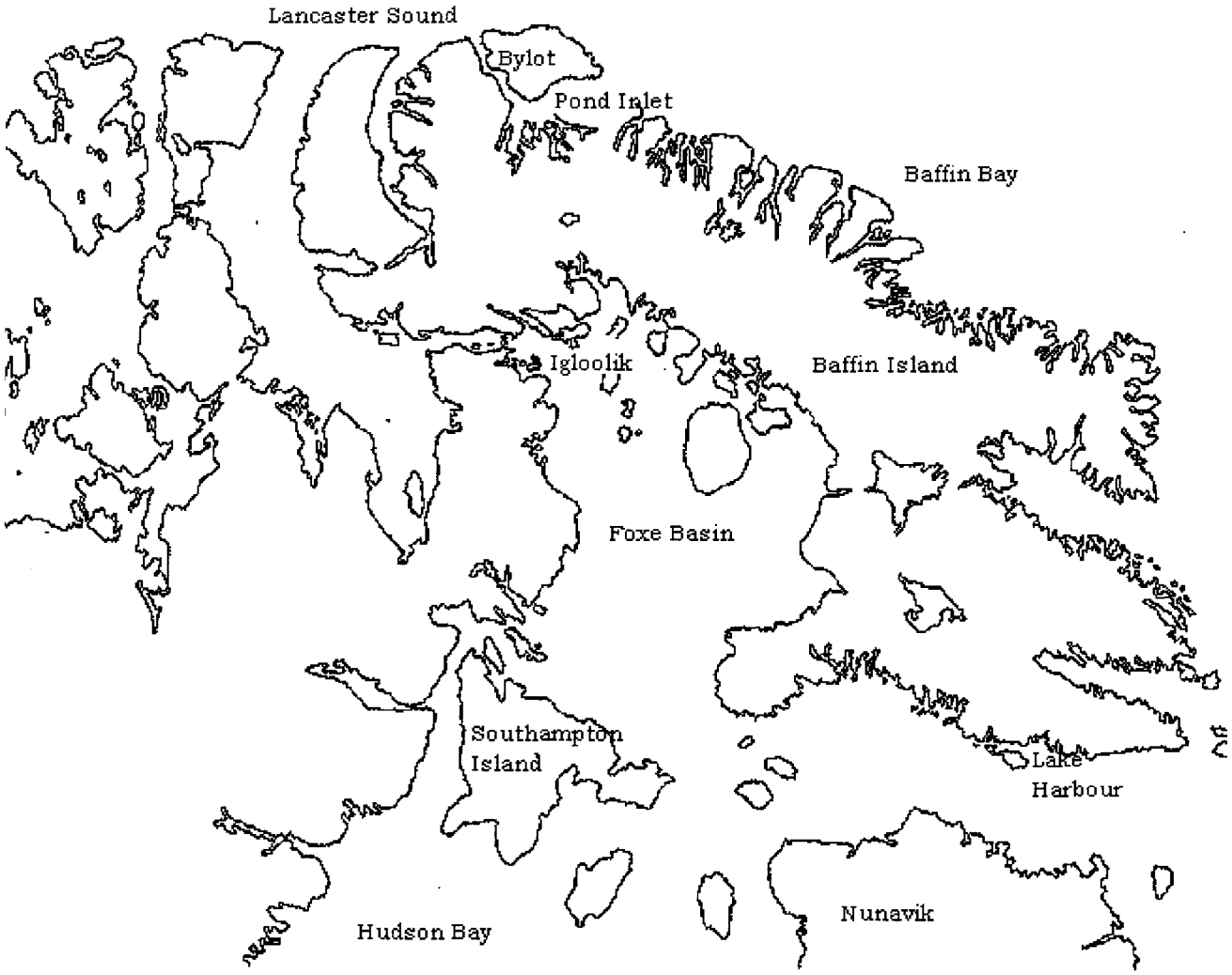
Pre-Dorset was originally defined to lack many attributes associated with the Independence I culture (McGhee 1976:25 - 26). However, Pre-Dorset occupations in the vicinity of Pond Inlet differ in that many traits typically linked to Independence I and supposedly absent in Pre-Dorset are present in the region. Mary-Rousselière (1976:41) recorded an early Pre-Dorset site (Uqalik) with a clustered settlement pattern (minimal isostatic uplift precluding the formation of beach terraces), a tent ring with an axial feature constructed with boulders (slabs were unavailable) and bifaces with serrated edges, all of which are more typical of Independence I. This sites also produced two soapstone vessels, one a complete oblong lamp with rounded bottom and the other a fragment of a flat-bottomed lamp, both resembling lamps recovered from Saqqaq sites in Greenland (Larsen and Meldgaard 1958:51, Plate II, 22).

Little is known of the settlement-subsistence strategy of Pre-Dorset groups in the area given the very small number of typologically Early Palaeoeskimo sites in northern Baffin Island (Mary-Rousellière 1976:42). An uncorrected date of 4385±155 B.P. (S-589) from Mittimatalik on whalebone seems to be several centuries too early and probably does not reflect an accurate occupational date for the site. Maxwell (1976:60) reports that Mary-Rousselière recovered double-barbed Pre-Dorset harpoon heads (unillustrated) that resemble examples from Port Refuge (presumably like those shown in McGhee 1979:Plate 12, e,f). These harpoons are similar to examples recovered from the Foxe Basin area (see section 3.3.2).

Further south in the Lake Harbour region, research also led to the identification of a number of Early Palaeoeskimo sites (Maxwell 1973, 1976). Maxwell (1973:300)

postulates a dual marine and terrestrial focus given similarities in the lithic toolkit between the Lake Harbour area with sites in Foxe Basin (Meldgaard 1962, 1977). Prior to 3000 B.P. there was a greater dependence on the bow and arrow for acquisition of caribou and other land-based resources (Maxwell 1976:69) before a shift to marine resources, perhaps linked to a cooling environment, marked the advent of the Late Palaeoeskimo Dorset culture (Maxwell 1976:69). This change required, in Maxwell's (1976:69 – 70) opinion, only slight shifts in the organic tool inventory given such technology was "sufficiently adaptive to require little change: that within the cultural system there was little motivation toward technological innovation, or perhaps even ideological constraints against it" (Maxwell 1976:70). This penchant for being "ultra-conservative" (Maxwell 1973:339) throughout the 3000 year occupation of southern Baffin Island is reminiscent of the High Arctic Saqqaq groups, where there was also little alteration of the toolkit through a millennium and a half of occupation (Grønnow 1994:205).

Organic artefacts and faunal material has not been preserved in the earliest Palaeoeskimo sites of the southern Baffin Island area although the organic component of the toolkit would have been key (Maxwell 1973:300). A small number of harpoon heads recovered from the area were compared to unpublished specimens excavated by Jørgen Meldgaard from the Foxe Basin (Maxwell 1976:60). Those harpoon heads, which have never been published, are open-socketed with a basal spur and are self-bladed (Maxwell 1976:60 – 62). The Lake Harbour specimens seem to have similar attributes although they do not come from the initial period of occupation, Maxwell (1973:336) noting the



Map 3.3 Map of the Low Arctic showing places mentioned in the text.

first 1800 years of occupation preserved no organic materials.

Lithic materials also resemble sites to the west in Igoolik, Banks and Victoria islands (Maxwell 1973:337). Some general chronological trends have been noted with regards to the lithic artefacts for southern Baffin Island although a clear chronological ordering of the sites has not been possible (Maxwell 1973:285, 336). Cultural continuity is favoured given "similarities between sites apparently contiguous in time tend to swamp out the dissimilarities, [but] dissimilarities do exist" (Maxwell 1973:285). Maxwell (1973:305 - 306) felt that grinding occurred later in the Arctic Small Tool tradition assemblages (though the radiocarbon data does not fully agree with this interpretation, see Appendix A for dates). By about 3600 B.P. the assemblage became more homogeneous, earlier forms of burins disappeared, the frequency of spalled burins and burin spalls decreased while items like polished burins increased (Maxwell 1973:309 – 310). Microblades (Maxwell 1976:73) and polished burins (Maxwell 1973:338) are rare in the earliest sites. Lithic endblades increase in frequency through time, reflecting an increased focus on marine resources. The earliest examples often have edge serration and concave bases (Maxwell 1973:Figure 19,r,s; Figure 72,g) and resemble specimens further north while later examples are less frequently serrated and have straight bases (Maxwell 1976:76).

Structures are not well known from the region, although excavations show artefacts to be deposited in oval or circular patterns. There is no other boundary marker for these structures (either gravel walls, depressions or soil discolouration) (Maxwell 1973:302) and though there may be rocks present in the interior of these dwellings they

do not appear to form any part of a feature. Some sort of an interior hearth, in the form of two to four flat grease-incrusted stones, was also sometimes present. There are no recorded axial features, thought to be winter dwellings, and all identified structures are believed to pertain to summer occupations (Maxwell 1973:303). It was impossible to infer settlement pattern since the same sites were often used repeatedly and Maxwell could not say definitively which group occupied which portions of a site or how many people were involved (Maxwell 1973:304).

3.3.2 Foxe Basin

An obvious problem with any discussion of research conducted in the Foxe Basin is the largely unpublished nature of survey and excavation work in the region. Jørgen Meldgaard's (1960a, 1960b, 1962, 1977) work has never been published in detail and, as a result, much of the information collected as part of this research must be gleaned from the personal communications given through the years to other researchers working elsewhere in the Eastern Arctic (this information has been included during discussion of those regions). This presents something of an archaeological black-hole and is especially unfortunate given the central role the Foxe Basin has been interpreted to play in cultural developments throughout the Eastern Arctic from the earliest Palaeoeskimo period until the advent of the Neoeskimo period (see papers in Maxwell 1976a for examples). As Schledermann notes with specific reference to the Early Palaeoeskimo period, the stratified sites on Igloolik and Jens Munk islands (particularly from the 48m – 50m levels) may offer clarification of the relationship between Independence I, Saqqaq and Pre-Dorset occupations in both the High and Low Arctic regions (Schledermann

1990:320). However, these data have remained unpublished since Meldgaard's work in the region fifty years ago and this observation cannot be fully evaluated.

Maxwell (1976b:60) reports a personal communication from Meldgaard regarding harpoon head styles in the earlier phase of occupation. In the period from 2000 to 950 B.C., Meldgaard has suggested three main types of harpoon styles existed, which were further divided into twelve sub-types (Meldgaard *pers comm.* to Maxwell (1976b:60). Only one type (Type A) was described by Meldgaard though all three apparently derive from his excavations on Pre-Dorset sites from the 50m, 47m, 25m and 23m levels of Igloolik. This style involves an open or flanged socket head, a bifurcate basal spur and a self-bladed distal end. It was divided into two 'states', State A having a single lateral barb while State B has two lateral barbs (Maxwell 1976b:60). Maxwell notes that Type A-2 is also found at Port Refuge and Pond Inlet (Maxwell 1976b:60). Grønnow's QT-A harpoon heads from the Qeqertasussuk site in Disko Bay are also quite similar to the Type A examples from Foxe Basin and southern Baffin Island (Grønnow 1997:Figure 2 and illustrated in Figure 3.2).

Maxwell (1976b:61) noted it was impossible to address any of the other artefacts in the same detailed manner given the unpublished state of the data. He called for full publication as a means to make information more accessible to other researchers (Maxwell 1976b:67 – 68), unfortunately this request has gone unheeded. Maxwell does note that organic artefacts present in the Kapuivik (Jens Munk Island) and Kaleruserk (Parry Hill) sites include: antler bow braces, arrow foreshafts with gouged endblade seats, tubular needle cases, lance heads, perforated antler scoops, caribou bone scrapers, small

bone slings (atlatls?) for spears or harpoons, side prongs and some evidence of art. While there are a number of radiocarbon dates on this material, many of the dates remain unpublished (Maxwell 1976b:61). Those that have been recorded (Morlan n.d.) suggest an early Pre-Dorset occupation dating between 3500 and 4000 B.P. (refer to Appendix A).

More recent work in the Foxe Basin conducted by Graham and Susan Rowley (1997) and Maribeth Murray (1996, 2000) has dealt, at least in part, with Pre-Dorset occupations in the area.

Survey work has supplemented the initial evidence gathered in support of an uninterrupted occupation from Pre-Dorset through to the Late Dorset period (suggested during the Society for American Archaeology conference, papers in Maxwell 1976a). Pre-Dorset groups in Foxe Basin constructed oval structures with peripheries marked by either boulders or slabs, sometimes with axial features, while internal and external box hearths were often used and structures were grouped by size (due to seasonal variations, climatic variation and individual preferences) (Rowley and Rowley 1997:273). These houses were arranged in both clustered and linear patterns, on top of beach ridges, between ridges and either exposed or sheltered from the water (Rowley and Rowley 1997:273).

Lithic artefacts were made primarily on chert but also on silcified slate and other local materials. All materials were used from the earliest period of occupation though it is possible that both internal and external relations altered through time given changes in the use of chert (Rowley and Rowley 1997:274). Organic artefacts suggest close ties to

the High Arctic Saqqaq and Independence I cultures (Meldgaard (1962) had originally called early Pre-Dorset in Foxe Basin Saqqaq), especially with harpoon heads (unpublished) that compare well with examples found in both Saqqaq (Grønnow 1997) and Independence I (McGhee 1976). Rowley and Rowley (1997:272) point out that an antler artefact form, interpreted by Meldgaard as a bow brace (illustrated in Maxwell 1985:83), has since been located in a Saqqaq context in Greenland (Grønnow 1994:211). This item, actually a double-ended scraper, suggests another point of similarity between the Low Arctic and High Arctic regions and gives credence to the idea of variation within a single culture as opposed to culturally distinguishable Pre-Dorset and Independence I groups (Rowley and Rowley 1997:272). The researchers summarise this opinion by stating that "Independence I does not represent a separate and / or earlier migration of people into the Eastern Arctic. Rather ... the similarities override the differences and ... the differences are due to seasonal variation, regional variation, and individual / group preferences rather than to separate and distinct occupations by different cultures" (Rowley and Rowley 1997:272 – 273).

Murray's (1996, 1999) research has dealt more specifically with the economic focus of the Foxe Basin Pre-Dorset, her findings include the idea that these early occupants were highly mobile (Murray 1999:471) and utilised both marine and terrestrial resources as part of their seasonal round. As with Pre-Dorset occupations elsewhere, spring and summers seem to have been spent on the coast and outer islands hunting seals (especially ringed seals), inland caribou hunting occurred in the fall while winter saw a return to the coast (possibly involving the use of snow houses on the sea ice) (Murray

1996). Like the highly mobile Independence I groups of Peary Land (Knuth 1967), Pre-Dorset people on Igloolik Island practised a short-term occupancy of specific locations with a resultant archaeological record that shows many small temporary sites that cannot be easily assigned a season of use (Murray 1999:468).

3.3.3 Nunavik

The southern shore of Hudson Strait has experienced a length of human occupation comparable with regions to the immediate north (Pinard, *pers comm.*). However, a more accurate reconstruction of events in chronological terms has been hampered by a lack of radiocarbon dates (Gendron and Pinard 1999) which in turn confuses attempts to understand initial colonisation events in the region. Two competing hypotheses dominate research here, one suggesting two separate migrations into the region (Desrosiers 1986; Plumet 1976, 1994) while the other favours a more uniform occupational sequence from Pre-Dorset into Dorset (Taylor 1962, 1968). The former interpretation places Early Palaeoeskimos with ties to northerly Independence I groups in the east around Ungava Bay and northern Labrador (Pinard 1998) while the latter involves an incursion of Early Palaeoeskimos from the Foxe Basin moving into western portions of Nunavik (Plumet 1994; Maxwell 1976; Taylor 1968).

Excavation in northern Québec was conducted by William Taylor (1968) on Mansel Island and around the present-day community of Salliut. One of these sites, Arnapik, remains a key site for understanding the initial colonisation of the region by Early Palaeoeskimos, not the least because it represents one of the most fully published Early Palaeoeskimo sites in the region. When Taylor compared Arnapik, estimated to

date c. 3500 – 3000 B.P. (Taylor 1968:80) to the Saqqaq site of Sermermiut (Larsen and Meldgaard 1958; Mathiassen 1958), a number of similarities were identified. The Nunavik and Greenland sites shared triangular endblades with straight or slightly concave bases, contracting stem bifaces, end- and sidescrapers, surface grinding, microblades and a high frequency of burins and burin spalls (Taylor 1968:41). The form and frequency of some of these tool classes (particularly the burins and microblades) as well as the lithic tool treatment (edge serration and surface grinding) differed but Taylor felt it was not significant (Taylor 1968:41).

Differences between the two regions include a lack of such Greenland Saqqaq items as bipointed endblades, transverse-edged tools, adze blades and asymmetrically tanged bifaces (Taylor 1968:41). Greenland Early Palaeoeskimo lithic artefacts were also more frequently ground, Taylor (1968:41) feeling this treatment became frequent only in the later stages of the Early Palaeoeskimo period. The Arnapik site contained sideblades, bifaces with side-notching and perforators, all missing from Sermermiut. Despite these differences, Taylor (1968:42) believes that sites in the High and Low Arctic have a lot in common.

Arnapik, like other early Palaeoeskimo sites in both the High and Low Arctic, has not yielded any soapstone artefacts. It is possible that soapstone was not needed, at least in the earlier sites, because occupants used box hearths, boiling stones and perishable vessels to cook food (Taylor 1968:82 – 83), akin to the Saqqaq occupation in Disko Bay (Larsen and Meldgaard 1958). Structural remains were also identified at Arnapik and resemble the double-walled axial box hearth structures identified by Knuth (1967) for

Independence I sites in Peary Land (Taylor 1968:13). Other ties with Independence I were noted, though a lack of published material limited the amount of data available for comparative purposes (Taylor 1968:43).

Additional work has been done on the Early Palaeoeskimo period since the 1960s, mostly by the Avataq Cultural Association (Gendron and Pinard 1999; Pinard 1998). A continuing problem in the area is a tendency for research to be very regional in scope, a situation further complicated by the fact that little artefactual or structural information has been preserved (Gendron and Pinard 1999). What is known is that there was a preference amongst Early Palaeoeskimos in the region for locally available materials, supplemented by small amounts of exotic materials. Grinding of lithic tools was not unknown to these people, given the discovery of grindstones from a small number of sites (Pinard 1998). Structures around Ungava Bay (Gendron and Pinard 1999) and Diana Bay (Plumet 1994) vary from circular / oval tent rings with and without boundary markers or central hearths to axial features with or without a surrounding tent ring (Pinard 1998). Where beach terraces were present, settlements were arranged in a linear fashion, otherwise Early Palaeoeskimo sites were clustered (Pinard 1998).

3.3.5 Summary of Low Arctic

The Pre-Dorset manifestation remains the only Early Palaeoeskimo culture to be formally identified in the Low Arctic, although there are an increasing number of indicators that point to significant and long-term ties with the High Arctic and its occupants. Attributes typically thought to be found only amongst High Arctic Early Palaeoeskimo populations now seem to be fairly common in the Low Arctic. Notable

amongst these are the use of axial structures, the practise of edge serrating bifaces and the use of parallel economic strategies. The beginning of a movement to view High Arctic Saqqaq and Low Arctic Pre-Dorset groups as more similar than dissimilar (McGhee 2000b) suggests that researchers may slowly be abandoning the practise of contrasting occupations as a means to highlight differences within the Early Palaeoeskimo period (Taylor 1968:81). Indeed, "an emphasis on differences, although apt for distinguishing the unit or defining the variant, could hardly be expected to lead to a conclusion of cultural continuity in any case where the units could be separately maintained by the criteria postulated by the method" (Taylor 1968:81).

There is sufficient variability within Pre-Dorset, and indicators of relationships with groups outside of the Low Arctic, to question the validity of maintaining clear cultural divisions. Although organic preservation in the Low Arctic is not as advantageous as further north, organic artefacts have been recovered from some sites. The harpoon heads from Foxe Basin and Baffin Island indicate that at least this form of technology was not unlike other Early Palaeoeskimo groups. As with Independence I and Saqqaq groups, Pre-Dorset lithic tools suggest subtle shifts through time in the frequency of edge serration (earlier in the period) and surface grinding (later in the period). Microblades and soapstone vessels were also temporally restricted through time and were not used by the initial populations in the Low Arctic.

The Low Arctic as a whole has produced very few radiocarbon dates relating to the earliest period of occupation making it very difficult to trace the route these migrants took as they moved into the Low Arctic islands and mainland. It is unclear whether the

ultimate origins for the Pre-Dorset lie to the north, west or east, or represent an amalgam of parent groups.

3.4 The impact of new research

As archaeological reconnaissance has expanded throughout the Eastern Arctic 'cultural' differences are taking on the appearance of subtle regional and chronological shifts in response to local environments and resource bases. I am not arguing that Independence I, Saqqaq and Pre-Dorset should be seen as members of the same culture but I do advocate placing the three within the larger picture of Arctic life 4000 – 3000 years ago. The identification of multiple cultural influences within single sites or regions has made construction of a more coherent and comprehensive cultural framework a necessity if archaeologists are to make any further progress in understanding the Early Palaeoeskimo period in the Eastern Arctic. Research has reached a point where the consideration of such factors as seasonality, stylistic variability, individual or group choice and chronological change must be part of any attempt to culturally classify the Early Palaeoeskimo period.

A key result of recent research in the High and Low Arctic has been an expansion of the known variability in the Early Palaeoeskimo period beyond the highly polarised view of Independence I, Saqqaq and Pre-Dorset as initially developed. It is becoming increasingly difficult to order Early Palaeoeskimo sites within the culture-historical framework developed in the 1970s, McGhee's (1976) criteria remaining the clearest guideline for distinguishing between the groups. The seemingly clear and easy divisions

imposed on the Early Palaeoeskimo period at that time can no longer be so easily maintained given the regional and chronological shifts that have been recognised in the archaeological record. The following chapter will address how this variability between groups and regions has impacted views of the Early Palaeoeskimo period in northern Labrador.

Chapter 4 The Labrador Early Palaeoeskimo Period

4.1 Introduction

The variability evident in the archaeological record during the Early Palaeoeskimo period was initially explained as the result of repeated occupation and abandonment of the area by a series of Early Palaeoeskimo cultures, each of whom was unrelated to previous and subsequent populations. But, as was outlined in the preceding chapter, recent research has suggested that the concept of three clearly distinguishable cultural units during the Early Palaeoeskimo period has outlived its usefulness. Instead, I argued in Chapter 3 for an alternate version of cultural development, an *in situ* progression that regards Independence I (c. 4100 to 3700 B.P.) and early Saqqaq (c. 4500 to 3400 B.P.) as elements of one population from which later Saqqaq emerged. The relationship between later Saqqaq (c. 3400 to 2500 B.P.) and Pre-Dorset (c. 4500 – 2800 B.P.) is more complex, the differences (most apparent late in the Early Palaeoeskimo period) are most likely due to environmental and regional considerations as well as external social influences.

The prime objective of this thesis has been to understand why early Pre-Dorset sites in Labrador could possess attributes typically associated with Independence I and Saqqaq when these groups are defined as geographically, culturally and temporally unrelated (see Chapter 2). While the presence of Independence I and Saqqaq elements in Labrador Pre-Dorset sites has long been recognised (see for example Cox 1978; Tuck n.d., 1975, 1976) the sites were classified as part of the more broadly defined Pre-Dorset

manifestation. This designation was based on the recognition that the recovered artefacts and radiocarbon dates placed the occupation early in the Arctic Small Tool tradition (Tuck n.d.:99 – 100), although "the most significant cultural relations may not be with what we have known as Pre-Dorset culture" (Tuck 1976:89). Tuck's later observation that researchers in Labrador would appear to be "in the position of trying to reconcile our own findings with the (presumably, at least) better known and better documented areas which border Newfoundland and Labrador" (1978:1) seems an accurate assessment.

How then would a re-ordering of the Early Palaeoeskimo period in the Eastern Arctic, as suggested in Chapter 3, affect an area such as northern Labrador? The following section will present a review of the research concerning the Early Pre-Dorset occupation of Labrador. Following this I will attempt to correlate this information with the revised Early Palaeoeskimo sequence proposed in Chapter 3 of this thesis.

4.2 The Labrador Early Palaeoeskimo Occupation

Suggestions that the earliest Palaeoeskimo occupants of northern Labrador exhibited some sort of relationship with Independence I and Saqqaq cultures in Greenland, as well as with Pre-Dorset groups in the Canadian Low Arctic, were made almost immediately upon excavation of the material in the early to mid 1970s. Based on lithic material (no site has yielded organic material), elements of Independence I and Saqqaq in the Labrador assemblages included the identification of specific artefact types

and manufacturing techniques (edge serration and surface grinding the most notable) as well as the type of structural remains present.

4.2.1 Saglek Bay

James Tuck (1975, 1976:141 – 147) was the first to recognise the presence of Independence I and Saqqaq characteristics in Labrador at sites he excavated in Saglek Bay. High quality chert from the Cape Mugford region of Labrador (see Map 4.1) was the predominant material used in the manufacture of tools, although silicified chert (referred to as killiaq in Greenland) and quartzite were also utilised (Tuck 1975:138 - 147). Ramah chert, a high quality and distinctive material outcropping primarily in Ramah Bay, was used infrequently (Tuck 1976:Table 1).

Independence I characteristics include small well-made contracting stemmed or bipointed endblades, triangular endblades with straight or slightly concave-bases, lance tips and asymmetric and symmetric knives similar to those from High Arctic sites (Tuck n.d., 1975, 1976). Microblades amounted to between one-tenth and one-third of total assemblages, the higher percentage at older sites (Tuck n.d.:102).

Saqqaq elements were also recognised in the excavated material, indeed Tuck (1976:98) noted "*Sarqaq culture* ... seems to resemble very strongly our Saglek material" (original emphasis). Although he failed to go into detail concerning this assertion, similarities between the two groups include contracting stemmed and lanceolate endblades, asymmetric knives and other "less diagnostic" artefacts (Tuck 1976:98).

1. Nachvak Fjord
2. Ramah Bay
3. Saglek Bay
4. Thalia Point
5. Hebron
6. Cape Mugford
7. Okak
8. Webb Bay
9. Nain
10. Hopedale
11. Hamilton Inlet

Map 4.1 Map of Labrador showing places mentioned in the text.

However, the absence of round soapstone vessels, transverse blades and surface grinding on certain tools (notably burins) in the Saglek assemblages did not support the proposed link between the two regions.

Edge serration, known in both Independence I and Saqqaq contexts, is typically associated with the contracting stemmed and concave-based endblades (between 30% and 50% of specimens were serrated) and lance tips (Tuck 1975:138 – 147, 1976:89). Surface grinding, primarily restricted to assemblages affiliated with Saqqaq, was rarely identified in Labrador, although grinding does occur on a single burin (grinding of burins may become more common in later assemblages (Tuck n.d.:102), adzes (Tuck n.d.:102) and gravers (Tuck 1976:89 –90).

Despite the fact that no structures were identified in Saglek Bay, Tuck (1976:99) does note that he would not be surprised if axial features, considered a hallmark of Independence I, were to be located elsewhere in northern Labrador. Although no direct evidence pertaining to the Pre-Dorset settlement-subsistence pattern was found in Saglek Bay a pattern similar to the Maritime Archaic Indian and Dorset Late Palaeoeskimo economy, focussed on ringed and bearded seals hunting at both breathing holes the ice-edge, was suggested (Tuck 1976:90 – 91). In combination with this marine component was a land-based strategy exploiting caribou, char and migratory waterfowl, the range of available species possibly allowing for year-round occupation of the study area by Pre-Dorset groups (Tuck 1976:91).

Labrador Pre-Dorset did not, in Tuck's opinion (1976:98 – 99), compare well with the Pre-Dorset material recovered from the Port Refuge area (McGhee 1976, 1979).

Rather, the Saglek Bay sites presents the "inescapable conclusion that the earliest ASTt [Arctic Small Tool tradition] population of Northern Labrador were the bearers of a late, and perhaps "evolved" form of Independence I culture ... typologically intermediate between Independence I and Sarqaq" (Tuck 1976:99). A date of 3830±115 B.P. (I-5250) on wood charcoal would seem to support this intermediary position (Tuck 1975).

4.2.2 Thalia Point

Work in Thalia Point at the beginning of the 1970s confirmed an Early Pre-Dorset presence south of Saglek Bay (Fitzhugh 1976, Fitzhugh *et al.* 1979). This material is very similar to that recovered from Saglek Bay both in terms of the range of artefacts recovered and the attributes present on specific tool types (Tuck n.d.:100).

Independence I traits identified in this region are like those reported from Saglek Bay. Bipointed, contracting stemmed and triangular endblades (often with edge serration), the extremely rare occurrence of surface grinding (restricted to adzes and a small number of burins and endblades), microblades and the comparability of bifaces with those in the High Arctic indicate a relationship with Independence I.

Saqqaq influences could also be interpreted with the presence of edge serration and the occurrence of blades with transverse edges. A small number of soapstone vessels have been reported, although the exact location of these finds has not been published (Fitzhugh, personal communication to Tuck (n.d.:102). An axial dwelling with box hearth filled with fist-sized cooking stones from the Dog Bight site (Fitzhugh 1976:130 –133) resembles a structure excavated in Tuapagissuit in the Nuuk region of Greenland (Appelt

and Pind 1996; Gulløv and Kapel 1988). A radiocarbon date of 3660±140 B.P. (SI-2521) derived from the box hearth (Fitzhugh 1976:130 - 133) indicates the Pre-Dorset occupation of Thalia Point was roughly contemporaneous with the Saglek Bay occupation to the north. Typological similarities between the two areas support this interpretation.

4.2.3 Okak

Excavations in Okak Bay (refer to Map 4.1) also yielded Early Pre-Dorset sites with elements of Independence I and Saqqaq. As with the assemblages in Saglek Bay, lithic artefacts were made predominantly on Cape Mugford chert, with Ramah chert and silicified slate in smaller quantities (Cox 1978:98). The assemblage from this area is typologically uniform and includes Independence I elements such as triangular, tapering stem and bipointed endblades (often with edge serration), larger stemmed bifaces and microblades (forming between seven and eleven percent of total artefacts) (Cox 1978:98). Side- and end-scrapers were sometimes serrated while surface grinding appears on elongated gravers, the working edge of adzes and on a single burin (Cox 1978:98).

Okak material differed from Independence I assemblages elsewhere in a number of ways, including a tendency for Okak lithic artefacts to be smaller and more finely made than Independence I sites in Peary Land (though the difference between Okak and Port Refuge is less apparent) (Cox 1978:103).

Early Pre-Dorset sites in Okak Bay also have elements in common with Saqqaq, though the points of similarity were thought to be not as great as with Independence I.

The use of killiaq (Cox (1978:103) calls the material angmâq) in Labrador, though in lesser quantities, is a point of similarity. Other points of correspondence between Labrador and Saqqaq include the triangular and contracting stemmed points with edge serration (also found in Independence I assemblages). The form of some side- and end-scrapers is also similar. Construction of box hearths and axial dwellings is an additional point of correspondence between Saqqaq and Labrador.

Contrasting the subsistence pattern suggested for Early Pre-Dorset groups in Saglek Bay is a more interior-marine adaptation in the Okak area Cox 1978:102). The spring season was spent on the seaward side of inner islands near to the ice edge, exploiting ringed and harp seals. Summers saw a move to the landward side of inner islands or to the mainland for easier access to land resources (especially caribou and waterfowl). Inner island locations were occupied again in the fall where sea mammals were again the focus, artefact concentrations suggesting an extended period of occupation. It is unclear whether Pre-Dorset groups spent the winter in snow houses on the sea ice (Tuck n.d.:103), moved to the interior or prolonged their occupation of known fall sites into the winter months (Cox 1978:102; Tuck n.d.:104).

Cox (1987:1) notes that Labrador Pre-Dorset sites have generally been dated between c. 4000 B.P. and 3600 B.P. A charcoal date from Okak of 3475±75 B.P. (SI-2507) suggests occupation can be extended beyond that range.

4.2.3 Webb Bay

Bryan Hood's continuing research into the prehistoric Indian and Palaeoeskimo occupations of northern Labrador represents the most recent work dealing, at least in part, with the Pre-Dorset occupation of northern Labrador (Hood 1992, 1994, 1995, 2000). A small number of early sites have been recorded and excavated through this work, the most important Pre-Dorset site being Attu's Point in Webb Bay, north of Nain (refer to Map 4.1). This locality, involving at least eleven structural features, is a focus of ongoing research and has allowed preliminary chronological inferences to be made.

As with the other Early Pre-Dorset sites in Labrador, this site yielded only lithic material (predominantly Mugford but also Ramah cherts, quartz crystal and slate). Endblades forms include triangular straight based, stemmed and contracting stemmed (some with edge serration and surface grinding), concave sidescrapers, sidescraper / burin (with serration), microblades, ground adzes, burins (a small number with grinding), various symmetric and asymmetric bifaces and lanceolate bifaces (Hood 1995:Appendix: Artefact Descriptions).

Of the eleven tent rings recorded, seven have axial structures while the remaining four have indistinct structural arrangements (Hood 1994:13). Three of the axial features have a centrally located box hearth (one with cooking stones), while cobblestones, slabs and flat slabs were all used in the construction of the axial features (Hood 1995:3, 9, 11).

The site appears to have been occupied through the length of the Early Pre-Dorset period in Labrador, although the upper (and presumed oldest) portion of the site remains undated (Hood 1995:11). Two radiocarbon dates (see Appendix A) on the lower beach

terraces (the younger component) place occupation at that portion of the site c. 3800 B.P. (Hood 1995:Table 11) while the upper levels are presumed to date prior to c. 4000 B.P. (Hood 1995:18). The low occurrence of facial grinding, more common in later pre-Dorset sites in Labrador (Hood 1995:13) and the relatively common practise of edge serrating certain tools (indicative of an early occupation) suggest Attu's Point should be situated at the earlier end of the Pre-Dorset occupation in Labrador (Hood 1995:12).

4.2.5 Summary of Labrador Early Pre-Dorset

The Early Labrador Pre-Dorset sites can be fairly tightly associated with one another. The main area of Pre-Dorset occupation appears to have been focussed between the Saglek Bay and Nain-Okak area (refer to Map 4.1), extending as far south as Hopedale (Cox 1987:1; Fitzhugh 1984:21 – 24)). Cox (1978:98) believes the heaviest Pre-Dorset occupation occurred during the period of initial colonisation (3900 B.P. to 3500 B.P.) (refer to radiocarbon dates in Appendix A).

All sites typically contain bifaces that have been edge serrated, a general absence of surface grinding on tools, bipointed, tapering stem and triangular endblades, lack of soapstone and use of the axial dwelling structure. Lanceolate bifaces, transverse edge blades, contracting stem endblades, the unpublished soapstone lamps (in Tuck n.d.:102), and box hearths have also been identified. Pre-Dorset groups here appear not to have been fully adapted economically to the marine environment (Cox 1978:102; Fitzhugh *et al.* 1979:20). Although chronological change is difficult to detect (Cox 1987:2) there are indications of time-related change at Attu's Point. The appearance of edge serration and

facial grinding seem to be the most sensitive chronological indicators: edge serration being more common on earlier sites while grinding becomes more common on later sites (Hood 1995:12 – 13).

4.3 External Relations of Labrador Pre-Dorset Populations

Labrador Early Pre-Dorset appears anomalous for two main reasons, the first involves the presence of High Arctic Independence I and Saqqaq cultural elements in the supposed Low Arctic Pre-Dorset assemblage, something that should not be possible following the current cultural ordering (see Chapter 2). The second 'problem' with the Labrador sites is that the assemblages from this area appeared unique, for as Tuck (1976:98 – 99) discovered when comparing the Saglek material to other regions, only the most basic relations could be drawn since the mixture of attributes in Saglek lacked comparable assemblages elsewhere.

Tuck has little difficulty associating the Pre-Dorset sites in the region with an ""Independence I-like" or "near - Independence I"" presence (Tuck n.d.:100), especially with such early dates for the region (refer to Appendix A) but the point remains that the closest Independence I sites are hundreds of kilometres away in the High Arctic, as are the Saqqaq settlements. How could people bearing elements of both cultures make their way to Labrador without leaving a trace of their passage along the route? Only undated Pre-Dorset sites had been identified in the intervening region and their cultural designation precluded them from possessing Independence I or Saqqaq cultures and transmitting such technology south.

In Chapter 3 I detailed work throughout the High and Low Arctic regions which has demonstrated both increased variability and chronological shifts, especially in Saqqaq (refer to Table 3.3), that have parallels in the Labrador sites. If my conclusions reached in the course of that chapter regarding the relationship of Independence I and early Saqqaq are correct, namely that they should be considered part of the same cultural group, there are obvious repercussions for the cultural affiliation of the Labrador sites.

Viewing Independence I and early Saqqaq as part of the same complex would certainly clear up many of the issues and the 'anomalous' nature of the Labrador Early Pre-Dorset assemblages. The existence of an early Palaeoeskimo culture incorporating elements of Saqqaq and Independence I has already essentially been proven with the discovery of the northern Labrador sites. Explaining how the people who produced the cultural material arrived in Labrador in the first place is the more significant problem. The question then becomes, can an Independence I – early Saqqaq complex be traced back to the presumed northern origins. The answer is a qualified yes.

Work in the High Arctic has strongly suggested a close relationship between Independence I and Saqqaq populations (refer to Chapter 3.2.4). Many of the characteristics used to justify separation of the two populations, including edge serration, surface grinding and use of the axial dwelling, appear to be chronological and not cultural markers. Indeed, an increasing number of researchers believe the two are interchangeable.

On the north shore of Baffin Island (in the vicinity of Pond Inlet) are sites excavated by Mary-Rousselière which were termed Pre-Dorset but have a number of

Independence I traits which included an axial structure and serrated edge bifaces (1976:41). Two soapstone lamps from the undated site resemble Saqqaq examples from Greenland (Larsen and Meldgaard 1958:51, Plate II,22). Lake Harbour, on southern Baffin Island, also provides potential links between Labrador and further north in that grinding of lithic tools seems to have become common only in the later period (Maxwell 1973:305 – 306), while edge serration of endblades appears to be an early development (Maxwell 1976: Figure 19r, s).

Foxe Basin has also yielded axial structures, box hearths and various organics tool types found in Independence I and Saqqaq sites to the north, including harpoon heads and other hunting equipment (Rowley and Rowley 1997:272).

The final region is Nunavik, on the southern shore of Hudson Strait. Independence I-like sites, akin to those in Labrador, have been identified in the region though it remains unclear whether this is a result of people migrating to the area from Labrador or if Nunavik might be the source of the Labrador Pre-Dorset populations (Pinard pers comm.1999). Taylor's excavation at the Arnapik site revealed an assemblage composed of contracting stem and straight based bifacial endblades, edge serration and low percentage of surface grinding (Taylor 1968:41). Axial structures are also common (Pinard 1998).

While the evidence tying Labrador populations to contemporary groups elsewhere in the Arctic remains slim, it does suggest a mechanism by which this population could have travelled to and settled in Labrador while maintaining contacts with groups

elsewhere in the Eastern Arctic. The presence of Independence I and Saqqaq elements in the assemblage no longer appears to out of place when contemporary sites elsewhere in the region are compared. While such sites are not typologically a match for the northern Labrador material, the repeated appearance of tool types previously thought to exist only in Labrador diminishes the isolation in which the Labrador assemblages previously existed. The addition of radiocarbon dates from at least some of these sites would help confirm or deny this proposed linkage to the north.

4.3 Conclusions

While the position of the northern Labrador Early Pre-Dorset sites has not been fully clarified, a reassessment of the assemblages in light of the conclusions reached in Chapter 3 of this thesis has cast some much needed light on the origins and external relations of the occupation. A northern origin, only suspected previously, can be more definitively traced now. The Labrador sites also appear less anomalous in the Eastern Arctic with the recognition of Independence I and Saqqaq type traits over much of the Low Arctic. Finally, current evidence suggests that the Independence I and early Saqqaq designations would be more usefully combined under a single cultural unit which would give rise to later Saqqaq and perhaps, in some areas, true Pre-Dorset culture.

Chapter 5 Summary and Conclusions

5.1 Introduction

The question, which began this thesis in many ways, finishes it as well. How could a small group of Early Pre-Dorset sites in Labrador contain cultural elements that originated thousands of kilometres to the north? When these sites were excavated they stood alone as the only location where Independence I and Saqqaq groups appeared to have played a role in the development of the Low Arctic Palaeoeskimo occupation. No other region seemed to have been impacted by cultural developments in the High Arctic like Labrador, and while a line of sites stretching from Greenland south clearly explaining this theorised link might have be wished for, none were forthcoming.

The acceptance of the core area model and division of the Palaeoeskimo period reinforced the idea that the High Arctic was isolated from the rest of the Palaeoeskimo world, that populations in Greenland or Ellesmere Island played no role in developments outside of their own immediate region. Recognition of Independence I, Pre-Dorset and Saqqaq as strictly defined cultural bastions meant that variability and the possibility of interaction were disregarded.

But radiocarbon dates clearly show that there was a long period of overlap between Independence I and early Saqqaq, as well as between later Saqqaq and Pre-Dorset (refer to Appendix A). Archaeological surveys have demonstrated that in many areas of the High Arctic the Early Palaeoeskimo occupants were virtual neighbours. Add in the similarities in material culture remains between Independence I and earlier Saqqaq

and the picture that emerges is one of continuity. At the very least there were two populations which shared the same western heritage, moved into the same geographic range at the same time and possessed a very similar technology and subsistence strategy. Contact must have been inevitable and the two would have almost certainly influenced one another to some degree. With so much in common, and with most of the criteria used to distinguish between the two populations discredited, the only logical conclusion is to link the two together culturally.

Such linkages are not possible throughout the Eastern Arctic. There are clear breaks in occupation between Independence I and Pre-Dorset in Port Refuge (McGhee 1976, 1979) and between Saqqaq and Pre-Dorset in areas such as Bache Peninsula (Schledermann 1990). This discontinuity demonstrates that events in one region do not have to be echoed in another. Such variation indicates the complex interplay of social and environmental considerations at work during the Early Palaeoeskimo period, confirming the dangers of presuming that regionally specific sequences or events are always an accurate reflection of developments over thousands of kilometres.

5.2 Palaeoeskimo "Culture"

The term 'culture' is one that is often tossed around fairly cavalierly in archaeological research. Certainly on the surface it seems a simple term, used frequently with little thought concerning its precise connotations or how it might influence our worldview. However, by quickly reviewing even an introductory anthropology text one is assailed by the meanings attached to the word. Kroeber and Kluckhorn (1952) were able

to list 162 separate definitions for the word, and while using or even considering all of these terms is beyond the scope of this study there are a number of points which remain fairly consistent.

Based on the definitions discussed by Kroeber and Kluckhorn (1952), culture may best be thought of as a behavioural adaptation to the environment where said behaviours are learned and transmitted through symbolic and complex ideas. Production or possession of certain elements of material culture can also help identify an individual with a specific cultural identity. Leslie White (1940) has stated that all cultural behaviours stem from the use of these symbols, where meanings are transmitted through socially meaningful actions and that culture is our "extrasomatic adaptation" to the world around us (White 1959:3).

Although the word is used quite frequently by archaeologists, it is rather difficult to find cases where a clear and concise meaning of the word has been given. This thesis deals with the idea of cultural variability and the potential for continuity and yet there has been no mention until now of the meaning of the word. This was intentional. I waited until the end to open this Pandora's box in order to allow myself and the reader time to get a sense of how archaeologists working in the Eastern Arctic consider and apply the word.

Certainly researchers investigating the Early Palaeoeskimo period are not blessed with any obvious symbolic manifestations which might point to culture in the archaeological record, be they indications of a belief system or even art. Generally speaking all that is left are lithic artefacts, with organic materials restricted to more

northerly locations. It is based upon this often paltry material that decisions about cultural affiliation are made. Situating a site culturally is generally based on the similarities or differences between newly located finds and those which have already been reported.

It is the presence or absence of items that identifies an individual or site to a particular group and it is this consideration which played a key role in my reinterpretation. During my research it became clear that certain elements of material culture appeared or disappeared fairly regularly in certain locations and at certain time periods. Given geographical and temporal indicators were the only real controls available in this study, sites that had much in common with others in a given region and time period were interpreted to be more closely related than sites with different elements of material culture in different time periods.

5.3 Research Implications and Future Directions

The use of a culture-historical approach to ordering the Early Palaeoeskimo record has clearly not assisted archaeologists in delineating the prehistoric sequence in the Eastern Arctic. Instead of providing a helpful foundation upon which to base interpretation of the archaeological record, the framework employed today has further complicated an already complex situation. Archaeologists working in the Arctic are not alone when grappling with the cultural ambiguities caused by terminology (see Krause (1977); Stoltman (1978); Foor (1985); Richards and Rousseau (1987)) but is there a more useful way in which to organise and standardise the archaeological record?

Through the course of this thesis I have argued that an approach to interpreting the archaeological record based on chronological, not cultural, indicators currently presents the most logical route for prehistorians. Such an approach can avoid much of the ambiguity and confusion typically linked with Early Palaeoeskimo terminology, as well as by-pass the use of terms which, either implicitly or explicitly, convey meanings and relationships that may not be accurate. Organisation of the Early Palaeoeskimo period along broad temporal lines (such as suggested by Helmer (1994)) facilitates ready comparisons between archaeological remains across widespread areas, not only between groups defined as spatially and temporally discrete.

The idea of continuity or discontinuity within and between regions can be more clearly addressed. The larger sphere of the Early Palaeoeskimo world, specifically regarding regional interaction between (for example) populations in Labrador and those to the north, can also be more fully addressed. Before this can be done, however, it is imperative that such large and obviously key regions like the Foxe Basin get fully published, allowing researchers to integrate their excavated material into the larger Early Palaeoeskimo world. Until this happens, the place and role of this central area within the entire Eastern Arctic can only be suspected

5.4 Concluding Remarks

This thesis initially started, somewhat naively, as a simple re-assessment of the Early Pre-Dorset period in northern Labrador. Very quickly however it became clear that the scope of the study would have to be greatly enlarged to encompass both the Early

Palaeoeskimo occupations throughout the Eastern Arctic and the issues of cultural variability to which they are directly related. This involved a rather large, and at times intimidating, amount of research pertaining directly to questions of cultural affiliation, geographic and temporal linkages and how archaeologists tend to interpret the material they excavate.

This study was not intended to criticise past or current research methods or the findings derived from such work. It was my intention to offer a different perspective regarding questions of Early Palaeoeskimo affiliation both in Labrador and the Eastern Arctic as a whole. My introduction into the world of Palaeoeskimo archaeology occurred five years ago in an undergraduate course directed to the prehistory of Newfoundland and Labrador. It was here that I first encountered Pre-Dorset, Independence I and other foreign sounding cultures, and it was there that I was first confused by the issues surrounding their study. I am not so foolish as to think that this thesis, with its summary of work conducted over fifty years of investigation into the Early Palaeoeskimo period, could hold the answers to all the questions inherent in any study of variability on a local or large scale area. Indeed the vast geographic areas yet to receive adequate attention from archaeologists promise to yield sites which may reverse the trends I think are apparent in the Early Palaeoeskimo period. The conclusions reached in this thesis appear, for the moment at least, to be the most logical and realistic interpretation of prehistoric events as we currently believe them to have occurred.

I do hope this thesis is a first step in the re-evaluation of Palaeoeskimo relations in the Eastern Arctic. The extensive summary chapter, linking together occupations in

various areas of the Arctic, will hopefully form the basis for re-analysis of other assemblages in an effort to produce a more unified and comprehensive picture of Early Palaeoeskimo evolution.

References Cited.

Andreasen, C.
1996 A survey of Paleo-Eskimo sites and finds in North Eastgreenland. In Grønnow, B. (ed.) **The Paleo-Eskimo Cultures in Greenland: New Perspectives in Greenlandic Archaeology**. Danish Polar Center: 177 – 190.

Andrews, J.T., R. McGhee and L. McKenzie-Pollock
1980 Comparison of elevations of archaeological sites and calculated sea levels in Arctic Canada. **Arctic** 24(3):210-228.

Appelt, M.
1997 Construction of an archaeological "culture" similarities and differences in early Paleo-Eskimo cultures of Greenland. In Gilberg, R. and H.C. Gulløv (eds.) **Fifty Years of Arctic Research: Anthropological Studies from Greenland to Siberia**, Department of Ethnography The National Museum of Denmark, Publications of The National Museum Ethnographical Series, vol. 18: 33 – 40.

Appelt, M. and J. Pind
1996 Nunnaguaq – a Saqqaq site in Godthåbsfjorden. In Grønnow, B. (ed.) **The Paleo-Eskimo Occupations of Greenland: New Perspectives in Greenlandic Archaeology**, Danish Polar Center: 129 – 142.

Arundale, W.H.
1981 Radiocarbon dating in Eastern Arctic archaeology: a flexible approach. **American Antiquity** 46(2):244-268.

Auger, R.
1984 **Factory Cove: Recognition and Definition of the Early Palaeo-Eskimo Period in Newfoundland**. Unpublished Master's Thesis, Department of Anthropology, Archaeology Unit, Memorial University of Newfoundland: St .John's.

Bendix Thorstrup, C.
1911 Ethnographic description of the Eskimo settlements and stone remains in North-East Greenland. **Meddelelser om Gronland** 44(4).

Bielawski, E.
1982 Spatial behavior of prehistoric Arctic hunters: analysis of the site distribution on Aston Bay, Somerset Island. **Canadian Journal of Archaeology** 6:33 – 45.
1988 Paleoeskimo variability: the Arctic Small Tool tradition in the Central Canadian

Arctic. **American Antiquity** 53(1):52-74.

Birkett-Smith, K.
1930 The question of the origin of the Eskimo culture: a rejoinder. **American Anthropologist** 32(4):608-624.

Braudel, F.
1980 **On History**. University of Chicago Press, Chicago.

Clark, P.U. and W.W. Fitzhugh
1992 Postglacial relative sea level history of the Labrador coast and interpretation of the archaeological record. In L.L. Johnson (ed.) **Paleoshores and Prehistory: An Investigation of Method**. 189-213.

Collins, H.B.
1956 The T-1 at Native Point, Southampton Island, N.W.T. **Anthropological Papers of the University of Alaska** 4(2):63-89.

Cox, S.L.
1978 Paleo-Eskimo occupations of the north Labrador coast. **Arctic Anthropology** 15(2):96 – 118.
1987 **A Pre-Dorset Sequence from Nuasornak Island, Okak Bay, Labrador**. Manuscript on file with Historic Resources Division, Department of Tourism, Recreation and Culture, Government of Newfoundland, St. John's.

Elling, H.
1996 The Independence I and the Old Nuulliit cultures in relation to the Saqqaq culture. In Grønnow, B. (ed.) **The Paleo-Eskimo Cultures of Greenland: New Perspectives in Greenlandic Archaeology**:191 – 198.

Fitzhugh, W.W.
1972 **Environmental Archaeology and Culture Systems in Hamilton Inlet, Labrador: A Survey of the Central Labrador Coast from 3000 B.C. to the Present. Smithsonian Contributions to Anthropology No. 16**. Smithsonian Institute, Washington D.C.
1976 Environmental factors in the evolution of Dorset culture: a marginal proposal for Hudson Bay. In Maxwell, M.S. (ed.) **Eastern Arctic Prehistory: Palaeoeskimo Problems Society for American Archaeology 31**:139 – 149.
1984 Paleo-Eskimo cultures of Greenland. In Damas, D. (ed.) **Handbook of North American Indians, Vol. 5: Arctic**. Smithsonian Institute:528 – 539.

Fitzhugh, W.W., R. H. Jordan, S. L. Loring, C. Nagle and S. Kaplan
1979 **Report to the Newfoundland Museum on the Torngat Archeological Project 1978 Field Season**. Unpublished manuscript on file with Historic Resources, Department of Tourism, Recreation and Culture, Government of Newfoundland, St. John's.

Gendron, D.
1990 **The JgEj-3 site: a Groswater occupation in northern Ungava Bay**. Paper presented at the 23rd Annual Meeting of the Canadian Archaeological Association, Whitehorse, Yukon.

Giddings, J.L.
1964 **The Archaeology of Cape Denbigh**. Providence: Brown University Press.

Gordon, B.H.C.
1975 **Of Men and Herds in Barrenland Prehistory**. National Museum of Man Mercury Series Archaeological Survey of Canada No. 28. Ottawa: National Museums of Canada.

Grønnow, B.
1994 Qeqertasussuk - the archaeology of a frozen Saqqaq site. In D. Morrison and J.-L. Pilon (eds.) **Threads of Arctic Prehistory: Papers in Honour of William E. Taylor, Jr.**. 197-238.
1996 The Saqqaq tool kit - technological and chronological evidence from Qeqertasussuk, Disko Bugt. In B. Gronnow and J. Pind (eds.) **The Paleo-Eskimo Cultures of Greenland: New Perspectives in Greenlandic Archaeology**. 17-34.
1997 The Saqqaq harpoon: an analysis of Early Paleo-Eskimo harpoon heads from Qeqertasussuk, West Greenland. In Gilberg, R. and H.C. Gulløv (eds.) **Fifty Years of Arctic Research: Anthropological Studies from Greenland to Siberia** Department of Ethnography The National Museum of Denmark Publications of The National Museum Ethnographical Series, No. 18: 119 – 130.

Grønnow, B., M. Meldgaard and J.B. Nielsen
1983 Aasivissuit – the great summer camp. Archaeological, ethnographical and zooarchaeological studies of a caribou-hunting site in West Greenland. **Meddelelser om Grønland, Man and Society 5.**

Grønnow, B. and J. Pind
1996 **The Paleo-Eskimo Cultures of Greenland, New Perspectives in Greenlandic Archaeology**, (eds.). Copenhagen: Danish Polar Center.

Gulløv, H.C.
1985 Whales, whalers and Eskimos: the impact of European whaling on the demography and economy of Eskimo society in West Greenland. In Fitzhugh, W.W. (ed.). **Cultures in Contact. The Impact of European Contacts on Native American Cultural Institutions, A.D. 1000 – 1800.** Anthropological Society of Washington Series. Smithsonian University Press in London and Washington 1985:71 – 96.

Harp, E. Jr.
1964 **The Cultural Affinities of the Newfoundland Dorset Eskimo**. National Museum of Canada Bulletin 200.

Helmer, J.W.
1984 **The Independence I and Pre-Dorset Occupations of the High Arctic**. Paper presented at the 17th Annual Meeting of the Canadian Archaeological Association meeting, Victoria, B.C.
1991 The Palaeo-Eskimo prehistory of the North Devon Lowlands. **Arctic** 44(4):301 – 317.
1992 Prehistoric site location strategies in the North Devon Lowlands, High Arctic Canada. **Journal of Field Archaeology** 19:291 – 313.
1994 Resurrecting the spirit(s) of Taylor's "Carlsberg Culture": cultural traditions and cultural horizons in Eastern Arctic prehistory. In **Threads of Arctic Prehistory: Papers in Honour of William E. Taylor, Jr.** D. Morrison and J.-L. Pilon (eds.) Mercury Series Paper 149 Archaeological Survey of Canada. Canadian Museum of Civilisation: Hull. 15-34.

Hodder, I.
1987 The contribution of the long term. In Hodder, I. (ed.) **Archaeology as Long Term History** Cambridge University Press, Cambridge:1 – 8.

Holtved, E.
1944 Archaeological investigations in the Thule District, I-II. **Meddelelser om Gronland** 141(1-2).
1954 Archaeological investigations in the Thule District, Part III: Nûglît and Comer's Midden. **Meddelelser om Gronland** 146(3).

Hood, B.C.
1993 **Nain Maritime Archaic Project 1992 Preliminary Report**. Manuscript on file with Historic Resources, Department of Tourism, Recreation and Culture, Government of Newfoundland, St. John's.
1994 **Nain Maritime Archaic Project, Year 2: Preliminary Report**. Manuscript on

file with Historic Resources, Department of Tourism, Recreation and Culture, Government of Newfoundland, St. John's.

1995 **The Maritime Archaic / Pre-Dorset Boundary Project: Report on the 1994 Field Season**. Report on file with Historic Resources, Department of Tourism, Recreation and Culture, Government of Newfoundland, St. John's.

2000 Pre-Dorset / Maritime Archaic social boundaries in Labrador. In M. Appelt, J. Berglund and H.C. Gulløv (eds.) **Identities and Cultural Contacts in the Arctic. Proceedings from a conference at the Dansih National Museum Copenhagen, November 30 to December 2 1999**. 120 – 128.

1998 Theory on ice: the discourse of eastern Canadian Arctic Paleo-Eskimo archaeology. **Acta Borealia** 2:5 – 58.

Irving, W.N.

1957 An archaeological survey of the Susitna Valley. **Anthropological Papers of the University of Alaska** 6:37-52.

Jenness, D.

1925 A new Eskimo culture in Hudson Bay. **Geographical Review** 15:428 – 437.

Johnson, L.L.

1992 **Paleoshores and Prehistory: An Investigation of Method**. Boca Raton: CRC Press. (ed.).

Kapel, H.

1996 Angujaartorfik - a Paleo-Eskimo caribou hunting camp. In B. Gronnow and J. Pind (eds.) **The Paleo-Eskimo Cultures of Greenland: New Perspectives in Greenlandic Archaeology**. 119-128.

Kennett, B.L.

1990 **Phillip's Garden East: A New Perspective on Groswater Palaeoeskimo**. Unpublished Master's thesis, Department of Anthropology, Archaeology Unit, Memorial University of Newfoundland: St. John's.

Knuth, E.

1952 An outline of the archaeology of Peary Land. **Arctic** 5(1):17-33.

1954 The Paleo-Eskimo culture of Northeast Greenland elucidated by three new sites. **American Antiquity** 19(4):367-381.

1958 Archaeology of the farthest north. **Proceedings of the International Congress of Americanists, 1956**. Copenhagen.

1965 **Report on Arctic Archaeological Research, Summer 1965 (Ellesmere Island)**. Manuscript on file with the Archaeological Survey of Canada, Hull.

1966/67 The ruins of the Musk-ox Way. **Folk** 8-9:192-219.
1967 **Archaeology of the Musk-ox Way**. Contributions du Centre d'Études Arctiques et Finno-Scandinaves, No. 5. Paris: Sorbonne.
1977/78 The "Old Nûgdlît Culture" site at Nûgdlît Peninsula, Thule District and the "Mesoeskimo" site below it. **Folk** 19-20:15-47.
1981 Greenland news between 81° and 83° north. **Folk** 23:91-112.
1983 The northernmost ruins on the globe. **Folk** 25:5-21.
1984 **Reports from the Musk-ox Way**. Compilation of previously published articles, including a slightly altered radiocarbon dating list. Copenhagen.

Kramer, F.E.
1996a The Paleo-Eskimo cultures in Sisimiut district, West Greenland: Aspects of chronology. In B. Gronnow and J. Pind (eds.) **The Paleo-Eskimo Cultures of Greenland: New Perspectives in Greenlandic Archaeology**. 39-64.
1996b Akia and Nipisat I: two Saqqaq sites in Sismiut district, West Greenland. In B. Gronnow and J. Pind (eds.) **The Paleo-Eskimo Cultures of Greenland: New Perspectives in Greenlandic Archaeology**. 65-96.

Kroeber, A. L. and C. Kluckhorn
1952 **Culture: A Critical Review of Concepts and Definitions**. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard Vol. XLVIII no. 1.

Larsen, H.
1956 Paleo-Eskimos in Disko Bay, West Greenland. In Wallace, A.F.C. (ed.) **Men and Cultures: Selected Papers of the Fifth International Congress of Anthropological and Ethnological Sciences**. Philadelphia: University of Pennsylvania Press 574-579.

Larsen, H. and J. Meldgaard
1958 Paleo-Eskimo cultures in Disko Bugt, West Greenland. **Meddelser om Gronland** 161(2).

LeBlanc, S.
1996 **A Place with a View: Groswater Settlement-Subsistence in the Gulf of St. Lawrence**. Unpublished Master's thesis on file with Department of Anthropology, Archaeology Unit, Memorial University of Newfoundland: St. John's.

Loring, S. and S. Cox
1986 The Postville Pentecostal Groswater site, Kaipokak Bay, Labrador. In **Paleo-Eskimo Cultures in Newfoundland, Labrador and Ungava**. Memorial

University of Newfoundland. Reports in Archaeology 1:65 – 94.

Mary-Rousselière, G.
1976 The Paleoeskimo in Northern Baffinland. In Maxwell, M.S. (ed.) **Eastern Arctic Prehistory: Paleoeskimo Problems, Memoirs of the Society for American Archaeology 31**:40 – 57.

Mathiassen, T.
1927 Archaeology of the Central Eskimos, I-II. **Report of the Fifth Thule Expedition 1921-1924** 4(1-2). Copenhagen: Gyldendal.
1930 Inugsuk – A Mediaeval Eskimo Settlement in Upernavik District, West Greenland. **Meddelelser om Grønland** 77(4): 147-340.
1931 Ancient Eskimo settlements in the Kangamiut area. **Meddelelser om Gronland** 91(1).
1958 The Sermermiut excavations 1955. **Meddelelser om Gronland** 161(3).

Maxwell, M.S.
1973 **Archaeology of the Lake Harbour District, Baffin Island**. National Museum of Man Mercury Series, Archaeological Survey of Canada Paper 6. National Museum of Canada, Ottawa.
1976a **Eastern Arctic Prehistory: Paleoeskimo Problems. Memoirs of the Society for American Archaeology 31**. (ed.)
1976b Pre-Dorset and Dorset artifacts: the view from Lake Harbour. In Maxwell, M.S. (ed.) **Eastern Arctic Prehistory: Paleoeskimo Problems. Memoirs of the Society for American Archaeology 31**:58 – 78.
1984 Pre-Dorset and Dorset Prehistory of Canada. In Damas, D. (ed.) **Handbook of North American Indians 5: Arctic**. Washington:359:368.
1985 **Prehistory of the Eastern Arctic**. Orlando: Academic Press.

McGhee, R.
1976 Palaeoeskimo occupations of Central and High Arctic Canada. In Maxwell, M.S. (ed.) **Eastern Arctic Prehistory: Palaeoeskimo Problems. Memoirs of the Society for American Archaeology** 31:15-39.
1979 **The Palaeoeskimo Occupations at Port Refuge, High Arctic Canada**. National Museum of Man Mercury Series, Archaeological Survey of Canada Paper No. 92. Ottawa: National Museums of Canada.
1983 Eastern Arctic prehistory: the reality of a myth? **Musk Ox** 33:21-25.
1996 **Ancient People of the Arctic**. Vancouver: University of British Columbia Press.
2000a **Discussion: Canadian Archaeology in the Last Quarter of the 20th Century**. 33rd Annual Meeting of the Canadian Archaeological Association, Ottawa Ontario.

2000b Radiocarbon dating and the time of the Thule migration. In Appelt, M., J. Berglund and H.C. Gulløv (eds.) **Identities and Cultural Contacts in the Arctic**. Danish Polar Center Publication No. 8. The Danish National Museum and Danish Polar Center, Copenhagen: 181 – 191.

McGhee, R.A. and J.A. Tuck
1976 Un-dating the Canadian Arctic. In Maxwell, M.S. (ed.) **Eastern Arctic Prehistory: Palaeoeskimo Problems Society for American Archaeology 31**:6 – 14.

Meldgaard, J.
1952 A Paleo-Eskimo culture in West Greenland. **American Antiquity** 17(3):222-230.
1955 Prehistoric culture sequences in the Eastern Arctic as elucidated by stratified sites at Igloolik. In A.F.C. Wallace (ed.) **Men and Cultures: Selected Papers of the Fifth International Congress of Anthropological and Ethnological Sciences**. Philadelphia: University of Pennsylvania Press 588-595.
1977 The prehistoric cultures in Greenland: discontinuities in a marginal area. In Klystra, A.D. (ed.) **Continuity and Discontinuity in the Inuit Culture of Greenland** Arctic Centre, University of Groningen, The Netherlands:19 – 52.
1983 Qajaa, en kokkemodding i dybfrost. Feltrapport fra arbejdsmarken i Gronland. Nationalmuseets Arbejdsmark 1983: 83-96.
1996 The pioneers: the beginning of Paleo-Eskimo research in West Greenland. In Gronnow, B. and J. Pind (eds.) **The Paleo-Eskimo Cultures of Greenland: New Perspectives in Greenlandic Archaeology**. 9-16.

Meldgaard, M.
1991 Qeqertasussuk. De første mennesker I Vestgrønland. **Tidsskriftet Grønland 4 – 7, 1991** (ed).

Møberg, T.
1986 A contribution to Paleoeskimo archaeology in Greenland, **Arctic Anthropology** 23(1-2):19-56.
1999 New adaptive strategies in the Saqqaq culture of Greenland, c. 1600 - 1400 BC, **World Archaeology** 30(3):452-465.

Mohl, J.
1972 Animal bones from Itiverna, West Greenland, A reindeer hunting site from the Sarqaq culture. **Meddelelser om Grønland** 191(6):1 – 21.
1985 Dog remains from a Paleoeskimo settlement in West Greenland, **Arctic Anthropology** 23(1-2):81-89.

Murray, M.S.
1996 **Economic Change in the Palaeoeskimo Prehistory of the Foxe Basin, NWT.** Unpublished Ph.D. dissertation, Department of Anthropology, McMaster University.
1999 Local heroes The long-term implications of short-term prosperity – and example from the Canadian Arctic. **World Archaeology** 30(3):466 – 483.

Nagy, M.
1994 A critical review of the Pre-Dorset/Dorset transition. In **Threads of Arctic Prehistory: Papers in Honour of William E. Taylor, Jr.** D. Morrison and J.-L. Pilon (eds.) Mercury Series Paper 149 Archaeological Survey of Canada. Canadian Museum of Civilisation: Hull. 1-14.

Olsen, B.
1997 Saqqaq housing and settlement in southern Disko Bay, West Greenland. **Acta Borealia** 2:81 – 128.

Park, R.W.
1994 Approaches to dating the Thule culture in the Eastern Arctic. **Canadian Journal of Archaeology** 18:29 – 48.

Pinard, C.
1998 **Early Palaeoeskimo Occupation of the South Shore of Hudson Strait**. Paper presented at the 31st Annual Meeting of the Canadian Archaeological Association: Victoria, B.C.

Pingel, C.
1839 Antiquariske efterretninger fra Gronland. Annaler for nordisk Oldkyndighed. 1838-1839. **Det Kongelige Nordiske Oldkriftselskab**: 219-261.

Pintal, J.-Y.
1994 A Groswater site at Blanc Sablon, Quebec. In **Threads of Arctic Prehistory: Papers in Honour of William E. Taylor, Jr.** D. Morrison and J.-L. Pilon (eds.) Mercury Series Paper 149 Archaeological Survey of Canada. Canadian Museum of Civilisation: Hull. 145-164.

Plumet, P.
1990 **Mission Archéologique préliminaire dans la région de Blanc-Sablon**. Laboratoire d'archéologie, départment des Sciences de la Terre, Université du cQuébec à Montréal. MS on file with the Ministère des Affaires culturelles du Québec.

1994 Le paléoesquimau dans la baie du Diana (Arctique québecois). In **Threads of Arctic Prehistory: Papers in Honour of William E. Taylor, Jr.** D. Morrison and J.-L. Pilon (eds.) Mercury Series Paper 149 Archaeological Survey of Canada. Canadian Museum of Civilisation: Hull. 103-144.

Rasmussen, K.

1931 **The Netsilik: Eskimos Social Life and Spiritual Culture**. Report of the Fifth Thule Expedition 1921 – 1924:8. Glendenalske Boghandel. Nordisk Forlag, Copenhagen.

1938 Knud Rasmussen's posthumous notes on the life and doings of the Eastern Greenlanders in Olden Times - edited by H. Ostermann. **Meddelelser om Gronland** 109(1).

Renouf. M.A.P.

1996 Two transitional sites at Port au Choix, northwestern Newfoundland. In D. Morrison and J.-L. Pilon (eds.) **Threads of Arctic Prehistory: Papers in Honour of William E. Taylor, Jr.**. 165-196.

Rowley, G. and S. Rowley

1997 Igloolik Island before and after Jørgen Meldgaard. In Gilberg, R. and H.C. Gulløv (eds.) **Fifty Years of Arctic Research, Anthropological Studies from Greenland to Siberia**. Publications of the National Museum Ethnographical Series, Vol. 18. Copenhagen:269 – 276.

Schledermann, P.

1978 Prehistoric demographic trends in the Canadian High Arctic. **Canadian Journal of Archaeology** 2:43 – 58.

1980 Polynyas and prehistoric settlement patterns. **Arctic** 33: 292 – 302.

1990 **Crossroads to Greenland: 3000 Years of Prehistory in the Eastern High Arctic**. Calgary: Komatik Series 2.

Solberg, O.

1907 Beiträge zur vorgeschichte der Osteskimo. Steinerne schneidegeräte und waffenschärfe aus Gronland. **Videnskabsselskabets Skrifter II, Hist.-Fil. Klasse 2**, Christiania.

Steensby, H.P.

1910 Contributions to the anthropogeography of the Polar Eskimos. **Meddelelser om Grønland** 34(7).

1916 An anthropogeographical study of the origin of the Eskimo culture. **Meddelelser om Grønland** 53(2).

Stuiver, M. and B. Becker
1986 High precision decadel calibration of the radiocarbon time scale, AD 1950 - 2500 BC. **Radiocarbon** 28(2B): 869 – 910.

Sutherland, P.D.
1996 Continuity and change in the Paleo-Eskimo prehistory of Northern Ellesmere Island. In Gronnow, B. and J. Pind (eds.) **The Paleo-Eskimo Cultures of Greenland, New Perspectives in Greenlandic Archaeology**. 271-294.

Taylor, W. E.
1962 Pre-Dorset occupations at Ivugivik in Northwestern Ungava. In Campbell, J.M. (ed.) **Prehistoric Culture Relations Between the Arctic and Temperate Zones of North America** Arctic Institute of North America Technical Paper No 11: 8 – 113.
1968 **The Arnapik and Tyara Sites: An Archaeological Study of Dorset Culture Origins Memoirs of the Society for American Archaeology, 22**.

Tuck, J.A.
n.d. **Prehistory of Atlantic Canada**, manuscript on file with Archaeology Unit, Department of Anthropology, Memorial University of Newfoundland. St. John's.
1975 **Prehistory of Saglek Bay, Labrador: Archaic and Palaeo-Eskimo Occupations**. National Museum of Man Mercury Series, Archaeological Survey of Canada Paper No. 32. Ottawa: National Museums of Canada..
1976 Paleoeskimo cultures of northern Labrador. In Maxwell, M.S. (ed.) **Eastern Arctic Prehistory: Paleoeskimo Problems Memoirs of the Society for American Archaeology 31**:89 – 102.

Tuck, J.A. and W. W. Fitzhugh
1987 Paleo-Eskimo traditions of Newfoundland and Labrador: a reappraisal. In **Paleo-Eskimo Cultures in Newfoundland, Labrador and Ungava. Memorial University of Newfoundland Reports in Archaeology 1**: 161- 168.

Tuck, J.A. and R. McGhee
1983 Sea mammal dates: science or science fiction? **Quarterly Review of Archaeology** 4(2):9 – 10.

Tuck, J.A. and P. Ramsden
1990 **Continuities in Palaeoeskimo Prehistory**. Paper presented at the 23rd Annual Meeting of the Canadian Archaeological Association: Whitehorse, N.W.T.

APPENDIX A:

Eastern Arctic Radiocarbon Dates

	A	B	C	D	E	F	G
1	Date	Lab Number	Site	Location	Culture	Source	Material
2	4685+/-70 B.P.	S-2423	Sojourn	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	charcoal
3	4340+/-65 B.P.	S-2424	Sojourn	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	charcoal
4	4200+/-70 B.P.	Beta-36946	Burin Delta	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	charcoal
5	4161+/-170 B.P.	n/a	Pearylandville	Peary Land, Greenland	Independence I	Knuth 1967	willow
6	4070+/-120 B.P.	n/a	Pearylandville	Peary Land, Greenland	Independence I	Knuth 1966/7	willow
7	4055+/-80 B.P.	S-2214	West Wind	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	willow
8	4020+/-90 B.P.	B-36448	West Wind	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	charcoal
9	4010+/-90 B.P.	Ua-2166	Qivitup nuua	Sismiut District, Greenland	Saqqaq	Kramer 1996a	Betula nana
10	3990+/-70 B.P.	TO-994	Campview	Bache Pen., Ellesmere Island	Independence I	Schledermann 1990	willow
11	3980+/-85 B.P.	K-4823	Qeqertasussuk	Disko Bay, Greenland	Saqqaq	Gronnow 1994	turf
12	3940+/-70 B.P.	TO-993	Lakeview	Bache Pen., Ellesmere Island	Independence I	Schledermann 1990	willow
13	3930+/-130 B.P.	K-1260	Kettle Lake	Eureka Upland, Ellesmere Island	Independence I	Knuth 1965	willow
14	3900+/-80 B.P.	Beta-36446	Dodge River	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	charcoal
15	3900+/-60 B.P.	TO-995	Tusk	Bache Pen., Ellesmere Island	Independence I	Schledermann 1990	willow ?
16	3900+/-120 B.P.	K-928	Portfjaeld	Peary Land, Greenland	Independence I	Arundale 1981	willow
17	3870+/-100 B.P.	B-36649	Sojourn	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	charcoal
18	3870+/-150 B.P.	n/a	Kettle Lake North	Ellesmere Island	Independence I	Knuth 1966/7	willow
19	3860+/-120 B.P.	K-929	Portfjaeld	Peary Land, Greenland	Independence I	Arundale 1981	willow
20	3850+/-90 B.P.	S-1313	Icebreaker Beach	North Devon Lowlands, Devon Island	Pre-Dorset	Helmer 1991	caribou bone
21	3840+/-120 B.P.	K-939	Pearylandville	Peary Land, Greenland	Independence I	Arundale 1981	willow
22	3840+/-70 B.P.	TO-1556	Bight	Bache Pen., Ellesmere Island	Saqqaq	Schledermann 1990	musk ox bone
23	3835+/-85 B.P.	TUa-1689	Tupersai	Disko Bay, Greenland	Saqqaq	Olsen 1998	charcoal
24	***3830+/-115 B.P.***	***I-5250***	***Rose Island, Site Q***	***Labrador***	***Pre-Dorset***	***Tuck 1976***	***charcoal***
25	3830+/-95 B.P.	I-11757	West Wind	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	willow
26	3815+/-65 B.P.	TUa-1722	Tupersai	Disko Bay, Greenland	Saqqaq	Olsen 1998	charcoal
27	3810+/-130 B.P.	K-1261	Kettle Lake	Eureka Upland, Ellesmere Island	Independence I	Knuth 1965	willow
28	3800+/-90 B.P.	Ua-2164	Maniitsorsuaq	Sismiut District, Greenland	Saqqaq	Kramer 1996a	willow
29	3800+/-85 B.P.	K-3056	Tingit	Sismiut District, Greenland	Saqqaq	Kramer 1996a	willow
30	3800+/-120 B.P.	K-1062	Vendanaes	Peary Land, Greenland	Independence I	Arundale 1981	willow
31	3800+/-80 B.P.	K-5074	Kettle Lake	Eureka Upland, Ellesmere Island	Independence I	Knuth 1965	charcoal ?
32	3790+/-85 B.P.	K-5788	Akia	Sismiut District, Greenland	Saqqaq	Kramer 1996a	willow
33	3790+/-120 B.P.	K-930	Portfjaeld	Peary Land, Greenland	Independence I	Arundale 1981	willow
34	3790+/-120 B.P.	n/a	Pearylandville	Peary Land, Greenland	Independence I	Knuth 1967	willow
35	3790+/-95 B.P.	I-12339	Daylight	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	willow

	A	B	C	D	E	F	G
1	Date	Lab Number	Site	Location	Culture	Source	Material
70	3490+/-80 B.P.	K-6031	Nipisat	Sismiut District, Greenland	Saqqaq	Kramer 1996a	caribou bone
71	3490+/-165 B.P.	K-3938b	Ikasap Igtiva	Ammassalik District	Saqqaq	Moberg 1986	n/a
72	***3475+/-75 B.P.***	***SI-2507***	***Okak***	***Labrador***	***Pre-Dorset***	***Cox 1978***	***charcoal***
73	3470+/-125 B.P.	K-3057	Tingit	Sismiut District, Greenland	Saqqaq	Kramer 1996a	willow
74	3460+/-70 B.P.	TUa-1687	Niivertussannguaq	Disko Bay, Greenland	Saqqaq	Olsen 1998	charcoal
75	3455+/-65 B.P.	TUa-1724	Tupersai	Disko Bay, Greenland	Saqqaq	Olsen 1998	charcoal
76	3440+/-50 B.P.	TO-1638	Ridge	Bache Pen., Ellesmere Island	Pre-Dorset	Schledermann 1990	willow
77	3420+/-60 B.P.	TO-992	Topo	Bache Pen., Ellesmere Island	Saqqaq	Schledermann 1990	willow
78	3400+/-80 B.P.	K-5128	Qeqertasussuk	Disko Bay, Greenland	Saqqaq	Gronnow 1994	seal
79	3370+/-150 B.P.	K-144	Igdlorssuit	Disko Bay, Greenland	Saqqaq	Larsen et al 1958	n/a
80	***3320+/-70 B.P.***	***Beta-71476***	***Double Island Cove***	***Labrador***	***Pre-Dorset***	***Hood 1999***	***charcoal***
81	3310+/-80 B.P.	K-4816	Qeqertasussuk	Disko Bay, Greenland	Saqqaq	Gronnow 1994	heathered turf
82	3285+/-85 B.P.	T-12918	Kuup Qalorsaa	Disko Bay, Greenland	Saqqaq	Olsen 1998	charcoal
83	3260+/-70 B.P.	TUa-1723	Tupersai	Disko Bay, Greenland	Saqqaq	Olsen 1998	charcoal
84	3260+/-70 B.P.	B-36447	West Wind	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	charcoal
85	3160+/-85 B.P.	T-12917	Niivertussannguaq	Disko Bay, Greenland	Saqqaq	Olsen 1998	charcoal
86	3150+/-80 B.P.	K-4820	Qeqertasussuk	Disko Bay, Greenland	Saqqaq	Gronnow 1994	heathered turf
87	3150+/-60 B.P.	Beta-61153	Cape With	Eureka Upland, Ellesmere Island	Independence I	Sutherland 1996	bone collagen
88	3140+/-140 B.P.	K-146	Igdlorssuit	Disko Bay, Greenland	Saqqaq	Larsen et al 1958	n/a
89	2940+/-80 B.P.	K-5584	Nipisat	Sismiut District, Greenland	Saqqaq	Kramer 1996a	caribou bone
90	2898+/-136 B.P.	P-210	Kupuivik	Foxe Basin, Nunavut	Pre-Dorset	Arundale 1981	caribou antler
91	2860+/-80 B.P.	K-5864	Nipisat	Sismiut District, Greenland	Saqqaq	Kramer 1996a	caribou bone
92	2760+/-100 B.P.	n/a	Sermermiut	Jacobshaven Fjord	Saqqaq	Mathiassen 1958	n/a
93	2740+/-100 B.P.	n/a	Sermermiut	Jacobshaven Fjord	Saqqaq	Mathiassen 1958	n/a
94	2710+/-60 B.P.	GSC-2827	Ridge	Bache Pen., Ellesmere Island	Pre-Dorset	Schledermann 1990	bone
95	2455+/-50 B.P.	AAR-3574	Nipisat	Sismiut District, Greenland	Saqqaq	Moberg 1999	caribou bone
96	2420+/-75 B.P.	K-3055	Saattorsuaq	Sismiut District, Greenland	Saqqaq	Kramer 1996a	willow
97	2354+/-135 B.P.	P-211	Kapuivik	Foxe Basin, Nunavut	Pre-Dorset	Arundale 1981	caribou antler
98	2310+/-90 B.P.	Ua-2165	Tasilik	Sismiut District, Greenland	Saqqaq	Kramer 1996a	willow
99	2150+/-75 B.P.	K-3152	Aaivissuit	Sismiut District, Greenland	Saqqaq	Kramer 1996a	caribou bone