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Keywords

Arctic Small Tool Tradition, Thule, migration, material culture, adaptation, subsistence

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From Alaska to Greenland: A Comparison of the Arctic Small Tool and Thule Traditions

Jake Anderson

In this paper, I will discuss the distinguishing cultural characteristics of the Arctic Small Tool tradition (ASTt) and Thule tradition, and hypothesize about the implications that these characteristics have on the understanding of the ASTt and Thule ways of life. The ASTt and Thule migrations occurred approximately 3000 years apart from each other. They represent in the archaeological record two rapid, widespread migrations across the Arctic from the western coasts of Alaska to those of eastern Greenland. The material culture left behind by these peoples clearly indicates two very different lifestyles and adaptations to the Arctic environments in precontact North America.

To deal with such a broad topic, I will organize the paper into several headings and subheadings that pertain to significant characteristics of the ASTt and Thule cultures. However, it must be stressed that these categories are quite arbitrary in that they cannot be seen as independent variables that shaped the ASTt and Thule. Rather, these characteristics probably significantly influenced each other. Thus, within these arbitrary subheadings, other factors may be discussed in relation to them.

MIGRATION

ASTt Migration

The Arctic Small Tool tradition migration seems to have been a rapid event in relation to the archaeological record, moving from the northwest coast of Alaska to the eastern coast of Greenland within 300 to 500 years (Maxwell 1985:48). However, there is much debate surrounding the origins and causes of the ASTt migration. The possible link between the ASTt (sometimes referred to as the Denbigh Flint Complex) and cultures of northeast Asia continues to be debated. Artifacts of the Denbigh Flint Complex and Independence Fiord, Pearyland, now known as the ASTt, are similar to those found in Siberia. Such artifacts include

microblades, burins and burin spalls, and projectile points and scrapers that resemble those recovered from settlements around Lake Baikal and elsewhere in eastern Siberia (McGhee 1996; Nash 1969). Charcoal found in Feature 17 at the Kuzitrin Lake Denbigh site in Alaska has produced radiocarbon dates ranging from 5500 to 4000 B.P. (Harritt 1998:63-69). Harritt (1998) states that the earliest known Denbigh material could possibly signify the appearance of the Denbigh culture from Siberia in western Alaska.

Within this west to east migration model, two major ASTt variants have been identified in the High Arctic: Independence I and Pre-Dorset. Charcoal from Independence I sites have provided a radiocarbon date range from about 4000 to 3700 B.P. These sites are located in Greenland, and on the High Arctic of Canada at Devon, Cornwallis, and Ellesmere Islands. Independence I sites also likely occur in the Low Arctic, however they are hard to recognize due to the small size of camps and the amount of tundra vegetation that may be covering them (McGhee 1978:30). The Pre-Dorset variant of the ASTt is centred around the Hudson Bay, Hudson Strait, and Foxe Basin areas (McGhee 1978:37). Radiocarbon dates on material from the Gull Cliff site on Peary Island suggest that it is a component that appeared 300 years after Independence I (Maxwell 1985:74).

While McGhee (1978) argues that Independence I and Pre-Dorset represent separate ASTt waves of migration, Maxwell (1985) asserts that separate Arctic Small Tool traditions were gradually developing out of one major migration. The barren beaches of the High Arctic make Independence I sites more visible than those of Pre-Dorset to the south, which may create a location bias for Independence I sites in the High Arctic. Shaymark, an early Pre-Dorset site located on Baffin Island, has produced similar artifacts to those found on Independence I sites, including a flaked adze that had been polished, and a triangular harpoon point (Maxwell 1985:74-75). I believe that it is difficult to make the assumption that Pre-Dorset and Independence I represent two distinct, significant migrations, on the basis of regional variation and an overall lack of known sites. Regional diversity in artifact assemblages over a distance as wide as from Alaska to Greenland hardly seems inappropriate. As Maxwell (1985) points out, the diverse ecology of the North American Arctic could account for virtually all regional diversity between Independence I and Pre-Dorset (Maxwell 1985:68). Therefore, I will

recognize the variability between Independence I and Pre-Dorset ASTt, but treat them as separate parts of the same migration phenomenon rather than as distinct waves of migration.

In contrast to models that suggest a west to east migration of ASTt with origins in Siberia, some argue for an east to west migration originating in North America. Stewart (1989) argues that ASTt dates demonstrate the latter pattern. He states that Paleoeskimo (ASTt) sites appear west of the Pre-Dorset core area only after 3500 B.P., and therefore the Pre-Dorset culture is older than the ASTt (Stewart 1989:71-75). Yet, such an argument is flawed for several reasons. First, Stewart (1989) seems to be only concerned with radiocarbon dating, and appears to ignore other factors such as regional variation. He also fails to give reasons for the similarities between ASTt and Siberian toolkits. Furthermore, as discussed previously, more recent research at the Kuzitrin Lake Denbigh site has produced radiocarbon dates between 5500 B.P. and 4000 B.P. for ASTt occupation in western Alaska (Harritt 1998). As a result, I believe that a west to east model of migration remains the most viable.

Thule Migration

Like the ASTt, the Thule tradition represents a major eastward cultural migration out of Alaska approximately 1000 years B.P., stretching as far as eastern Greenland, with its origins lying west of Alaska. Surprisingly, however, there is little literature on the Thule migration across the Arctic (Morrison 1999:139). There is a general consensus that the Punuk and Birnirk cultures were ancestral to the Thule culture. The Punuk culture descended directly from the Old Bering Sea culture between 1500 and 1000 B.P. on the Siberian coast and St. Lawrence Island. Punuk is distinguished from Old Bering Sea through the introduction of iron blades, ivory armour, and the sinew-backed bow. The Punuk culture also replaced flaked-stone tools with ground-slate tools, and began making large harpoon heads for hunting bowhead whales. The influence of Punuk spread as far east as the northern coast of Alaska, where it influenced the Birnirk culture at Point Barrow, which was a contemporaneous culture with Thule in Alaska (McGhee 1978:76-81).

The timing of the Thule migration out of Alaska is difficult to pinpoint, but approximately 1000 to 1100 B.P. seems to be the accepted time range for its occurrence (Maxwell 1985; McGhee 1978, 1996; Morrison 1999). A

sequence of harpoon heads is used to date the earliest Thule sites: Tasik, Nuwuk, Natchuk, Alilu, and Sicco. Maxwell (1985) argues that if these harpoon points represent the earliest Thule immigrants, then their migration was clearly one of west to east. Natchuk is the earliest harpoon head associated with early Thule sites east of Alaska, and is also found in late Birnirk deposits and early Thule settlements in Alaska (Morrison 1999:141). Furthermore, the Thule migration itself appears to have initially been in the form of several small groups. Two migration phases have been identified: Natchuk and Ruin Island. Natchuk consists of several sites around Cornwallis Island and Baffin Island, and date to approximately 1000 B.P. Ruin Island has been identified on Elsmere Island, and approximately dates between 800 and 700 B.P. In the Ruin Island phase, evidence such as paddled clay pottery, points to immediate origins in Alaska (Morrison 1999:140-152). These characteristics clearly attest to an eastward migration out of Alaska.

ARTIFACT ASSEMBLAGES

The understanding of ASTt and Thule artifact assemblages is important for obvious reasons. Along with features, structure remains, and burials, artifact assemblages provide significant insight to the life-ways of a culture. Tool types, their quantities, and their contextual location within a site can provide clues as to how a particular group adapted to ecological conditions, how it was socially organized, and perhaps provide a rough estimate of population size (in conjunction with other factors). Clearly, therefore, in order to better-understand the lifestyle differences between the ASTt and Thule tradition, it is important to analyse their assemblages.

ASTt Assemblages

As the name suggests, ASTt artifacts are uniquely small. A distinctive characteristic of the ASTt toolkit is the presence of tools used to manufacture weapons from organic material, like bone, ivory, and wood. Such weapon fabricating tools include spalled burins and flaked graters. The ASTt toolkit remains fairly constant from the northwest coast of Alaska to northeastern Greenland, however there is some regional and temporal variability. For example, certain sites contain no microblades (Maxwell 1985:41-42). Within the AST tradition, the Independence I and Pre-Dorset complexes have largely similar toolkits, however there are some

site-specific distinguishing variations. Arguably the most significant differences between Independence I and Pre-Dorset artifacts are in tools made from bone, antler, and ivory. In particular, they differ in harpoon head style. The Pre-Dorset complex sees the introduction of a basal socket for hafting, as opposed to Independence I harpoon heads, which have basal tangs that were used to mount the head into a cup-shaped socket on the shaft of the harpoon. Also, Pre-Dorset harpoon heads have sharp basal spurs, which provide a stronger grip than barbs found on those of Independence I (McGhee 1978; Maxwell 1985). Despite such site-specific variations, the relative homogeneity of the toolkits clearly indicates the migration of a common tradition or culture across the Arctic, rather than a diffusion of characteristics (Maxwell 1985:41-42).

ASTt toolkits typically have a large number of finely crafted artifacts, including small, triangular projectile points that have been carefully flaked, and Paleoindian-like flaked graters with very small retouched points. Furthermore, the people of the ASTt rarely left behind substantial amounts of debitage or other material waste. An example of this can be seen at the Thyazzi site in northeast Manitoba. A total of only 332 artifacts have been recovered from this site, including burins and burin spalls, a variety of bifaces and unifaces, and miscellaneous cultural debris (Nash 1969:7-24). A more dramatic example of this can be seen at a dwelling site, consisting of small boulders, located twelve kilometres southeast of the Shaymark site on Baffin Island (Maxwell 1985). Not a single artifact was left behind by the people occupying this structure (Maxwell 1985:74-75).

Thule Assemblages

Unlike the ASTt, the Thule people produced very large quantities of tools made from bone, ivory, and stone. There is such a significant variety of artifacts in many Thule structures that the process of manufacturing the artifacts probably took as much effort and time as utilizing the tools in hunting (Maxwell 1985:282). For example, in the hunting of sea mammals, the Thule appear to have had specific harpoon heads for each variety of species and hunting locations (open water versus ice hunting) (Maxwell 1985:270). As a result of such an abundance of Thule artifacts, I simply cannot cover all of them in this paper. For a relatively thorough overview, I would recommend Dennis

J. Stanford's (1976) *The Walakpa Site, Alaska: Its Place in the Birnirk and Thule Cultures*.

The bow drill is arguably the most distinctive, and was the most used, tool that characterises the Thule culture. The bow was made from ivory, and was occasionally engraved with elaborate depictions of Thule life. It was so valued by the Thule people that it is often found as a grave good in Thule burials. The bow is used in conjunction with a chord wrapped around a spindle, which drills a stone or metal tip. The drill itself was used for a variety of tasks, including the splitting of narrow bars of ivory from walrus tusks (Maxwell 1985:282-283).

Important innovations found in the Thule archaeological record include the umiak hunting boat and the kayak (Maxwell 1985; McGhee 1978). Evidence of these boats is found in wooden remains of the actual boats themselves, as well as miniature versions made from wood (presumably toy boats), and depictions in at least four carvings. The frames of these boats were constructed from driftwood, and covered in sealskins (Maxwell 1985:266-268). In addition to the appearance of umiaks and kayaks, the dogsled also appears in Thule assemblages (Maxwell 1985; McGhee 1978). The utilization of boats and dogsleds played a significant role in the subsistence and transportation of the Thule people, which will be discussed in greater detail below.

Another interesting aspect of the Thule artifact assemblage is the presence of a variety of non-utilitarian items. There seems to be a decline in free-standing art artifacts in Thule assemblages. However, there is no shortage of what seem to be toys and games: "Virtually everything used by adults was copied in miniature form, often in simple, silhouette baleen cutouts." (Maxwell 1985:293-294). As Maxwell (1985) points out, most of the artifacts that are interpreted as children's play items seem to be geared toward preparing children for tasks that they would have to carry out in adulthood, such as hunting.

A final trend found in the Thule artifact assemblages seems to be a much heavier reliance on slate than flint or chert for making stone tools, such as harpoons and blades (Maxwell 1985; McGhee 1978; Stanford 1976). This, along with the characteristics briefly discussed above, may provide important insights to the way of life of the Thule people.

Comparing the ASTt and Thule Assemblages

The skill and care that went into the ASTt toolkit, and the small amounts of debris left behind, suggest that the ASTt peoples heavily curated their equipment. Had they been more expedient with their tools, we would find more debris and artifacts like utilized flakes, rather than finely crafted, heavily retouched and shaped tools. I think it is safe to assume that a heavily curated toolkit is the result of a highly mobile lifestyle for the ASTt. A group travelling over long distances would be hindered by a large, less mobile, toolkit. Therefore, it would be in the best interests of a highly nomadic group to manufacture small tools that could perform a variety of tasks, such as microblades, and could be re-used for a maximum use-life until reaching another resource outcrop.

Conversely, I believe it can be concluded that the Thule had a more expedient tool tradition than the ASTt. Finding larger deposits of bone, ivory, stone tools, and debris in Thule structures and middens, as well as the selection of less fine-grained resources as flint and chert, clearly attests to this. The expedient nature of their toolkit may be indicative of a low-mobility lifestyle. Presumably, if a group were to remain sedentary for a relatively long period of time, they would not need to manufacture a highly mobile toolkit. Thus, more time could be spent manufacturing a wider variety of tools, which would not necessarily require long use-lives.

Likewise, I feel that the abundance of artifacts interpreted as being toys and games, as well as the wide variety of utilitarian objects such as harpoon heads, probably also indicate a more sedentary lifestyle of the Thule people than the ASTt. Less food-related stress and general life stresses may also be indicated by the greater presence of non-utilitarian artifacts.

Finally, it is my supposition that larger artifact assemblages present on Thule sites are an indicator of greater population densities in relation to the ASTt. It would seem logical that a greater amount of cultural debris on Thule would indicate a larger population density than seen in the ASTt. However, factors such as settlement patterns, structures, and subsistence are probably a better indicator of population sizes.

SUBSISTENCE

In Arctic conditions, humans require a diet of high levels of protein to compensate for the rise in the metabolic rates when exposed to

cold conditions for long periods of time. Fat is then needed to counter the effects of significant protein consumption. "It is ultimately the amount of fat that is available to humans which ultimately determines the success of aboriginal Arctic adaptations" (Cachel 2000:40). Likewise, fuel is another important consideration in Arctic life. The ability to burn fuel for cooking, heating, melting ice and snow for water, drying clothing, and providing light during the darkness of winter is essential for survival in the North American Arctic. Since vegetable fuels, such as driftwood, are rare, difficult to gather, and used in the making of some tools, fat is also essential as a fuel source (Cachel 2000:40-41). Thus, the understanding of subsistence practices amongst precontact Arctic groups is essential to the further understanding of other elements of culture, such as settlement and social organization, that result (at least in part) from adaptations to ecological circumstances.

ASTt Subsistence

The Arctic Small Tool tradition people(s) had a subsistence that encompassed a variety of Arctic animals, demonstrated by the bones found at ASTt campsites. Musk oxen appear to have been the main food source in Independence I, but smaller game such as Arctic char, hare, ringed seal, geese, and other coastal animals were also hunted (Maxwell 1985; McGhee 1976). On Ellesmere Island and northern Greenland, musk oxen are the predominant remains found on Independence I sites. Independence I sites on Devon Island have produced seal, walrus, and polar bear remains. (McGhee 1978:34).

In contrast, the Pre-Dorset peoples primarily relied on sea mammals for subsistence, especially ringed seal (Ramsden & Murray 1995:106). Other sea mammals included the bearded seal and walrus. These mammals were acquired through the use of a thrusting-harpoon (Maxwell 1985:84). While most emphasis was clearly placed on hunting sea mammals, the people of the Pre-Dorset complex also hunted a variety of terrestrial animals. Remains of such animals in Pre-Dorset middens include musk oxen, polar bear, birds, fox, and hare (Maxwell 1985:88).

Unlike the Thule culture, there is no evidence for the utilization of boats in the Arctic Small Tool tradition (Maxwell 1985; McGhee 1978). As a result, it has been argued that ASTt hunting was probably restricted to land or the flow edge.

Thule Subsistence

A major distinguishing characteristic of the Thule culture was the heavy subsistence reliance on the bowhead whale, as can be seen by the large amounts of whalebones and whale-hunting implements found on Thule sites (Maxwell 1985; McGhee 1976; Savelle 1994; Park 1997). Bowhead whales migrate east along the Alaskan coast in the spring. The bowheads gather in the straits and western gulfs of the islands of Canada's Arctic. Hunting these whales would require new techniques, including the use of kayaks and umiaks to chase the whales, which are present in the archaeological record on Thule sites, as discussed above (Maxwell 1985:251). The Thule whaling harpoon is large, triangular, made from slate, and has a hole drilled into one corner for the attachment of a line from the shaft to the head. In addition, the Thule utilized toggling harpoon heads made from ivory or whalebone. These harpoon heads range from 12-14 cm in length, and were hafted into a bone foreshaft that would detach into the large animal. When tension is exerted on the line, the harpoon then toggles to maintain a stronger hold in the flesh (Maxwell 1985:265). Also, walrus and seal bladders, and presumably entire sealskins, were inflated and used as floats to attach to harpoon lines. Floats are evident through the presence of carved plugs, plug mouthpieces, and line swivels in Thule assemblages. These floats would be tossed into the water to tire a whale once it had been harpooned, forcing it to surface (Maxwell 1985:265-266).

It should be noted, however, that whaling was not the only form of Thule subsistence. A variety of other animals were exploited in addition to whales in many areas. Furthermore, because of regional variation in the abundance of species, whaling would have proved to be a poor means of subsistence in some regions, such as the Amundsend area (Morrison 1999:149-152). In addition to (or in the absence of) whales, Thule groups exploited caribou, muskoxen, birds, walrus, seals, fox, hare and waterfowl (Maxwell 1985; McGhee 1978). A significant terrestrial hunting technique employed by the Thule was the drive. Large mammals, such as caribou, would be herded (chased) into lakes by runners, where hunters in kayaks would wait with lances to kill the animals struggling in the water (Maxwell 1985:273-274).

Through mass-kill techniques, and the hunting of bowhead whales, the Thule attained large food surpluses. The bowhead, or

Greenland right whale, in their maturity reach lengths of 18 to 20 metres and weigh over 60 tonnes, making them the largest specie of Arctic sea mammals (Savelle & McCartney 1994:283). Maxwell (1985) asserts that one 40 tonne bowhead whale would be sufficient enough to provide an entire Thule village with two to four kilograms of meat per individual on a daily basis for one year, as well as enough blubber to light soapstone lamps. Obviously, other factors including population size, social organization, and trade would likely influence the distribution of meat and fuel among a Thule settlement. Nevertheless, this evidence is a clear indicator of the potential for food surpluses.

The presence of resource surpluses resulting from mass kills and especially bowhead whaling in Thule groups has implications for the understanding of Thule social organization and ecological adaptation. Bowhead whale hunting requires a large, cooperative effort (Park 1997:274). Grier (1999) has used ethnographic data of Arctic whaling communities to find links between material and social phenomena. The Inupiat whaling group of northwest Alaska may be useful as an analogous model for the economic and social organization in the Thule culture (Grier 1999:12). A major aspect of Inupiat whaling economy is the "...organization of whaling crews with an internal division of labour" (Grier 1999:12). Within the whaling crew is a hierarchical structure. The leader (umialik) is responsible for assembling the crew and materials for the hunt, including the umiak. The umialik is also responsible for directing the crew's activities during the whale hunt and pre-hunt rituals. The umialik, being at the top of the hierarchy and having provided significant amounts of material wealth into the hunt, receives a larger share, and overall better quality, of the whale products than the rest of the contributors, who receive proportions relative to their contributions to the hunt (Grier 1999:12-13). Grier (1999) does not comment on the social stratification of the rest of the population, but given that there is a ranked system for the hunt, presumably there is some hierarchy, even if only subtle, in the organization of the communities themselves.

Material wealth seems to express the division of labour in northern Alaskan whaling communities. The umialik contributes his own materials to the hunt and rituals preceding the hunt, has preferential access to the bounties of the hunt, and has more access to exotic materials. "All of these can be investigated

archaeologically, since they materially distinguish captains from non-captains" (Grier 1999:14). Grier (1999) has applied this model to Thule assemblages in seven structures, and proposes three housing groups that correspond to a division of Thule labour. These housing groups are categorized as belonging to whaling captains, general crew members, and specialized crew members, based on the kinds of whaling-related artifacts found in each (Grier 1999:23). Furthermore, Dawson (2001) has found that Thule structures on Deblicquy and Black Point sites on Bathurst Island demonstrate some variability, which could be attributed to social differentiation.

Comparing the ASTt and Thule Subsistence Economies

There are numerous ramifications of ASTt subsistence strategies on the overall life-ways of the ASTt. Cachel (2000) has analysed the ways in which subsistence influences social organization in Arctic societies, and asserts that the level of sedentism and aggregation of groups is influenced by the abundance of animal resources and specific hunting techniques. Thus, the emphasis on hunting small-to-medium sized game further suggests that the ASTt consisted of small groups with low population densities. Relying on highly mobile food sources, in addition to scarce fuel supplies such as driftwood and willow branches, would have forced ASTt groups to be highly mobile (Maxwell 1985:62). As will be discussed below, attaining a sustainable surplus through the hunting of large game such as whales, and the use of mass-kill techniques such as drives, requires a heavily coordinated effort.

Furthermore, the inability to produce a surplus of food or fuel probably indicates that the society had an egalitarian social structure. When there is an absence of ample resource surplus, rules regarding food sharing in social groups become increasingly strict. Typically, food-sharing rules become less strict in areas of abundant resources, which can result in the acquisition of control over surplus sharing by a leader or a small group of elite individuals (Cachel 2000:42). Therefore, in the absence of evidence for large surpluses in ASTt sites, it seems reasonable to conclude that the ASTt social structure was egalitarian.

It is hard to evaluate the accuracy of an ethnographic analogy comparing the Thule culture with historic whaling cultures of northern Alaska, as proposed by Grier (1999). Such a

comparison may be viable, as the modern Inuit in Greenland, Arctic Canada, and northern Alaska are the direct cultural and biological ancestors of the Thule culture (Park 1997:273). However, I feel that more analyses like Grier's must be conducted to attain a greater understanding of the level of complexity of material distribution and access to resources before making conclusions on the intimate details of Thule social structure. Regardless, given the amount of coordinated effort required to hunt a bowhead whale, and the amount of surplus attained through such a hunt, it seems very likely that the Thule had a greater level of social complexity, and a larger population, than the ASTt.

Finally, Thule subsistence seems to reflect a better overall adaptation to the Arctic environment than the ASTt. As I have discussed, the Thule tradition had a wider range of implements and techniques for hunting various species, especially large mammals like the bowhead whale, than the ASTt. Presumably, they could create a surplus from exploiting a variety of terrestrial and aquatic species over a shorter range-distance than the Arctic Small Tool tradition. As a result, Thule groups were probably much less prone to suffering from food stresses.

SETTLEMENT

As with artifact assemblages and subsistence practices, evidence of settlement patterns and strategies are important archaeological indicators of how a particular society adapted to, and perhaps influenced, ecological and cultural variables. The quantity of, and apparent level of permanence exhibited by, structures at a particular site have potential to demonstrate population size, social organization, and residential mobility. Therefore, it is appropriate to compare and contrast the settlement characteristics of the Thule and ASTt in order to further appreciate the differences between the two traditions.

ASTt Settlement Characteristics

Independence I camps tend to be quite meagre, "...with a small box-shaped hearth made from slabs of stone set upright in the gravel of an ancient beach" (McGhee 1978:31). The structures themselves consist of linear clusters of stone slabs, lying parallel to each other around the hearth, with smoothed gravel on either side for sleeping areas. Gravel or small rocks, sometimes surrounding the structures, probably held down the tents. Small occupational debris

suggests short stays of a few days to weeks. A distinctive characteristic of these camps is that, unlike most Arctic hunting camps, they are not found clustered together (McGhee 1978:31-32). As a result of high residential mobility, it is difficult to measure ASTt population density, but it has been estimated that the Independence I complex had a population density of one person per 130 square kilometres (Maxwell 1985:62).

Pre-Dorset settlements are similar to those of Independence I, but exhibit some degree of seasonal and regional variability. Three Pre-Dorset structure-types have been identified at the Kent site on Bettison Point, north of Prince of Wales Island (Ramsden & Murray 1995). The Type-1 Pre-Dorset structure consists of a cluster of rocks in an area of about 4.5 m². Type-2 structures consist of large tent rings with evidence of a mid-passage hearth, with an average area of 21 m². Pre-Dorset Type-3 structures are rings approximately 8.5 m² in size, partially outlined by stones, with a gravel-covered central depression (Ramsden & Murray 1995:108-109). The location of Type-1 structures on steep slopes, and faunal remains associated with the structures, indicate that they were probably winter shelters. A complete absence of evidence for wall materials in the Type-1 structures indicates that they were likely snow dwellings. In contrast, the Type-2 and 3 structures, located on windy ridge-tops and associated with warm-seasonal faunal remains, appear to have been warm-weather structures (Ramsden & Murray 1995:110-113).

Thule Settlement Characteristics

As already discussed, a subsistence primarily based on bowhead whaling, as well as mass-kills of large mammals, would have allowed for a relatively sedentary lifestyle. In addition, it probably ensured that a higher percentage of children would survive to maturity, which would ultimately result in a rapid population growth. Most Thule villages seem to have been occupied for less than a generation. As populations increased and villages split apart, relocation would have been relatively easy through the use of umiaks and kayaks. As a result, the spread from Alaska to Greenland probably happened within only a few generations (McGhee 1978:87-89).

Actual settlement patterns of the Thule are largely unknown. From the evidence that is available, it seems likely that villages aggregated together as a joint effort in hunting bowhead whales in the late summer, then remained living

together through the winter, rather than dividing the whale resources into smaller allotments and dispersing (Park 1997, 1998; Savelle 2000). Accordingly, wintering sites are the most impressive and well-known Thule occupations. Thule wintering sites consist of impressive communities of semi-subterranean houses built from bowhead whalebones, animal skins, boulders, and cut turf. The structures themselves are in the rough shape of an oval, approximately five metres in diameter. They are usually divided into two sections. The area toward the front of the dwelling has flagstones providing a floor surface, and a cooking area in one or two of the corners. The back section consists of a sleeping area raised about 20 centimetres from the floor on a flagstone platform. Mattresses were made of baleen cut into strips, and likely covered in caribou skin-blankets. Whale mandibles and ribs were used as rafters, creating a dome-shaped roof. The walls were covered in skins, moss, and snow, which would have provided excellent insulation. Blubber lamps would have been used to heat the houses (Dawson 2001; Maxwell 1985; Park 1998). Unfortunately, however, most Thule structures are not fully intact due to the exploitation of the whalebone construction materials, centuries after the communities had been abandoned (Dawson 2001:454).

Comparing the ASTt and Thule Settlement Characteristics

As mentioned previously, the level of sedentism of a group living in the Arctic is largely influenced by the abundance of fat and fuel in the area being exploited (Cachel 2000:42). However, anticipated mobility is the most significant influential variable on site structure and size (Kent 1991). Kent (1991) has conducted multiple regression analyses on various hunter-gatherer groups around the world. Anticipated mobility, or the amount of time that a group expects to occupy a given area, when compared with other variables such as population size and seasonality, was found to be the largest factor (51%) in person per m² variability among hunter-gatherer campsites. Additionally, it was determined that the amount of time invested in hut construction correlates completely to anticipated mobility (Kent 1991:34-42).

Therefore, in the case of the ASTt, the small camp groups were very nomadic due to an anticipated high rate of mobility. I would argue that the factors influencing the anticipation of

high mobility were a combination of ecological and social factors. ASTt populations were clearly low, and as a result, large-scale coordinated efforts in mass-kill hunting, or the hunting of larger mammals such as the bowhead whale, would have proved to be impossible. Attempts to exploit greater numbers of mammals, or large mammals, without a coordinated effort of many people may have proven dangerous in two ways: an unsuccessful hunt could have resulted in the starvation of a family group; and the loss of even a single hunter on a dangerous excursion could also bring peril to a small group. Therefore, it is likely that the ASTt anticipated short-term settlement and high mobility over a large range in order to exploit a realistically sustainable amount of resources.

Unlike the ASTt, the Thule culture was one that anticipated low mobility. More time and effort was clearly placed into the more elaborately constructed Thule shelters than the ASTt. Because the amount of effort placed into the construction of a structure is directly related to anticipated mobility (Kent 1991:42), it can be concluded that the Thule anticipated a more sedentary lifestyle than the ASTt. I believe that such anticipated mobility may have been influenced by several factors. The production of a large surplus from bowhead whaling would mean that high mobility would not be necessary. Moreover, remaining relatively sedentary would have had its advantages in more easily coordinating hunts. Furthermore, as population density increased in areas of the Arctic, Thule groups may have been restricted to movement within certain areas.

MORTUARY PRACTICES

Mortuary practices can also bring a significant understanding of population density, social organization, and group mobility to the analysis of a culture in the archaeological record. Therefore, I will also consider the mortuary practices of the ASTt and Thule for the purpose of piecing together the contrasting life-ways of the two archaeological cultures.

ASTt Mortuary Practices

As Helmer and Kennedy (1986) point out, Arctic Small Tool tradition burials are extremely rare. Thus, we have little information on ASTt burial ritual. One known ASTt burial site is located on Devon Island (Helmer & Kennedy 1986). The remains of a premature infant were found in a burial at the Rocky Point site, associated with a small number of ASTt

artifacts. These artifacts included several bifacial projectile points, side scrapers, burins and burin spalls, microblades, bone and antler tools, and a harpoon head. The burial has been radiocarbon dated to 3840 +/- 90 years B.P. from Arctic willow charcoal (Helmer & Kennedy 1986). In addition to the Rocky Point site, three types of burial practices have been identified at Igloodik, west of Baffin Island, associated with ASTt (Helmer & Kennedy 1986). The first is comprised of stone slabs that form a box, which is covered by boulders. The second is a small, circular pit lined with stone. The third, and most elaborate, is a pit beneath a low gravel mound, containing the mandible of a child and the long bone of an adult. This pit is associated with a few grave goods, and the surrounding area was covered with red ochre, burnt animal bone, and charcoal (Helmer & Kennedy 1986:139).

Thule Mortuary Practices

In contrast to known ASTt burial practices, Thule groups did sometimes inter their dead in true cemeteries, such as the Silumiut site (Maxwell 1985:289). "The dead were buried in boulder-covered cairns, which in some areas were grouped to form large cemeteries" (McGhee 1978:97). These boulder tombs are believed to be continuities from the Birnirk culture in Alaska, which interred their dead in house-like structures made from wood, along with various grave goods. However, to the east, wood was not as abundant, and therefore boulder cists would have had to replace the wooden tombs. Large pikes of rocks in the shape of "beehives" covered stone box-structures that the dead were placed in. Like the burials of the AST tradition, the distribution of grave goods at Silumiut and other Thule cemeteries do not seem to follow any pattern (Maxwell 1985:289).

Comparing the ASTt and Thule Mortuary Practices

The lack of ASTt burials and complete absence of known cemeteries further attests to the low population density, and high residential mobility, of the ASTt people. Furthermore, the burials described above offer no indication of any ranked social status in ASTt groups. Grave goods seem to be few in numbers, and no individual burials have a level of elaborateness over others that would clearly indicated marked status.

The appearance of marked cemeteries in the Thule culture has several implications on

the understanding of Thule life-ways. Cemeteries are further indicators of increasing population density and greater sedentism in the Arctic. I think that as Thule populations increased and mobility decreased, the creation of specialized locations to inter deceased relatives may have become necessary for various reasons, including sanitation or spiritual beliefs. Likewise, McGhee (1978) argues that ASTt groups may not have returned to previous campsites partially out of fear of encountering the spirits of deceased family members. Furthermore, cemeteries may indicate some level of territorialism amongst Thule groups. Charles and Buikstra (1983) argue that permanent, marked cemeteries in the central Mississippi drainage area tended to have been used as a way for kin groups to solidify their claims to certain areas and their resources. Thus, with a greater tendency toward sedentism, and an increase in population, Thule groups may have also begun to reserve claims to areas of abundant resources by interring their ancestors in marked stone tombs.

CONCLUSIONS

The Arctic Small Tool tradition and the Thule tradition both represent significant west-to-east migrations across the North American Arctic, extending from the western coast of Alaska to the eastern coast of Greenland. In archaeological terms, these migrations were quite rapid. The ASTt spread across the Arctic within several centuries, and the Thule accomplished the same roughly 3000 years later within the time span of only a few generations. Beyond these similarities, however, the ASTt and Thule seem to have been cultures of contrast.

The toolkit of the ASTt is one that was heavily curated. This, coupled with the absence of significant amounts of waste debris, is likely indicative of a highly mobile settlement pattern. In contrast, the Thule artifact assemblage demonstrates a culture with a large variety of tools, and a more expedient tool tradition. This points to a more sedentary lifestyle. In addition, the larger abundance of non-utilitarian items in the Thule assemblages seems to illustrate a lifestyle including less subsistence stress than the ASTt lifestyle.

ASTt subsistence strategies relied primarily on mobile game, such as muskoxen, and hunting strategies that most likely would not have produced a large surplus. This would have influenced the practice of high residential mobility by the ASTt. An anticipated high rate of mobility is evident through the presence of

small campsites with unsubstantial structures. Furthermore, in the absence of a surplus, hunter-gatherer societies tend to have much stricter food sharing rules. Thus, the AST tradition likely had a social structure that was egalitarian in nature.

The more sedentary lifestyle of the Thule culture, on the other hand, was influenced by subsistence strategies that produced large surpluses of meat, fat, and fuel. Such strategies included the hunting of large mammals, namely the bowhead whale, and the use of drive techniques in hunting caribou and other terrestrial mammals. The presence of larger settlements with more substantial structures than those of the ASTt attest to a lower rate of anticipated mobility. Also, unlike the ASTt, the Thule subsistence strategy would have influenced a greater level of social complexity. Whaling, as well as hunt-drives, would have required a coordinated effort of different roles, and the production of a surplus would have resulted in less-strict food sharing rules, which would allow for unequal resource access.

Mortuary practices employed by the ASTt further indicate a highly mobile, egalitarian, sparsely populated culture. These characteristics are evident by the sheer lack of known ASTt burials, and the absence of marked status through elaborate grave goods. In addition, the absence of ASTt cemeteries further suggests a low population density, and less territorialism.

Finally, in contrast, the use of true cemeteries by Thule groups indicates a more sedentary culture, with an increased population density, and a greater level of territorialism than the ASTt. As populations grew and became more sedentary, the need for a designated mortuary area would become greater for sanitary and spiritual reasons. Additionally, as Thule groups became less mobile and began to exploit more resources over a smaller area, there may have been the desire to lay claim to territory through marked graves of ancestors.

Bibliography

Cachel, Susan 2000. "Subsistence Among Arctic Peoples and the Reconstruction of Social Organization from Prehistoric Human Diet." *In Animal Bones, Human Societies*. Rowley-Conwy, (ed.). pp. 39-48. Oxford: Oxbow Books.

Charles, Douglas K., and Jane E. Buikstra 1983. "Mortuary Sites in the Central Mississippi Drainage: Distribution, Structure and

- Implications." *In Archaic Hunters and Gatherers in the American Midwest*. Phillips and Brown, (ed.). pp. 117-145. New York: Academic Press.
- Dawson, Peter C. 2000. Interpreting Variability in Thule Inuit Architecture: A Case Study from the Canadian High Arctic. *American Antiquity*. 62(2):273-284.
- Grier, Colin 1999. The Organization of Production in Prehistoric Thule Whaling Societies of the Central Canadian Arctic. *Canadian Journal of Archaeology*. 23:11-27.
- Harritt, Roger K. 1998. Paleo-Eskimo Beginnings in North America: A New Discovery at Kuzitria Lake, Alaska. *Etudes Inuit*. 22(1):61-81.
- Helmer, James W., and Brenda V. Kennedy 1986. Early Paleo-Eskimo Skeletal Remains from North Devon Island, High Arctic Canada. *Canadian Journal of Archaeology*. 10:127-143.
- Kent, Susan 1991. "The Relationship Between Mobility Strategies and Site Structure." *In The Interpretation of Archaeological Spatial Patterning*. Kroll and Price, (ed.). pp. 33-59. New York: Plenum Press.
- Maxwell, Moreau S. 1983. *Prehistory of the Eastern Arctic*. Orlando: Academic Press.
- McGhee, Robert 1978. *Canadian Arctic Prehistory*. Ottawa: National Museum of Man.
- McGhee, Robert 1996. *Ancient People of the Arctic*. Vancouver: U.B.C. Press
- Morrison, David A. 1998. The Earliest Thule Migration. *Canadian Journal of Archaeology*. 22:139-155.
- Nash, Ronald J. 1969. *The Arctic Small Tool Tradition in Manitoba*. Winnipeg: University of Manitoba Press.
- Park, Robert W. 1996. Thule Winter Site Demography in the High Arctic. *American Antiquity*. 62(2):273-284.
- Park, Robert W. 1998. Demography and the Reconstruction of Social Organization from Thule Wintering Sites in Arctic Canada. *Canadian Journal of Archaeology*. 21:115-126.
- Ramsden, Peter, and Maribeth S. Murray 1995. Identifying Seasonality in Pre-Dorset Structures in Back Bay, Prince of Wales Island, NWT. *Arctic Anthropology*. 32(2):106-117.
- Savelle, James M. 1998. "Information Systems and Thule Eskimo Bowhead Whaling." *In Animal Bones, Human Societies*. Rowley-Conwy, (ed.). pp. 74-88. Oxford: Oxbow Books.
- Savelle, James M. and Allen P. McCartney 1994. "Thule Inuit Bowhead Whaling: A Biometrical Analysis." *In Threads of Arctic Prehistory: Papers in Honour of William E. Taylor Jr*. Morrison and Pilon, (ed.). pp. 281-310. Hull: Canadian Museum of Civilization.
- Schledermann, Peter and Karen McCullough 1978. Western Elements in the Early Thule Culture of the Eastern High Arctic. *Arctic*. 33(4):833-841.
- Stanford, Dennis J. 1976. "The Walakpa Site, Alaska: Its Place in the Birnirk and Thule Cultures." *In Smithsonian Contributions to Anthropology*. 20. Washington: Institution Press.
- Stewart, Henry 1989. The Arctic Small Tool Tradition and Early Canadian Arctic Paleo-Eskimo Cultures. *Etudes Inuit*. 13(2):69-101.