Evidence for the Arctic Small Tool Tradition in the Eastern Aleutians

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Abstract: Excavations at Margaret Bay (UNL-48), a large, multicomponent archaeological site on Amaknak Island in the eastern Aleutians, have revealed clear signs of Arctic Small Tool tradition (ASTt) elements at approximately 3300 ^{14}C years BP. At that time Neoglacial conditions brought seasonal pack ice to the eastern Aleutians as well as many of the same marine mammals hunted earlier by ASTt peoples farther north. The ASTt's highly adaptable subsistence technology worked well in the eastern Aleutians where the rich Neoglacial environment provided the basis for relatively permanent settlement and population growth. Accumulating evidence points to an expansion of eastern Aleutian populations during the Neoglacial, and significant contacts with arctic peoples across vast distances of the American Arctic. Rather than an isolated archipelago, the Aleutians were a corridor for a surprisingly free flow of people, ideas, and materials.

Keywords: Unalaska Island, Neoglacial, Margaret Bay, Alaska prehistory

INTRODUCTION

The Arctic Small Tool tradition (ASTt) is generally understood by arctic archaeologists to be a terrestrially based archaeological culture with some coastal adaptations that originated somewhere in the western Arctic or Siberia a few centuries prior to 4000 ^{14}C years BP and spread rapidly across the High Arctic all the way to Greenland. It came as a surprise to us, therefore, that clear elements of the ASTt appeared in our excavations in the purely maritime environment of the eastern Aleutians. Our purpose here is to examine the case for ASTt in the eastern Aleutians and to suggest what significance the eastern Aleutians had in the second millennium BC for arctic cultures generally.

In 1996 we began a long-term program of archaeological research in Unalaska. Our initial objective was to sample a range of sites that would provide a reliable cultural historical outline of human occupation up until the time of European contact. This work has been previously summarized (Knecht and Davis 2001; Knecht, Davis, and Carver 2001). The first site we chose for excavation was Margaret Bay (UNL-48), which is located on Amaknak Island adjacent to the Museum of the Aleutians. It was an extensive, multicomponent site with more than two meters of deposits. In the course of our excavations we found in Level 2 many artifacts and features of a definite ASTt cast. Layer 2 averaged approximately 3300 ^{14}C years BP (Table 1).

In the course of subsequent excavations and analysis of a number of other single and multicomponent sites in the Unalaska Bay area, no other equally strong signals of ASTt elements have been discerned. Although the tiny scrapers and some other diminutive lithics persist in small numbers into the Amaknak Phase represented at the Summer Bay site (UNL-98), the variety of ASTt technology is not evident. We have good evidence for Unalaskan occupational continuity post 4000 ^{14}C years BP from a number of sites, and hence we should have encountered more ASTt evidence had that tradition's presence been extensive. Thus, we conclude, the present evidence for ASTt in the eastern Aleutians reflects a significant but episodic encounter.

Mitochondrial DNA analysis of living Aleuts shows the greatest degree of similarity with Chukotkan populations (Rubicz et al. 2004). Archaeologically the Siberian Neolithic is a strong candidate for ASTt ancestry

(McGhee 1996; Powers and Jordan 1990; Slobodin 2004). Thus, we expect that any ties the eastern Aleutians may have had with the ASTt would have come from the north and almost certainly would have followed the western Alaskan coastline where a number of ASTt sites have been identified.

ARCTIC SMALL TOOL TRADITION: DEFINITIONS AND CONCEPTS

The ASTt has been a frequent subject of archaeological discourse because of its primacy in the High Arctic, its apparent Old World affinities, and its placement at the base of the Eskimo/Aleut sequence. Dumond (2001:298–299) has summarized the history of the ASTt and has followed Irving's original definitions (1957, 1962) *sensu stricto*. For the most part, definitions of the ASTt have focused on the well-wrought chert and obsidian miniature chipped stone artifacts, including endblades, sideblades, scrapers, flake-knives and burins. Bone and wood artifacts are rare in most ASTt sites and are not part of most typological considerations. Ground or pecked stone artifacts such as lamps and bowls are also rare, but are found in some recognized ASTt assemblages such as Saqqaq in Greenland. Features such as hearths and cooking appurtenances, storage facilities, and structures are frequently seen to have local variants. Broader definitions encompassing time spans greater than a millennium for the ASTt have been advocated by Powers and Jordan (1990) and Anderson (1984).

What impresses us most about the ASTt is its widespread distribution, narrow chronological limits, and the variety of environments in which it is found. It is frequently described as intrusive, showing no connection to preceding archaeological cultures. There is near total agreement among investigators that there are no clearly identified North American antecedents to the ASTt; it basically appears full blown and extends quickly east across the High Arctic and slightly later south along the Alaskan coast and near coastal areas possibly as far as the Kodiak archipelago. In American archaeological parlance such a manifestation is referred to as a *horizon*, not a tradition. In the classic *Method and Theory in American Archaeology* Gordon Willey and Philip Phillips define a horizon as "a primarily spatial continuity represented by cultural traits and assemblages whose nature and mode of occurrence permit the assumption of a broad and rapid spread" (Willey and Phillips 1958:33). Nothing, in our opinion, better describes the distribution of the ASTt, which extended across the entire North American Arctic in only a few centuries. It is probably too late to persuade our colleagues to adopt the Arctic Small Tool horizon designation, but it is, we suggest, a more apt designation.

In Irving's first paper on the ASTt, he noted similar industries from the coastal Denbigh Flint Complex, the tundra of the western Brooks Range, and the Tyone River in the forested Susitna Valley. He grouped all these industries into the "arctic small tool tradition" and contrasted them with "the early industries of the boreal forest (e.g. the Campus site and Pointed Mountain, N.W.T.)" (Irving 1957:47). Thus, from the outset the ASTt was shown to be a widespread, broadly adaptable cultural group with a number of distinctive technological elements. In much the same way Bjarne Grønnow (1996:29) notes "the pioneers came to West Greenland with a remarkably functional and broad spectrum tool kit. With this the Saqqaq people were able to cope with any game or resource situation." Additionally, he notes that "no less than 45 different game species, from the largest whales to the smallest birds, were hunted, fish were caught and mollusks and plants were gathered" (Grønnow 1996:29).

ASTt ELEMENTS IN UNALASKA: THE MARGARET BAY SITE

In summary below are the salient characteristics of the Level 2 occupation at the Margaret Bay site (UNL-48) with respect to the ASTt. The site is located on a knoll on the edge of Iliuliuk Bay on Amaknak Island. At the time of occupation it was also adjacent to Unalaska Bay because of higher relative sea level. Beginning in 1996, we worked the site for two seasons and excavated some seventy-six cubic meters of deposit. The site was stratified, and we identified five major cultural stratigraphic levels. Level 2 contained the assemblage which we found to have several ASTt elements.

Chronology

Level 2 at Margaret Bay was overlain by the Level 1 series of bedded tephras, the lowest of which was coarse-grained and reflected a volcanic eruption of some magnitude. The Level 1 tephras were intact and showed no signs of disturbance until the WWII military trenches. The eruption, possibly in combination with a two-meter drop in relative sea level shortly after 3,500 BP appears to have led to the abandonment of the site. Three radiocarbon determinations have been made from Level 2 and one determination from Level 3, all of which are presented in greater detail in Table 1.

Note that two of the determinations in Table 1 came from the house floor of intact Structure 1. Numerous ASTt

Table 1. Radiocarbon determinations, Margaret Bay, Libby half-life and calibrated ages by Calib 4.4.2 (Stuiver and Reimer 1993; Stuiver et al. 1998).

Sample	Provenience	Measured C14 Age	Calibrated 2 Sigma Range BC
Beta-107806	Level 2 House Floor S1 Square 10	3110±60 BP	1517–1134 BC
Beta-95468	Level 2 Square 12, #108	3270±70 BP	1732–1410 BC
Beta-107807	Level 2 House Floor S1 Square 16D, #565	3280±70 BP	1735–1414 BC
Beta-107805	Level 3 Hearth Square 7@ 300 cm B.D	3630±70 BP	2198–1773 BC

artifacts were recovered from the Structure 1 floor surface. Level 2 extended over the entire area of the 6-by-12-meter excavation block. The three determinations are very close in time, and thus we believe that Level 2 represents a relatively brief episode of habitation. On the western coast of Alaska, the Alaska Peninsula, and Kachemak Bay, ASTt sites have been dated beginning at approximately 4000 ^{14}C years BP and continuing for nearly a millennium (Dumond, this volume). Thus, while Level 2 at Margaret Bay is by no means coterminous with the earliest ASTt in Alaska, it does fall into the accepted time range for it.

Artifacts

The Margaret Bay site on Unalaska Bay provides the clearest evidence of ASTt elements in the eastern Aleutians, although some traces of it persist as late as 2000 ^{14}C years BP (Knecht and Davis 2001:285). The ASTt artifact types are primarily found among the chipped stone tools (Knecht, Davis, and Carver 2001). They include microblades, small endscrapers, beaked endscrapers, burin-like tools, adzes with ground bits, small bifacially flaked points with flat tapered bases, bipoints, gravers, and flake-knives. The use of brightly colored cherts is notable among the small endscrapers as is the frequent use of obsidian for the points. Fine, denticulate edges were frequently evident on the points. Figures 1 through 4 illustrate many of these chipped stone varieties.

The Level 2 assemblage also included a number of other items not generally associated with the ASTt in Alaska but sometimes found in ASTt assemblages elsewhere. These include stone lamps, stone bowls carved from volcanic tuff, various fishing weights, pumice and scoria abraders, ochre palettes, and ground slate lance fragments.

Bone and other organic artifacts were rare in Level 2. Three single-barb unilateral bone harpoons with keystone-shaped bases were recovered, but virtually all other organic material decomposed in the acidic tephra-based sediments.

Features

There are many other notable aspects of Level 2 at the Margaret Bay site that bear on its ASTt affinities. First, it had substantial architecture. A nearly complete 3.5 by 2.5 meter oval semi-subterranean structure with large stone retaining walls was found in Level 2 and, as noted above, on the floor were many of the ASTt-type lithics. Remains of three other structures were associated with Level 2. Similar structures have been excavated at the Amaknak Bridge site (UNL-50), and the stonework of the semi-subterranean retaining walls recalls the partially excavated structure from lower Chaluka on Umnak Island (Knecht and Davis 2004; Laughlin 1980: fig. 37).

The structure has a hearth adjacent to the wall and has sub-floor flues defined by rows of upright rock slabs apparently connected to it. It differs in many respects, therefore, from the structures reported by Dumond (1981) on the Brooks River on the Alaska Peninsula, which were roughly square and had box hearths in the center of the floor. At the Amaknak Bridge site, which is located a few hundred meters from Margaret Bay and was occupied shortly after the Margaret Bay site was abandoned, we found a number of very similar houses. In the Amaknak Bridge houses, the linear sub-floor features were better preserved and we learned that they radiated from the hearth and may have been intended to provide a means of channeling heat farther into the house. We find these house features to be strongly reminiscent in plan to the so-called mid-passage hearth and/or axial features of

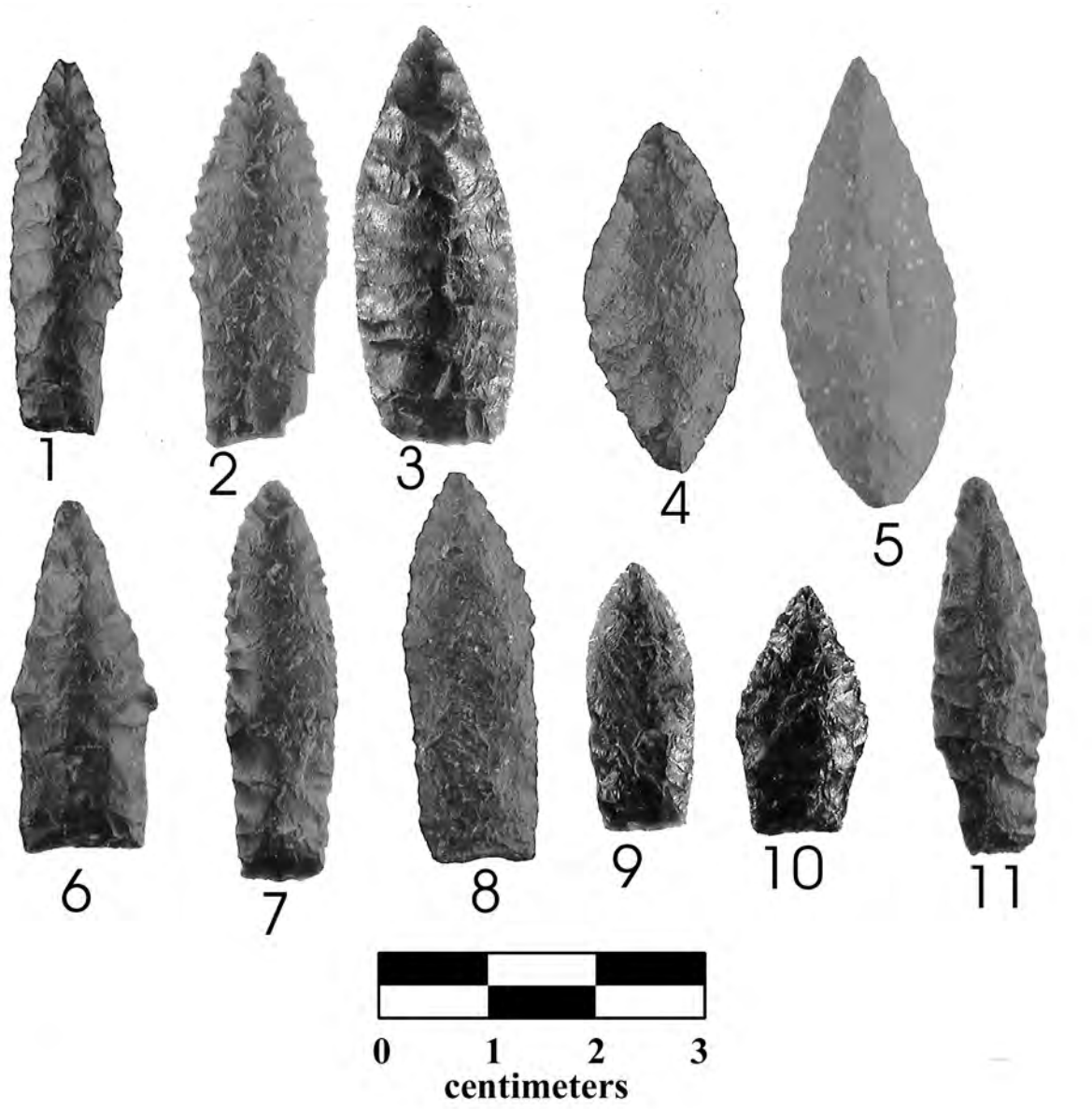

Figure 1. Chipped stone points from Level 2, Margaret Bay (UNL-48).

Figure 2. Chipped stone from Level 2, Margaret Bay (UNL-48): 1, retouched blade; 2, flake knife; 3, retouched blade; 4, retouched blade; 5-6, bell-shaped endscrapers.

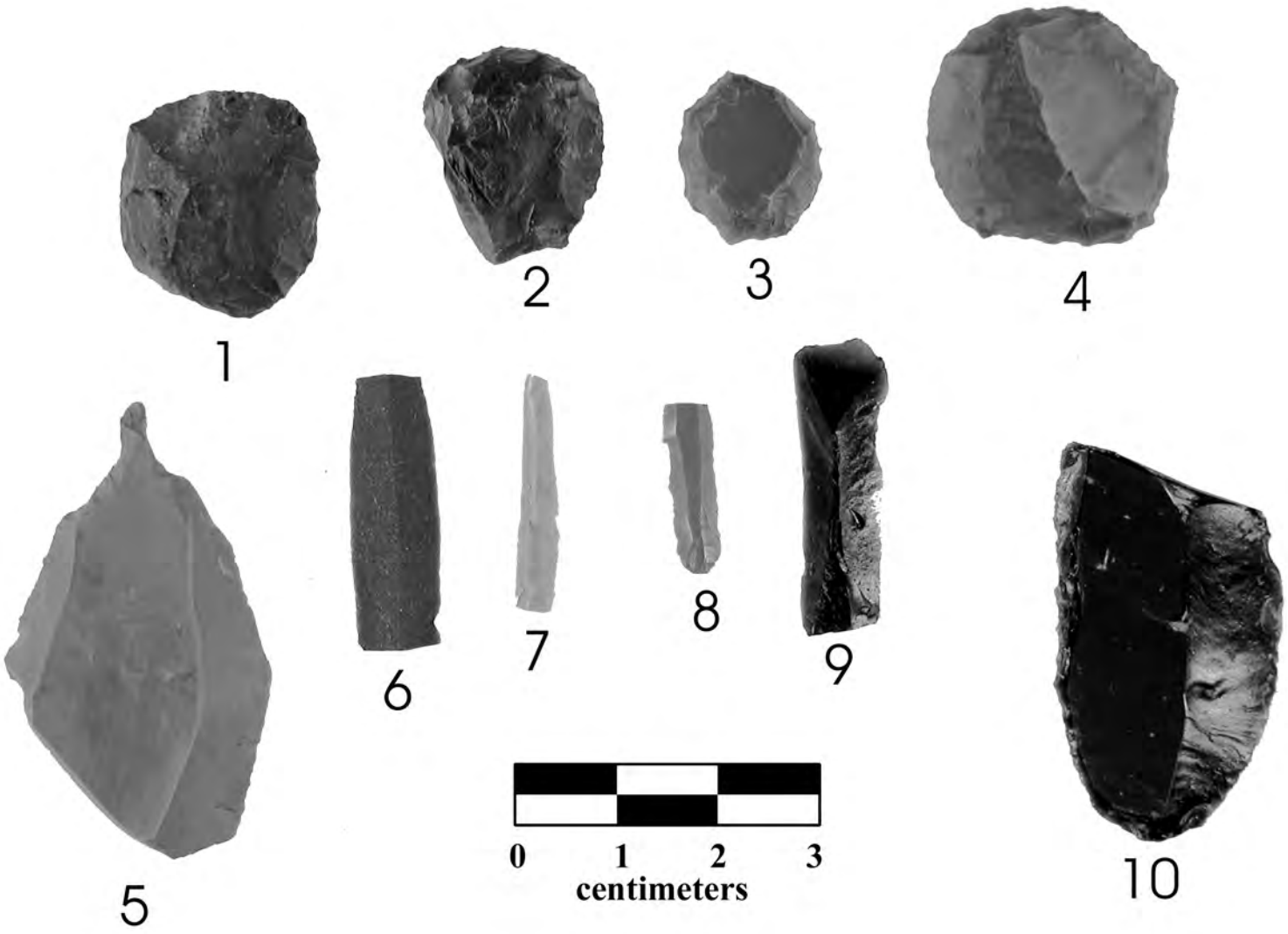

Figure 3. Chipped stone from Level 2, Margaret Bay (UNL-48): 1-4, thumbnail scrapers; 5, piercer; 6-9, microblades; 10, burin.

Figure 4. Chipped stone from Level 2, Margaret Bay (UNL-48): 1, adze blank; 2, bifacial flake-knife; 3 adze with polished facet; 4, retouched blade; 5, burin; 6, square knife; 7, bifacial knife.

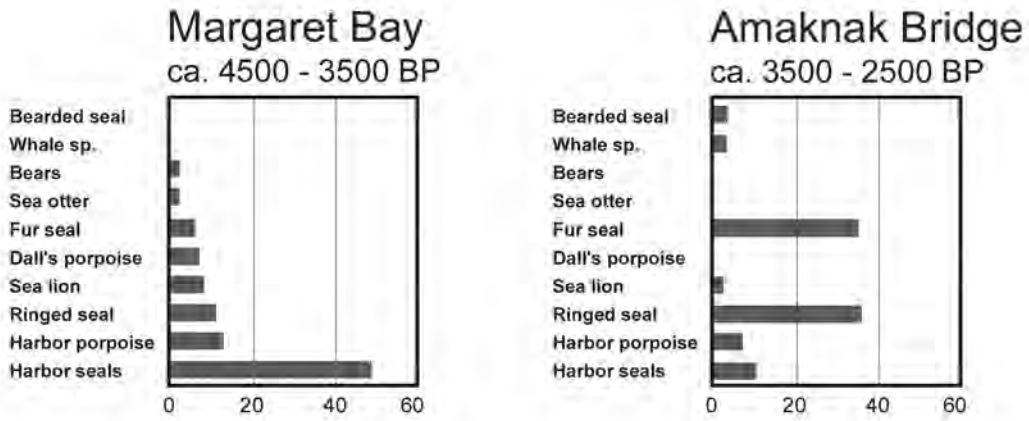

Figure 5. Comparison of marine mammal percentages from the Margaret Bay site (UNL-48, Unalaska; NISP 5392) and the Amaknak Bridge site (UNL-50, Unalaska; NISP 12,979). (Adapted from Crockford et al. 2004: vii).

ASTt and Early Dorset houses in the eastern Arctic as well as in pre-Denbigh levels at Onion Portage (Anderson 1988; Dumond 2001; Maxwell 1985).

The sediments at Margaret Bay, particularly those associated with the poorly preserved midden deposits behind the Structure 1 house, were heavily mixed with beach gravels and also contained a large cluster of smooth egg-shaped cobbles presumably used in cooking. This was also the case at the ASTt occupations of the Gravels phase on the Alaskan Peninsula and in the Denbigh Flint complex at Cape Denbigh (Dumond 2001; Giddings 1964). Dumond (2001:299–300) has suggested that abundant small cooking stones may be diagnostic of ASTt occupations in Alaska; however, their presence at Margaret Bay, the Amaknak Bridge site, and the Ocean Bay-affiliated Rice Ridge site on Kodiak indicates that this was a widespread technology in south Alaska from ca. 4000 to 3000 ^{14}C years BP.

Subsistence and Environment

Level 2 was poor in preserved faunal remains. Based on faunal remains analyzed from the nearby Amaknak Bridge site, which overlaps in time with Level 2, however, there were abundant ringed seal, fur seal, Pacific cod, various ducks and murres available in close proximity to the site (Crockford et al. 2004). The clearest technological indicators of subsistence from Level 2 are the abundant dart or arrow bifacial points, large lance points, and grooved and notched cobbles (net sinkers). All of the fauna are avian or marine species; there is no evidence of terrestrial game.

The faunal remains from the Margaret Bay Level 4 (Davis 2001) and Amaknak Bridge (Crockford et al. 2004) are the best indicators we have of changed climatic conditions from today's. The evidence as put together by Crockford suggests an initial cooling with pack ice forming as early as 4500 ^{14}C years BP during the occupation of Level 4 at Margaret Bay. By 3000 ^{14}C years BP as shown by the faunal composition at Amaknak Bridge, it was considerably cooler than today. The relative proportions of the most frequent marine mammals are summarized in Figure 5.

Note the high frequencies of ringed seal and fur seal at Amaknak Bridge—both associated with pack ice. Limited evidence of polar bear and walrus also testify to conditions significantly cooler than that of today.

Crockford et al. (2004:76) concluded:

> The presence in this assemblage of both weaned and unweaned (newborn/young juvenile) bearded seal and substantial numbers of newly weaned young juvenile ringed seal remains require us to conclude that inhabitants of the Amaknak Bridge site experienced a climate that was significantly colder than it is today. The faunal remains from this site provide irrefutable evidence that the pack ice habitat preferred by bearded and ringed seal for pupping, mating and hauling out must have been available close to the site location on Unalaska from spring through early summer (ca. March to June) during the entire occupation of the site.

The general picture developed from the excavations of Level 2 at Margaret Bay is of a substantial settlement that had been occupied repeatedly over a period of several decades. The full horizontal extent of Level 2 at Margaret Bay has not been determined, but it may extend over a much larger area of the knoll. The artifacts

and features reflect both local forms (stone bowls, lamps, microblades, and blades), as well as a suite of tools described and illustrated above which carry clear markers of the ASTt.

Margaret Bay and the Arctic Small Tool tradition

Dumond (2001, 2004) has discounted the ASTt affinities of the Margaret Bay Level 2 assemblage, casting it into a "Macro Margaret Bay Phase," which includes the Russell Creek site from Unimak and Lower Chaluka from Umnak (Dumond 2001:294–295). Dumond (2001:295) observed that the "considerably more delicate" artifacts of the Brooks River Gravels Phase, an "acknowledged ASTt exemplar," along with the absence of stemmed points, stone bowls, and lamps distinguish it from Macro Margaret Bay. We grant that there is a range of variation from very lightweight to heavier pieces, but within some artifact categories, the entire aspect of the variation is quite delicate. For example, the distribution of weights is shown in Figure 6 for complete, small points which at Margaret Bay are generally bifacially flaked with parallel lamellar removals, flat based with either straight or slightly tapering lateral margins.

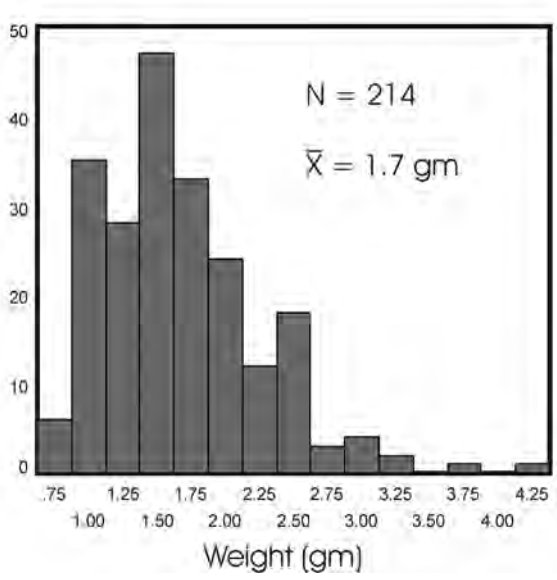

Figure 6. Histogram of unbroken small point weights from Level 2, Margaret Bay (UNL-48).

Many of these small points are exceptionally finely flaked with micro-denticulated lateral edges. Archaeological and ethnographic studies of projectiles have suggested size differences can be correlated with use as an arrow point or as a dart point (Cattelain 1997; Shott 1997). The very light weight (a mean of 1.7 gm) and narrow shoulder width (mean of 11 mm) of the small projectiles from Level 2 is certainly suggestive of use as arrow points. According to Cattelain (1997) and Shott (1977), dart points are significantly larger and heavier. In contrast to the total of 282 complete or broken small points from Level 2, there are only three small points catalogued for the earlier Level 3. This certainly indicates a cultural discontinuity, one which may reflect the introduction of bow and arrow technology. We suggest that the new projectile technology was introduced by ASTt-related people who came down the Alaska Peninsula by the beginning of Level 2 times, around 3300 ^{14}C years BP. The number of probable arrow points found in Level 2 at Margaret Bay far outnumbers those recovered from other prehistoric occupations we have excavated in Unalaska. This also suggests that ASTt people had superior weaponry and were unlikely to be inhibited in their movements across the fairly well settled coastlines of Alaska. Whether ASTt elements reached the Aleutians through direct contact with ASTt peoples or through cultural "middlemen" to the north is uncertain. The quantity and variety of ASTt lithics, along with the house features, suggest that contact may have been brief but direct.

The Eastern Aleutians in the Second Millennium BC Arctic World

Various authors have noted the appearance of the Arctic Small Tool tradition a few centuries before 4000 BP. Although its point of "origin" is not yet identified, the Siberian Neolithic is a strong candidate. As Dumond and Bland (1995:437) point out:

> However, we doubt that there is any single parent culture of the Arctic Small Tool tradition that can yet be satisfactorily identified in northeast Siberia, although it is evident that within the apparentlyearly stages of the various Chukotkan Neolithics all diagnostic artifacts of the Small Tool tradition can be found, and some single ancestral culture may eventually be found.

By 3600 ^{14}C years BP or earlier, the ASTt is found from Kachemak Bay and perhaps the Kodiak archipelago, across the Alaska Peninsula and the eastern Aleutians, up the western Alaskan coast and inland tundras to North Alaska and eastward across the North American Arctic all the way to West Greenland. Some representative ^{14}C determinations for the ASTt are given in Table 2.

The widespread, almost instantaneous AST horizon begs for some kind of explanation. An environmental change that affected the entire Arctic seems most plausible, but the actual mechanism remains unknown.

Table 2. Radiocarbon determinations for a sample of ASTt sites, Libby half-life and calibrated ages by Calib 4.4.2 (Stuiver and Reimer 1993; Stuiver et al. 1998).

Sample	Provenience	Measured C14 Age	Calibrated, 2 Sigma BC	Notes
WSU-4503	basal component, Chugachik Island, Kachemak Bay	4005±100 BP	2874–2210 BC	(Workman 1996)
SI-1856	BR16-8, Brooks River Gravels Phase	3610±85 BP	2199–1741 BC	(Dumond 1981)
SI-1857	BR16-6, Brooks River Gravels Phase	3100±105 BP	1603–1046 BC	(Dumond 1981)
P-998	"Classic Denbigh," Onion Portage	3950±70 BP	2657–2203 BC	(Anderson 1988)
S-1660	Cold Site, Feature 19, Port Refuge, Devon Island	3845±55 BP	2465–2142 BC	marine reservoir correction of 750 years (McGhee 1979:122)
Ua-2166	Qivitup nuua, Sisimiut District, Greenland	4010±90 BP	2871–2288 BC	(Kramer 1996)
Beta-95468	Level 2 Margaret Bay Square 12, #108	3270±70 BP	1732–1410 BC	(Knecht et al. 2001)

The general relationship of the AST horizon to the Neoglacial is complex and beyond the scope of this paper, but we will briefly consider here the eastern Aleutian region. By Powers and Jordan's account (1990) and similarly in McGhee's *Ancient People of the Arctic* (1996), the ASTt spread rapidly over the tundras of North America a few centuries prior to the onset of Neoglacial conditions. By 3500 ^{14}C years BP or so, however, summer temperatures were significantly depressed, and the High Arctic seems to have been abandoned. The Neoglacial is not as well-defined a climatic event as, for example, the Younger Dryas, but in broad outline it is a period of cooling beginning in the mid-Holocene following the Hypsithermal (Kaufman et al. 2004). The Neoglacial is marked by heightened storminess (Mason and Jordan 1993), cooler summer temperatures (Heusser, Heusser, and Peteet 1985), glacial readvances (Ager 1999; Ryder 1989), and vegetational changes (Walker and Pellatt 2003). The changes are not synchronous throughout Alaska, and it is unclear whether there was a gradual or abrupt transition from the Hypsithermal to the Neoglacial.

As described above, the clearest paleoenvironmental proxy we have in the eastern Aleutians for the mid- to late Holocene is the archaeofaunal record. The increase in ringed and fur seal, the decrease in sea otter, the presence of polar bear and walrus in the interval between 4500 and 3000 ^{14}C years BP are strong indicators of pack ice in Unalaska waters and Neoglacial conditions. It is just in this 1500 year interval that the archaeological record reflects a real growth in settlement. The large, permanent structures of Layer 2 at Margaret Bay and the multiroom structures of the Amaknak Bridge site accompanied by deep shell middens testify to substantial settlement growth. Why would settlements grow as climate cooled? We believe there are two main reasons that this occurred in the eastern Aleutians. First, the cooler climate with lower sea surface temperatures may have

led to increased primary production in the marine ecosystem (Ware and Thomson 2005). As a result, fish such as Pacific cod, mammals such as ringed and fur seals may have become more plentiful, as well as avian fauna such as ducks and murres. A relatively predictable and abundant year-round set of marine resources provided the necessary subsistence for a growing, basically sedentary population. The second cause of growth may have been due to immigration or through adoption of technologies suited to marine environments. We note particularly the distinctive harpoons with lineguards from Level 4 at Margaret Bay which have clear analogs to artifacts from Ocean Bay sites in the Kodiak archipelago and to the ASTt elements described above from Level 2 at Margaret Bay.

An additional line of evidence for a growing Aleutian population during the Neoglacial has been developed through the analysis of contemporary mitochondrial DNA variation among Aleuts and other northern peoples (Rubicz et al. 2003). Distinct sub-clade clusters identified by reduced median network analysis is strongly suggestive of population expansion according to coalescence theory.

BP. One interpretation of this gap is that it represents a break in the occupation of this region, a time period that included major stratovolcano eruptions (Makushin on Unalaska and Okmok on Umnak) and a major cooling event—the "younger Younger Dryas" (Mason 2001). The volcanic events may have terminated the settlements on Hog Island and on Anangula Island. A second interpretation is that the gap is more apparent than real because there are several examples of technological continuity between the Early and Late Anangula phases (microblades, blades, lamps, transverse burins, stone bowls and ochre grinders) as well as a number of unexcavated sites that may fill in much of the apparent chronological gap. Some truth probably lies in both alternatives. In any event, the base of Margaret Bay approximately coincides with the onset of the Neoglacial , the estimated date for the appearance of the distinctive Aleut mtDNA, and the beginning of substantial population growth.

CONCLUSIONS

We have argued that around 3300 ^{14}C years BP there is clear evidence for Arctic Small Tool tradition elements combined with indigenous Aleutian artifacts and

Table 3. Radiocarbon dates for Levels 4 and 5, Margaret Bay site (UNL-48), Unalaska, Libby half-life and Calibrated Ages by Calib 4.4.2 (Stuiver and Reimer 1993; Stuiver et al. 1998).

Sample	Provenience	Conventional C14 Age	Calibrated, 2 Sigma BC	Notes
Beta-109821	Level 4 Square 6	4660 ±80 BP	3641–3103 BC	(Knecht et al 2001)
Beta-140150	Level 4	4130±40 BP	2874–2580 BC	(Knecht et al 2001)
Beta-140151	Level 4 Square 12	4700±40 BP	3631–3369 BC	(Knecht et al 2001)
Beta-109820	Level 5 Square 5	5250±70 BP	4317–3944 BC	(Knecht et al 2001)
Beta-27792	base of lower test unit	5470±140	4595–3978 BC	(Knecht et al 2001) D. Yesner's 1988 test; probably Level 5

In the archaeological sequence we have established for the Unalaska region there is an unresolved occupation gap of almost 2500 years that comes between the Early Anangula phase sites on Hog Island and the Late Anangula Phase, which begins at the base of Margaret Bay (Knecht and Davis 2001). This would be approximately between 8000 ^{14}C years BP and 5500 ^{14}C years

features in Unalaska. These elements may represent the movement of ASTt peoples toward a resource-rich area where their flexible and lightweight subsistence technology was well suited. Arguably, the ASTt technology coming to Unalaska included the bow and arrow; it is difficult to explain the sudden appearance of large numbers of lightweight and delicately flaked bifacial points in Level 2

of Margaret Bay in any other way. Bow and arrow technology is generally thought to be of little utility for marine mammal hunters, and we have recognized a phase-out of the small points after the Margaret Bay phase (Knecht and Davis 2001).

If the eastern Aleutians do not shed much light on the origins of the ASTt, the region may give some indication of what happened to it. In the later phases of the Neoglacial, ASTt people and technologies reached the Unalaska region and were assimilated by indigenous islanders. The resulting tool inventories were more elaborated than the highly mobile ASTt groups known elsewhere in Alaska. As our research in Unalaska has progressed, it has become increasingly clear that the Aleutians were not as isolated from other arctic cultures as has been supposed. As has been discovered in other archaeological studies of islands and archipelagos (Fitzpatrick 2004; Lape 2004), the metaphor of the insulated island has given way to a realization that for a maritime people, the Aleutians represented a corridor for a surprisingly free flow of people, ideas, and materials. As part and parcel of the ecological continuum of treeless coasts that stretches from southern Alaska to southern Labrador, the Aleutians presented the same menu of opportunity and challenges to ASTt populations as the rest of the Arctic. This would have been particularly true during the Neoglacial when the coasts of the eastern Aleutians were seasonally ice-bound.

The relatively large populations already inhabiting the eastern Aleutians probably precluded a long-term permanent settlement by ASTt populations, however ASTt peoples enriched the local sequences with new technologies and ideas. We can safely postulate that at least some innovations from South Alaska have accrued to ASTt people during their tenure there.

Although a full discussion is beyond the scope of this paper, we note the similar presence of a range of stone tools normally thought to be diagnostic of Dorset in Unalaska assemblages of the Amaknak Phase beginning around 3000 BP. The similarities are striking, particularly in the form of stemmed asymmetrical knives, stemmed asymmetrical scrapers, and polished burins. Miniature stone and ivory carvings with skeletal motifs are also hauntingly Dorset in appearance (Knecht, Davis, and Carver 2001). But as in the ASTt, there are important differences that lead us away from concluding that Dorset originated in the Aleutians. It seems probable however, that Dorset culture, regardless of its geographic origin, came into meaningful contact with ancient Unangan in much the same way that ASTt people did.

As in the case of ASTt, we again find that Aleutian data unexpectedly but undeniably relevant to an understanding of the processes that played formative roles in the prehistory of the Arctic as a whole.

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