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Open skin boats of the Aleutians, Kodiak Island, and Prince William Sound
Bateaux de peau des îles Aléoutiennes, de l'île Kodiak et du détroit du Prince William

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Résumé de l'article

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Abstract: Open skin boats of the Aleutians, Kodiak Island, and Prince William Sound

This article examines the relationship between the open skin boat (umiak) traditions of the Unangax/Aleut who inhabited the Aleutian Islands and the Sugpiat of Kodiak Island and Prince William Sound, the two southernmost Indigenous Alaskan peoples who used such watercraft. In a larger geographical context, the Aleutian Islands and the Kodiak Archipelago form a chain of lands stretching from the Alaska Peninsula to the eastern coast of Eurasia. Drawing from archaeological and ethnographic evidence, the author discusses both technological and social aspects of open skin boats. A comparison between Sugpiaq and Unangax/Aleut boats demonstrates similarities in some structural details and leads to a discussion of technological exchange in the larger region that encompasses Southeast Alaska, Prince William Sound, the Kodiak Archipelago, the Aleutian Islands, and the Kamchatka Peninsula. The different Indigenous boat types influenced each other along a chain of overlapping related elements and structural features, rather than being adopted in each case as a complete technological corpus. This exchange occurred along routes of trade and war but ultimately created a dynamic intellectual network of watercraft technology.

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Introduction

It is hard to find an item more symbolic of the very identity of Indigenous maritime cultures than boats. As the most complicated technology of pre-industrial societies, and as objects of power and prestige, boats embody significant aspects of social development, material culture, and spirituality. Mobility helped position them as manifestations of ethnic, tribal, or personal identity. From the first sighting, a specific boat type would identify who was aboard and what their intentions were. This sense of cultural ownership and the firm association between specific cultures and their watercraft have often resulted in a static approach to the study of Indigenous boats, preventing a much needed attempt to analyse them as a dynamic phenomenon of art and technology evolving in time and space.

Indigenous water transport is predominantly discussed in the context of the history and ethnography of a specific people, with an emphasis on structural details, which are described at great length but rarely compared to those of watercrafts of neighbouring ethnic groups. Yet boats have always been built to travel, to traverse space, and to cross national, ethnic and, thus, cognitive boundaries. Even in inland waters, they bring people to new frontiers and can be agents of exchange. How does this exchange manifest itself? When the same maritime highways are used for thousands of years, does this use form a boat-building continuum, and can patterns of this continuum be recognised in existing data?

This article examines the relationship between the open skin boat (umiak) traditions of the Unangax/Aleut of the Aleutian Islands and those of the Sugpiat of Kodiak Island and Prince William Sound, the two southernmost Indigenous Alaskan groups that used skin boats. In a larger geographical context, the Aleutian Islands and the Kodiak Archipelago form a chain of lands stretching from Alaska Peninsula to the eastern coast of Eurasia, and separating (or connecting) the Bering Sea and the North Pacific Ocean. As ancestral foes or as trading partners, the Unangax and the Sugpiat interacted frequently for hundreds of years, if not thousands. Both peoples traditionally relied on maritime subsistence, both developed rich and distinct material cultures, and both encountered dramatic changes at the time of their contact with 18th-century Russian traders and settlers.

Origins and timeline of circumpolar skin boats

Most peoples of the circumpolar North used both open skin boats (umiaks) and decked skin boats (kayaks). The relationship between umiaks and kayaks, in terms of their evolution, is a complex subject beyond the scope of this article. Some scholars have suggested that umiaks may have been ancestral to kayaks (Arima 1985: 20-22; Laughlin et al. 1991: 169). In the late 19th century, Lucien Turner recorded an interesting oral tradition that described how kayaks evolved as a direct response to a need for watercraft that could be used in warfare. According to this lore, in ancient times before people began waging war on each other, the Unangax had no kayaks and

only large or small open skin boats. Entire families, including children and women, travelled, fished, and hunted in such boats. When "jealousy and violence broke out among the people," ocean going was deemed unsafe for women and children and the smaller boats were modified for use by one man, thus becoming single-hatch kayaks (Turner 2008: 2). While researchers have discussed the evolution of both kayaks and umiaks, much less has been written about the latter. Two factors have likely helped maintain public and academic interest in kayaks: their recreational use and the presence of many kayaks in various museum collections. In contrast, these collections have a lot fewer pre-20th-century umiaks. Significantly larger and bulkier than kayaks, they were rarely collected by explorers and collectors, who would often substitute a model for the full-scale boat.

The overall chronology of skin-boat use in circumpolar regions remains uncertain. A key element of sub-Arctic subsistence, they have arguably been used since the earliest entry of humans into the region. Recent maritime migration theories suggest that they might have been a vehicle for human expansion across Beringia ca. 20,000 BP-10,000 BP (Dixon 1999; Fladmark 1979). For that period, however, it is challenging if not impossible to find organic remains, and especially material evidence of skin boats. Such wooden-framed skin-covered watercrafts tend by their very nature to be poorly preserved in archaeological contexts.

The oldest archaeological evidence for circumpolar kayaks is a wooden rib excavated at the 4,000-year-old Saqqaq site, in West Greenland (Meldgaard and Grønnow 1987: 19, 21). The Ekven cemetery near East Cape, Siberia has yielded 2,000-year-old ivory models that represent both umiaks and kayaks (Arutyunov 1975: 99; Bronshtein 2007: 184, 212). We see the same range of dates for birchbark miniatures of umiaks and kayaks as well as fragments of skin-boat frames from the Miyowagh and Hillside sites on St. Lawrence Island, Alaska (Collins 1937: 158-159, 409, 413). A piece of a kayak sealskin cover found at a Seward Peninsula site dates to around 0 AD (Zimmerly 2000: 3). Boat parts have been uncovered at the Birnirk site in the vicinity of Point Barrow (dated to 200-1300 AD, see Carter 1966: 2-3; Ford 1959: 156-160) and at the Deering site in Kotzebue Sound (dated to 821-1200 AD, see Alix 2009: 60). Several late prehistoric and early contact sites in both Canada and Alaska have yielded boat remains dating to the 17th century (Hood 2008: 240; Kaplan 1983: 235) and later (Geist and Reiney 1936: Plate 31; Hood 2008: 240; Way 1978: 134). Although important, all these finds provide only fragmentary information about the watercraft they represent. The oldest complete circumpolar skin boat from the archaeological record known today is the Peary Land umiak. Discovered by the Danish expedition to Peary Land, northeast Greenland, in May 1949 (Knuth 1952), it dates to the first half of the 15th century AD (Grønnow and Jensen 2003: 211; Petersen 1986: 158).

In the Aleutian Islands, one of the oldest boat-related artifacts is an ivory ball from the Tanaxtaxak site on Unalaska Island (Knecht and Davis 2002: 44, 104). Known from the ethnographic literature and 19th-century Unangax kayaks, these bone or ivory balls were inserted into a groove in the keel to reduce friction and increase speed

(Zimmerly 2000: 22-23). The bone joint from Tanaxtaxak, dating to 1300-1440 AD, is the only example of such joints from a prehistoric context (Knecht and Davis 2002: 28, 44). Umiak and kayak parts have been found on Kagamil Island (890-1667 AD) (Coltrain 2006: 540; Dall 1878: Plate 8) and at the Kanaga cave sites in the Central Aleutians (Nelson and Barnett 1955: 387, 389-392).

In Lower Cook Inlet, boats appear in pictographs from Clam Cove and Tuxedni Bay, the latter pictographs being of Athabascan origin—according to the oral tradition of Dena'ina Athabascans (Alexan et al. 1981: 49). A charcoal sample from the base of the Tuxedni rock face is dated to ca. 1500 AD (Baird 2006: 136). Many kayak and umiak frame fragments have been collected from the Karluk site on Kodiak Island and are likewise dated by context only to 1400-1700 AD (Knecht 1995: 312-317, 141). Finally, cave sites in the Kodiak Archipelago and Prince William Sound contain remains of skin boats (de Laguna 1956: 239, 245-249).

Neither Unangax nor Sugpiaq open skin boats have survived as living traditions of these cultures. To the best of the author's knowledge, no authentic full-scale versions of Sugpiaq open skin boats exist. Two large open skin boats built around the 1920s and currently owned by the community of St. George, Alaska are the only examples of full-scale Unangax umiaks. The earliest surviving models were collected from the Aleutians and the Kodiak archipelago in the 19th century. Executed with great attention to detail, these models provide a valuable addition to the scarce data on Unangax and Sugpiaq umiaks but are not very numerous. The entire body of 19th-century models known to the author to date consists of 11 Sugpiaq and four Unangax examples. Several Alaskan museums hold Unangax umiak models from the second half of the 20th century, but generally they are very simplified and visibly removed from the tradition of building full-scale boats.

Consistency and change in traditional maritime technology

Despite variation in details, all circumpolar umiaks follow the same basic type. The classic umiak is a large and fairly wide boat, with an almost identical stem and stern structure (Figure 1). Trapezoid headboards are placed at both stem and stern posts between the gunwales. Long slender stringers run parallel to the gunwales from stem to stern post, thus giving longitudinal support. Longitudinal chines and bottom cross-timbers support the floor of the umiak. Vertical frames are inserted between the chines and the gunwales. Thwarts serve as benches and as an additional set of crossbeams.

The Sugpiaq *angyaq* and the Unangax *nixalax*, two of the southernmost examples of Alaskan open skin boats, represent the most radical deviations from this classic umiak shape. The most notable feature of the Sugpiaq open skin boat is the discoid or oval protrusion on the lower bow (Figure 2). This bow shape may be functionally and stylistically analogous to bifid Sugpiaq and Unangax kayak bows, but it has no parallels among open skin boats of other Northern peoples. The Unangax open skin

boat, as we know it from models and historical photographs, has a wide oval "spoon-like" bow and a rounded stern (Figure 3).

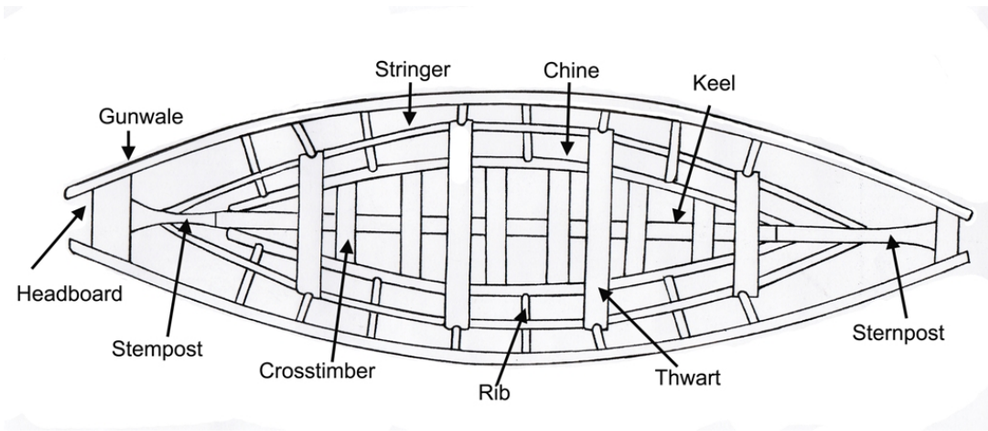

Figure 1. Parts of a classic umiak.

Figure 2. Sugpiaq open skin boat (*angyaq*) model, first half of 19th century. Photo: courtesy of Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Academy of Sciences, St. Petersburg, item MAE 4291-21.

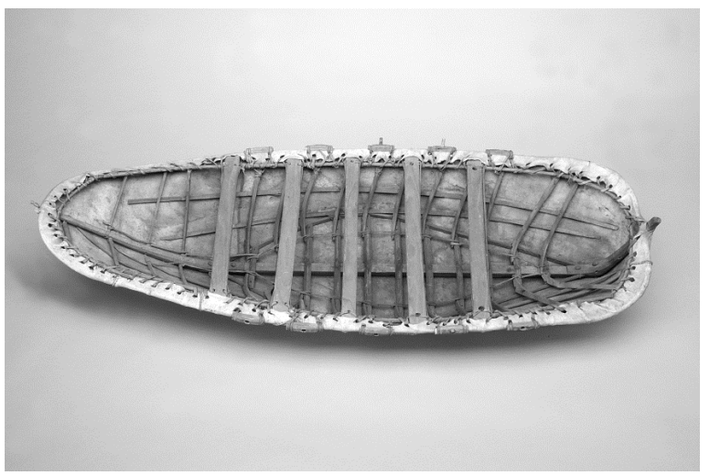

Figure 3. Unangax open skin boat (*nixalax*) model, collected by Ivan Kuprianov, chief manager of the Russian-American Company, ca. 1837. Photo: courtesy of the Natur und Mensch Museum, Oldenburg, Germany, item 303. Photographer: Gudrun Bucher.

At first glance, these boats are very different, intriguingly so given the similarity between Unangax and Sugpiaq kayaks. We may better understand how they relate to each other by examining their earliest representations, which were drawn in 1768-1769 when Captains Mikhail Levashov and Petr Krenitsyn were exploring the Aleutians and the Alaska Peninsula. In addition to charting new territories, Levashov drew coastal landscapes and scenes from the lives of local inhabitants. His drawings are now preserved in the Russian Naval Archives and are known as the *Levashov Atlas*. Among them are two that show open skin boats. Page 22 has a full-page drawing of a boat with a protruding discoid bow, very similar to the Sugpiaq type. There is no caption (Figure 4). Page 27 is split into three frames: the top frame shows Aleut/Unangax objects and the bottom frame a boat with a spoon-like bow and the caption "baidara or skin boat" (Figure 5). This combination is intriguing primarily because Levashov did not visit the Kodiak Archipelago or any other Sugpiaq regions. Leaving Kamchatka, he sailed along the Aleutians to the north shore of the Alaska Peninsula and then turned back. On the way home, Levashov and his crew wintered on Unalaska Island where he recorded Unangax material culture in ethnographic notes and drawings. Why, then, in an ethnographic collection that exclusively focuses on Unangax culture do we see both types of boat? Unfortunately, no explanation is provided in the *Levashov Atlas*.

Roza Liapunova (1975), the first researcher to publish these drawings, suggested that they illustrate the evolution of the Unangax umiak. Since the second drawing reflects post-contact modifications, such as a rudder, oars, and oarlocks, she concluded that it must correspond to the open skin boats introduced by 18th-century Russian fur traders (*promyshlenniki*). Conversely, the first type of boat must be the traditional pre-contact Unangax umiak. According to Liapunova, the "Russian fur trader type" completely replaced the traditional Unangax type. She further argues that the newly introduced type was based on the open skin boats of the Koryak, an Indigenous people of Kamchatka, who frequently served as deck hands and interpreters for voyages to the Aleutians, and whose umiaks look similar to Unangax open skin boats of the 19th and 20th centuries. A passage from the 1774 journal of Timofei Shmalev attests that the Russian fur traders indeed adopted Indigenous skin-boat technology for their operations on the Aleutians:

> […] the Russian *promyshlenniki* first brought with themselves small wooden plank boats, but have now abandoned that practice completely and are using ones similar to their baidaras, making the entire frames, such as keel, frames, stringers, and gunwales in Kamchatka, and then taking them apart, transporting them on their ships, and upon arriving in the islands putting them back together without any nails, but with leather strings and instead of planks making a hull of seal and sea lion skins, which stays watertight for a long time. They are very sturdy and one can see water through the skins. They are quite sizable and can hold up to 6 or 8 people (Timofei Shmalev in Liapunova 1975: 98, translation by the author).

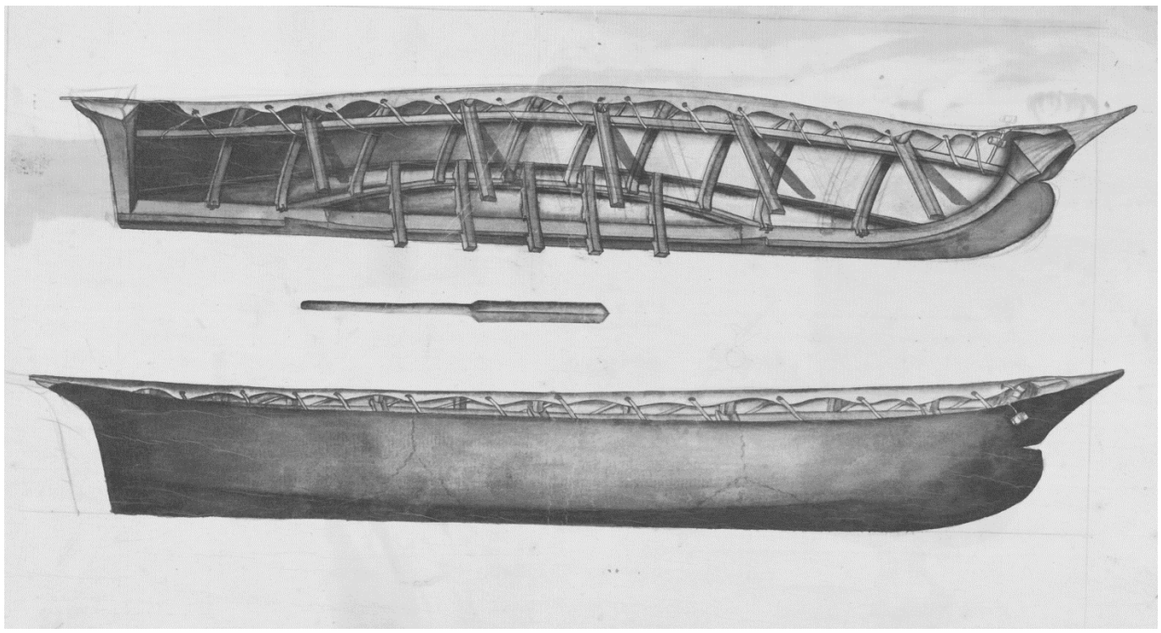

Figure 4. Skin boat drawing (source: Levashov 1768-1769: 22). Photo: courtesy of the Russian Naval Archives, St. Petersburg.

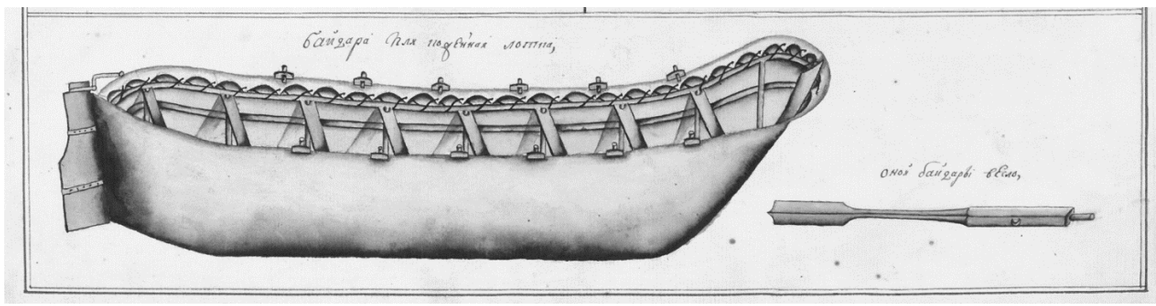

Figure 5. "Baidara or skin boat" (source: Levashov 1768-1769: 27). Photo: courtesy of the Russian Naval Archives, St. Petersburg.

Liapunova's interpretation of these drawings was reflected in the captions she wrote for her 1975 Russian publication on the ethnology of the Aleuts. Placing the drawings on the same plate, she labelled them 1) traditional Aleut baidara, and 2) baidara of Russian traders. In 1996, her book was published in English and quickly became an accepted and widely quoted text on Aleut ethnography. Liapunova's captions were thought to come from primary sources, and a wide range of readers, including Unangax, accepted her interpretation. The above-mentioned similarity between Sugpiaq and Unangax kayaks lent credibility to the presumed resemblance between these peoples' traditional open skin boats. To go beyond this interpretation and understand the historical reality, we will have to ask what is known about the Unangax *nixalax*.

Unangax *nixalax*

Although available archaeological data do not allow complete reconstruction of the pre-contact Unangax open skin boat, or *nixalax*, archaeological finds from the Kanaga and Kagamil caves demonstrate that open skin boats were in use in the central Aleutians. Both sites lack non-Indigenous artifacts and materials. While the Kanaga site remains undated, radiocarbon analysis reveals that cultural remains ceased to be deposited in the Kagamil caves ca. 1667 AD (Coltrain 2006: 540). Kanaga contains at least 17 umiak frame fragments, including four cross-timbers, four sections of a carved wooden keel, a lower portion of a stem or stern post and a number of unidentified wooden fragments. The combined length of the keel fragments is 24 feet (8 metres), suggesting a boat of at least this length (Nelson and Barnett 1955: 387, 390, 391). The post timber is carved out of a single piece of wood and shows no signs of bifurcation. The shape of the cross-timbers and the method of attachment to the boat's chines are quite different from what we see on 19th- and 20th-century models and historical photographs of Unangax umiaks. The notches at each end indicate that the timber was fitted over the chines or lower stringers, while in the more recent Unangax umiaks cross-timbers are inserted into the chines. The Kagamil cave finds include both kayak and umiak parts. The latter are represented by several crosspieces of the same type as the ones from the Kanaga cave and three straight side ribs.

Non-Indigenous people first encountered Unangax in the summer of 1741 when the crew of Captain Bering's ship *St. Peter* sighted two Unangax in their kayaks near Bird Island, in the Shumagins (Steller 1988: 97-98). Following the return of Bering and Chirikov's expedition, hundreds of Russian traders streamed to the Aleutians, hoping to capitalise on the lucrative sea otter trade. During the period 1741-1799, 59 Russian ships made a total of 110 voyages to the Aleutians and southwestern Alaska (Black and Desson 1986: 5). Although some of these early voyagers left travel accounts, there is little information about the Unangax boat-building tradition. Furthermore, the term "baidara," which later became specific to the open skin boats, is used indiscriminately in these early accounts for kayaks, umiaks, and even ship's boats, whether made of planks or skin. It is unclear, for example, what kind of boat the Russian trader Adrian Tolstykh gave to the chief of Attu when in 1757 he presented him with "two of his own baidaras" (Schulze 1776: 41). Indigenous open skin boats were nonetheless present in the central Aleutians, as documented by Prokopii Lisenkov during his voyages to the Aleutians in 1760-1763 and 1764-1770. According to Lisenkov, the Central Aleuts used large skin baidaras, 10 to 12 metres long (Black 1984: 58).

On June 1, 1790, the Russian ship *Slava Rossii*, carrying members of the Northwestern Secret Geographical and Astronomical Expedition, dropped anchor in Dutch Harbor on Unalaska Island. The ship remained for two weeks and provided Gavriil Sarychev, Carl Merck, and Martin Sauer with ample opportunities to observe the natural environment and the local people. All of them remarked on the beauty and ingenuity of Unangax kayaks, while the open skin boat is mentioned only in connection with a Russian trader's visit on June 2:

> Soon after a large baidar (sic), covered with leather, came along side of us, containing a Russian hunter and eight rowers, who had been rowing about in search of the driftwood for fuel. The Russians told us they came from the ships *Bartholomew and Barnabas*, belonging to the merchants Panow and Company (Sarychev 1969[1806]: 5-6).

Langsdorff, writing in 1805, confirmed that Unangax open skin boats were in use at that time:

> Besides these 1-, 2- and three-men baidarkas, they also have large, open, leather boats or baidara for 15, 20 and more men. They formerly were the common property of an entire village, but now they belong to the Russian-American Company. They are used for ordinary business, e.g. for retrieving driftwood, at the arrival and departure of ships or for towing killed whales etc. (Langsdorff 1993: vol. 2, 19).

By 1811, baidaras became an irreplaceable vehicle for colonial operations in the Aleutians. While smaller and faster kayaks were employed for fur hunting and communications, open skin boats moved large parties of Unangax men and women at the request of the Russian-American Company. In the first decade of the 19th century, for instance, 85 inhabitants of the Rat Islands were moved to Atka in two large baidaras (Black 1984: 158). In 1802 three baidaras brought Unangax from Atka to Amchitka where they hunted under the supervision of Russian *baidarschik* Solomoin (*ibid*.: 159). Indigenous boat-builders used locally available materials to make light, shallow boats of large capacity that were of great use for all shipping in the region. Their service to the Russian-American Company contributed both to the perseverance of the open skin-boat tradition in the Aleutians during the Russian period and to changes to this tradition.

The extent of the changes is, however, difficult to assess. With the exception of the first drawing from the *Levashov Atlas*, all ethnographic evidence of Unangax umiaks is consistent with the model collected in 1837 by Ivan Kuprianov, the chief manager of the Russian-American Company in Unalaska or Atka (Figure 3). This large model is perhaps the best source for Unangax umiak technology. It shows a broad and low boat with thin frames and stringers, a long sloping bow, and an almost vertical sternpost. The skin cover is sewn from smaller pieces to show how sea lion skins would be assembled to cover a full-size boat. All frame pieces are very slender and lashed together with sinew or baleen to create a flexible structure. The lack of headboards (and a stempost capable of supporting its weight) makes the entire structure even lighter. The boat is a masterpiece of wood bending, and in fact this technique seems to explain two of the boat's key characteristics of seaworthiness. The Unangax umiak has no actual stempost. Instead the bow is created by bending the keel upward at a point about three quarters from the stern, where the chines are notched into it. As a result, the front quarter of the boat's length has a sharp V-shape that is essential to the vessel's speed and agility (Durham 1960: 21). At the same time, the gunwales bend and join together to give the upper part of the boat a wide oval shape at both the bow and the stern, thus aiding buoyancy and increasing cargo capacity. In addition to the "spoon-like" bow, this and other Unangax umiak models have another unique feature: all of the bottom

cross-timbers are lashed together by two sinew lines, running parallel to the chines along the boat's entire length.

Made without metal fasteners, the Kuprianov model is completely within the Indigenous boat-building tradition. Its non-Indigenous elements, such as oarlocks and rudder, appear to be fairly external "upgrades" that do not interfere with the hull structure. In fact, the shape and structure seem to be identical to the *nixalax* model published in Lydia Black's (2003: 100) *Aleut Art*. The latter is a unique, if not the only, example of an Unangax umiak with a traditional crew of paddlers. Although oars were introduced early in the history of Russian contact with Unangax, traditional ways of propelling umiaks remained in some regions of the Aleutians, as is evident from the above-mentioned model and some ethnographic accounts. In August of 1816, Adelbert von Chamisso, a naturalist aboard the Russian ship *Rurik* on its voyage around the world, decided to hike from the settlement of Illulluk to the village of Makushinskoe while the ship was at anchor in Dutch Harbor on Unalaska Island. On his way back, he had assistance from the Unangax women of Makushinskoe: "The large baidare (sic) of the settlement brought us to the rear of the fjord […] Aleutian girls were our paddlers" (Chamisso 1986[1821]: 177). During the same stay, the captain of the *Rurik,* Otto von Kotzebue, ordered several baidaras for his ship (*ibid*.).

This is not to say that the traditional Unangax umiak did not undergo changes. Both Unangax kayaks and open skin boats were products of continuously refined and regional differences. According to Ivan Veniaminov's (1984: 275) description, compiled in the 1830s, the pre-contact Unangax umiaks had round bottoms, like the Unangax kayaks, lacked thwarts (benches), and were propelled by paddlers who sat by the sides on the floor of the boat. Both rudder and oars were unquestionably introduced by the Russians. Unangax mariners probably lost little time in adopting the use of oars, which allowed much faster movement than paddles, were more labour-efficient, and could be added to Indigenous boats by merely adding oarlocks. This seemingly simple transition from paddling to rowing reflected, and perhaps also caused, changes in the dynamics of the entire society.

Traditionally, Unangax umiaks were often used to transport cargo or large groups of people who were travelling notably to community celebrations or on "official visits" (Jochelson 1990: 70, 74). In the model published by Black (2003: 100), the crewmen were positioned in a certain hierarchical order. The one at the bow was probably the most prominent crewman, as indicated by his full-crown bentwood hat. The one at the stern had the second most important position and the paddlers were perhaps equal among themselves. A similar hierarchy, supported by recorded oral tradition (Birket-Smith 1953: 35), is represented in the Sugpiaq models (Anichtchenko and Crowell 2010: 217). The switch to rowing meant that the crewmen sat with their backs to the bow and facing the steersman. The party leader at the bow could no longer communicate with the crew or see their faces, seeing instead just the rhythmic motion of their bodies. This is a very visual and almost symbolic departure from traditional forms of leadership in Unangax society. Consequently, there is no longer a figure of the leader at the bow (Figure 6). Oars seem to have become a more consistent feature of

Unangax umiaks than rudders. The Smithsonian model NMNH E-73019-0 (Figure 7) and the early 20th-century pictures of open skin boats on the Pribilof Islands show boats propelled by oarsmen, but steered by a long stern oar instead of a rudder. Stern oars are a more practical option for a light-weight skin boat, since a rudder would not just change the boat's centre of gravity but also make it difficult to drag ashore or launch into the surf.

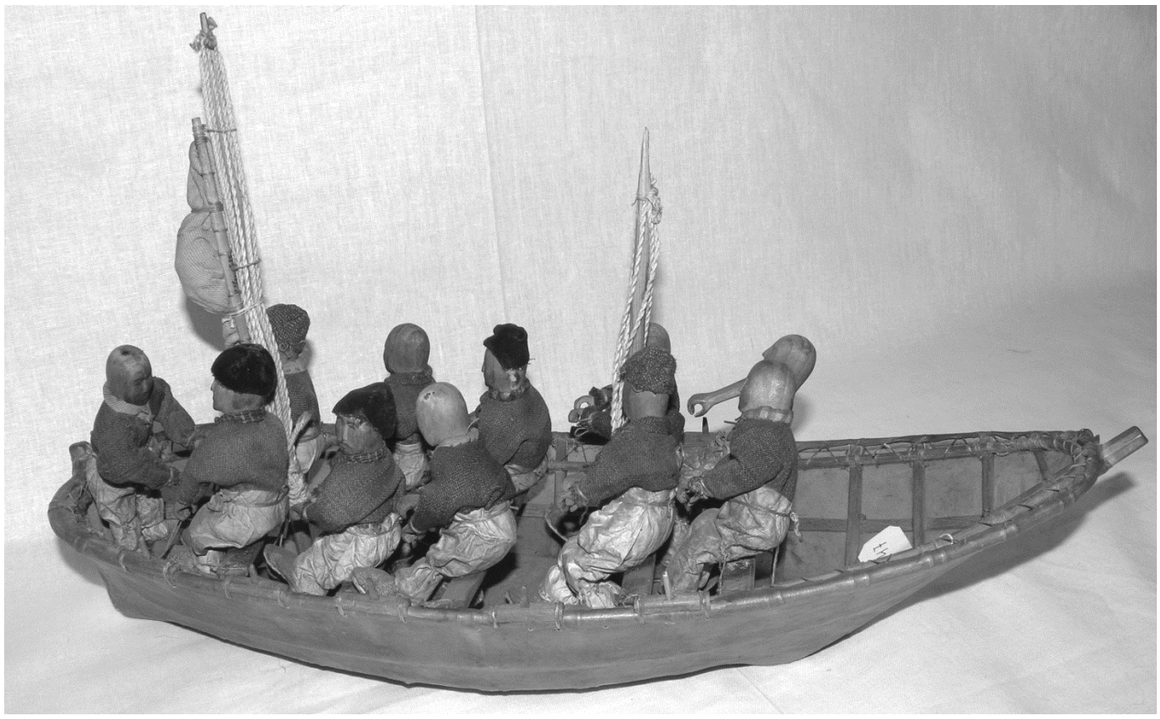

Figure 6. Unangax umiak model, Commander Islands, ca 1890s. Photo: courtesy of Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Academy of Sciences, St. Petersburg, item MAE 313-47. Photographer: Sergey Korsun.

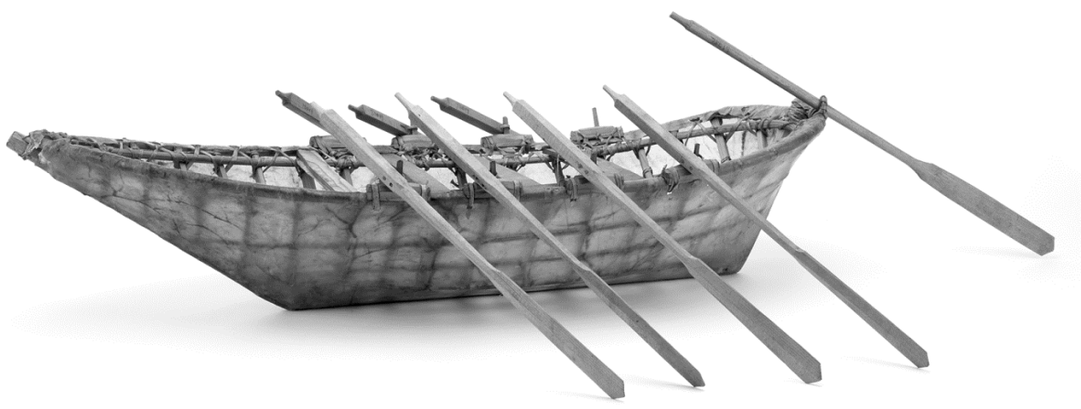

Figure 7. Unangax umiak model, second half of 19th century. Photo: courtesy of the Department of Anthropology, Smithsonian Institution, Washington, D.C., item NMNH E-73019-0.

The Pribilof Islands were likely the last place where the Unangax open skin boats were used. The region's skin-boat tradition apparently declined as a side effect of large-scale commercial sealing. Visiting the Aleutians in 1910, Waldemar Jochelson observed:

> The large skin boats called by the Aleut nixalax, and by the Eskimo umiak, are no longer used by the Aleut on account of lack of skins of sea-lions and other large sea-mammals. The nixalax was 30 feet long and 9 feet wide, and had 3 banks with 6 oarsmen and a steersman. It could carry 20 people or a corresponding amount of freight. On St. George Island I saw a nixalax preserved by the American administration of the island (Jochelson 1968[1933]: 56-58).

The canvas-covered nixalax was used up until World War II. During the Aleut evacuation at that time, several of the boats were brought from St. George Island and used by the interned Unangax in their relocation camps in Southeast Alaska (Bourdukofsky 2011).

With the exception of the first Levashov drawing, from the late 18th century to the second decade of the 20th century the available data, however scarce, depict the same Unangax open type of skin boat with its characteristic spoon-like bow. This characteristic feature of the Unangax umiak is, however, not unique to the Aleutians. Maritime Koryaks—an Indigenous people of the Kamchatka Peninsula—had boats with similar bow structures (Figure 8). Jochelson (1908: 534-536) described Koryak umiaks in the early 20th century as cumbersome and not very seaworthy. However, Jakov Lindau in his 1743 "Description of the Koryaks" attests that the Koryak open skin boat was well suited to its maritime environment, being used for whaling, trading, and long-distance travel (Lindau 1983: 103-104). According to Lindau, in 1740 a Koryak fleet of 80 umiaks sailed to the Near Islands of the Aleutians (*ibid*.). The parallels between these two types of boat go beyond the bow shape, many elements of frame assembly and joints being also similar. Furthermore, Koryak umiak technology made use of bottom timbers that ran parallel to the boat's chines, much like the above-mentioned Unangax sinew lashing of bottom cross-timbers—a feature that appears to have been used only by the Unangax and the Koryak. These similarities make it tempting to assume that Koryak and Unangax open boat types developed not in isolation but through exchanges.

These exchanges, however, followed an uncertain direction and timeline. Since Durham (1960: 25) has suggested that the Koryak were "comparatively un-maritime," they should have borrowed the design of their boats from the Unangax. Existing archaeological and historic data, however, do not at this point support the possibility of contact between the Unangax and the Koryak prior to the Russian voyages to the Aleutians. Liapunova's (1975) interpretation of Levashov's drawings suggests a reverse influence, fostered by Russian traders and resulting in drastic changes in Unangax umiaks, which previously resembled Sugpiaq open skin boats. It is odd, however, that the Unangax would have abandoned their open skin boats for a quite different boat type from another Indigenous people with whom they had made no prior

contact. Furthermore, why would Russian traders have insisted on using the Koryak type instead of local open skin boats, as they did in the Kodiak Archipelago? While many questions remain unanswered, comparison of the Koryak and Unangax open types of skin boat reveals more than just accidental similarities. Further research and new archaeological finds might elucidate whether both derive from a common tradition or whether there were ancient or post-contact technological exchanges.

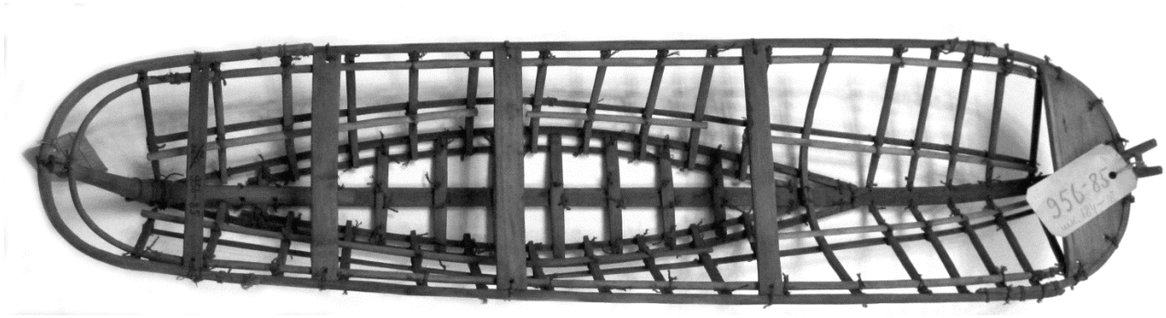

Figure 8. Koryak umiak frame model. Photo: courtesy of Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Academy of Sciences, St. Petersburg, item MAE956-85.

Sugpiaq *angyaq*

The Sugpiaq open skin boat, or *angyaq,* is somewhat better understood than the Unangax *nixalax*. Except for the above-mentioned rock art from Clam Cove and Taxedni Bay, its earliest representation is a wooden panel from Karluk, ca. 1400-1700 AD (Fagan 2008: 93). In May 1778, Captain James Cook encountered a group of angyaqs near Nuchek on Hinchinbrook Island (Beaglehole 1967: 349). He was the first European to write about the vessel's unusual bow, noting its resemblance to a whale's head. The expedition's artist John Webber recorded the encounter and the boats in several sketches, later made into prints (*ibid*.). Different explorers observed a variety of sizes, from relatively small boats carrying 10 men to large ones that could carry a crew of 70 (Lisianskii 1968: 211; Sauer 1802: 171). In 1804, the Russian shipwright Korukin, who was a member of Kruzenshtern and Langsdorff's round-the-world voyage, recorded a 32-ft-long *angyaq* during their stay on Kodiak Island (Langsdorff 1993: Figure 39).

The *angyaq* served several purposes, which varied slightly between the Koniag and the Chugach Sugpiat. Both peoples used it as a cargo boat, but the Chugach also used it for whaling (Birket-Smith 1953: 35). Angyaqs were also used for trade and war. The Russian monk Gideon witnessed Kodiak war parties in 1802: "They went on such raids in about 30 baidaras, each manned by 20 men, sometimes a few more or less. The inhabitants of the northern and western parts raided the Alaskans (Alaskan Peninsula inhabitants), while the southerners and easterners went against Kenaitsy (Dena'ina)" (Gideon 1989: 43). These raids varied seasonally, as evident from Chief Makari Chimovitsky's story about people from Kodiak Island who tried to sneak up on the

village of Tludyun by pretending to be peaceful traders. But "in the summer few people travel in baidaras, unless they are going to fight, so Tludyun people knew why they came" and killed them (Johnson 1984: 18-19).

Traditionally, every wealthy member of Sugpiaq society had an *angyaq* (Gideon 1989: 41), but with the establishment of the Russian-American headquarters on Kodiak Island many open skin boats were requisitioned to serve company needs. Russian explorer Yuri Lisianskii (1968: 211), who visited Kodiak Island in 1804, said the reason was to limit Sugpiaq mobility and thus their independence. This requisitioning did not end boat-building, as the Sugpiat continued making boats up to the early 20th century. Interestingly, the existing museum models show little or no European/Russian influence on *angyaq* technology. Of 11 models known to the author only one is equipped with a sail. The rest demonstrate use of traditional materials and technologies.

Sugpiaq angyaqs were fast, agile, and manoeuvrable. Although the wooden scantlings were thicker than in the Unangax umiak, they were carved and notched together to reduce weight whenever possible without compromising sturdiness. Just as in the Unangax umiak, the *angyaq* chines joined the keel well aft of the curve of the stem post, thereby creating a V-shaped profile over a longer portion of the boat's length as well as a sharper bow shape. A sharply pointed bow was important for speed, propulsion efficiency, and manoeuvrability.

Spiritual and ceremonial dimensions

Sugpiaq *angyaq* models reflect functional, ceremonial, and spiritual meanings. Many *angyaq* models have figures equipped with hunting tools and dressed in bird skin, fur, and fabric. Different types of headgear indicate social status: leaders wear potlatch hats, while a seal head helmet identifies the steersman. The paddlers' faces are often decorated with face paint (Figure 9). The boats themselves are made with amazing attention to detail: frames are painted with red ochre and occasionally with owner's marks, which correspond to the same marks on harpoon shafts, arrows, and other weapons. The seams are embellished with beads.

Figure 9. *Angyaq* model, collected by Y. Lisianskii, 1804, Kodiak Island. Photo: courtesy of the Naval Museum, St. Petersburg, item 620. Photographer: Evguenia Anichtchenko.

One of the most interesting details on some *angyaq* models is the carved eyes motif on the stern board (Figures 10 and 11). It consists of a V-shaped "whale tail" in the middle and two dots on each side. Visual parallels with depictions of Lam Sua, the all-seeing Person of the Universe in Sugpiaq mythology, imply an inherent vision that was both physical and spiritual (Figure 12). The motif might have been located on the stern because this was the steersman's position. Vision was important for him, as it was his role to choose the best course.

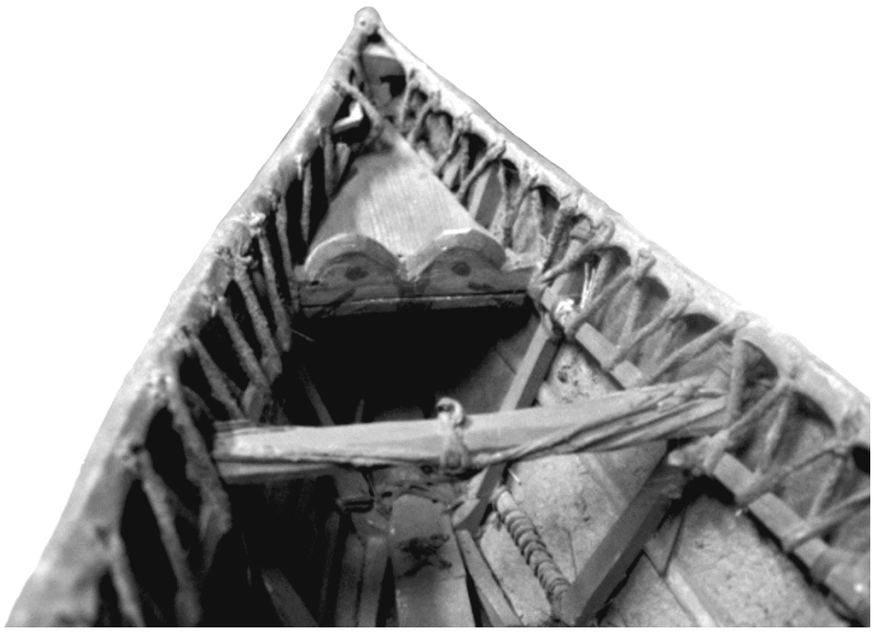

Figure 10. Detail of an *angyaq* model, 19th century. Photo: courtesy of Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Academy of Sciences, St. Petersburg, item MAE 2888-36. Photographer: Evguenia Anichtchenko.

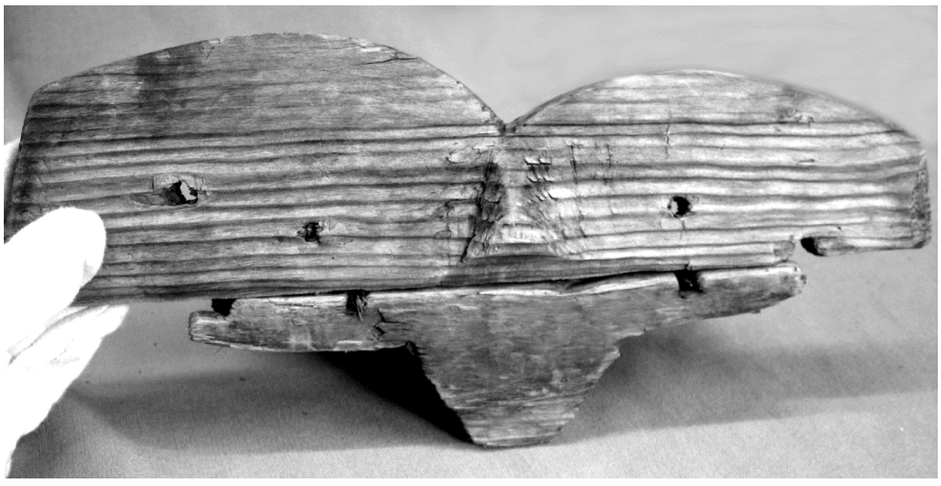

Figure 11. Fragment of *angyaq* stern post and board with carved eyes from the Karluk-1 archaeological site. Photo: courtesy of the Alutiiq Museum, Kodiak Island, Alaska, items AM38:1099 and AM193.94:1056.

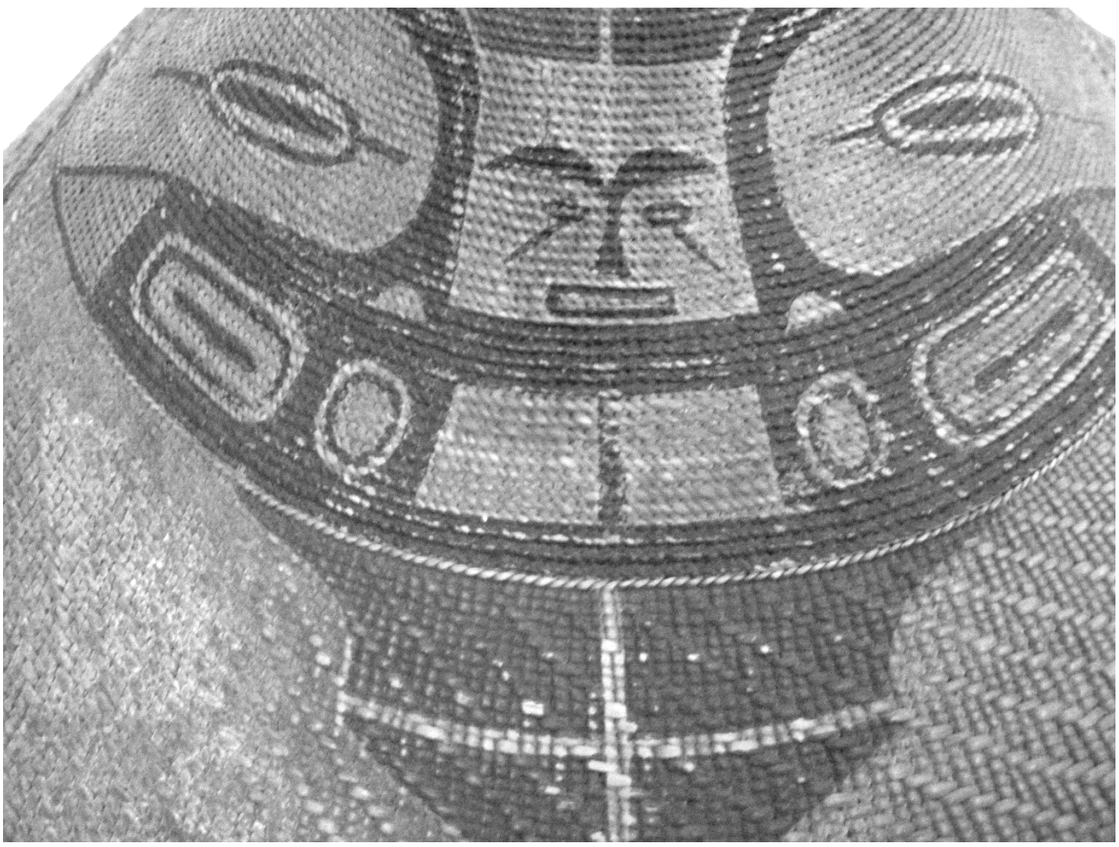

Figure 12. Detail of a Sugpiaq hat with painted image of Lam Sua ("Person of the Universe") collected by M.P. Lazarev in 1823. Photo: courtesy of Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Academy of Sciences, St. Petersburg, item MAE 633-16.

A similar concept of spirit guidance and protection is found in other circumpolar cultures. In Inupiaq umiaks, the stern and stem benches sometimes had a figure of the whale spirit carved underneath (Anichtchenko and Crowell 2010:212). The same symbolical and spiritual meaning could be behind depiction of animals on the side and thwarts of Yup'ik umiaks. Koryak skin-boat charms included a small forked anthropomorphic figure, which was considered the master of the boat. It was placed on the upper end of the prow with legs pointing upward, over which the harpoon thong was pulled. A face was carved on the opposite end of the charm (Jochelson 1908: 42). The Koryak spring ceremony of launching the skin boat provides further indications of spirit agency:

> The sealskin cover of the boat is soaked in water and put on the boat-frame, which is placed bottom up. Then a sacrificial fire is obtained from the sacred fire-board, and is kept burning under the upturned boat. Pieces of seal-fat are thrown into the fire as a sacrifice to the boat, and the mouth of the sacred fire-board is smeared with fat. Then its eyes are cleaned with a knife, and they say to it, "Well, your eyes have become clear, the sea is open, look out." The fire under the boat is allowed to die out, and the upturned boat is left to dry. Then it is launched (Jochelson 1908: 79).

Another intriguing detail on the Sugpiaq *angyaq* models is the use of long strands of white, possibly human hair. The strands are inserted between the seams, particularly towards the bow (Figure 13). Some of them are painted red. The immediate parallel that comes to mind is the long white hair inserted between the seams of Sugpiaq and Unangax gut parkas (kamleikas). Veniaminov (1984: 224) explains that the hair of elders was sometimes sewn into kamleikas "to avert misfortunes." Interesting evidence comes from the Yakutat Tlingit, who allegedly learned to make skin boats from the Chugach Sugpiat. According to their oral traditions, a cannibal lived in the Yakutat area when "Raven taught the people to make canoes out of skins." The cannibal's sons made a large canoe out of his victims' skins, which was sewn with human hair, and went in this canoe to avenge their uncles slain by their father. "It was the first of the skin canoes […]. Nowadays these canoes are made of all kinds of skins, but the hair used is always human hair" (de Laguna 1972: 330). Perhaps this legend has some connection with the human hair decorations on the bows of Sugpiaq angyaqs.

Figure 13. Bow detail of *angyaq* model. Photo: courtesy of Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Academy of Sciences, St. Petersburg, item MAE 536-8.

Discoid bow

The Sugpiaq *angyaq*'s bow shape is its most notable feature. In essence, the *angyaq* bow is functionally analogous to the bifid bow of Sugpiaq and Unangax kayaks. The function of the bifid stem is well understood. It makes possible the

structure of a concave bow, which combines two cross-sectional profiles: a narrow sharp bottom for speed, manoeuvrability, and propulsion efficiency; and a flaring top for buoyancy and stability. While the narrow cross-section of the lower part of the prow is important for the boat's performance, its discoid profile has no apparent purpose, reflecting stylistic, and not functional, considerations. It could have been triangular, rectangular, or crescent-shaped without probably changing any qualities of the boat. The *angyaq*'s front end visually resembles the bulbous bow of modern motor-driven vessels, and this similarity has led some researchers to argue that its shape was conducive to faster navigation. This argument is faulty, however. Indeed, for the bulbous bow to contribute to the speed of the ship, it would have to be a sphere, not a disk, and the ship would have to be moving at approximately 10 knots or faster.

The only direct visual parallel to the *angyaq*'s bow shape is the front of Eyak and Yakutat Tlingit sealing dugout canoes. The "forked" bow of these boats was said to be useful in averting icebergs and anchoring the boat in the beach sand (Grinnell 2007: 161-162). Perhaps the first presumed advantage could have partly influenced the shape of the *angyaq*'s bow. The comparison with Tlingit vessels opens up the very interesting and poorly researched subject of mutual influences between skin-boat and wooden-boat technologies. In the Prince William Sound area the boundaries between the two were virtually nonexistent: Chugach, Eyak, and Yakutat Tlingit used both dugouts and skin boats (de Laguna 1972: 330-331), Dena'ina Athabascans had dugouts, skin boats, and birchbark canoes (Figure 14). The kayaks of Dena'ina, Chugach, and Yakutat Tlingit belonged to the same bifid bow type, which in turn closely resembled kayaks of the Aleutians (*ibid*.: 331-332).

Conclusion

Overall, this cursory glance at the skin-boat tradition of the North Pacific margin reveals a peculiar continuum. Within this region, various boat types form a chain of overlapping "links" of shared structural details: A) "spoon-like" bow of open skin boats (from the Kamchatka Peninsula of East Eurasia to the easternmost Aleutian Islands); B) bifid bow kayaks (from the Aleutian Islands and the Kodiak Archipelago to Prince William Sound and Yakutat Bay); and C) the discoid bow (from Kodiak Island to Yakutat Bay).

Stretching from the east coast of Siberia to the southeast extremity of Alaska, this chain connects several different cultural groups and two distinct boat technologies: the skin-covered boats of the Aleutian Islands and the Kodiak archipelago, and dugout watercraft of Southeast Alaska (Figure 14). Notably, the distribution of specific elements is not contiguous with national boundaries and also transgresses the technological divide between skin-on-frame and dugout boat-building traditions. Structural details were transferred from one culture to another and from boat type to boat type, indicating a dynamic network of technological exchanges between different Indigenous nations of the region. These exchanges occurred along routes of trade and

war through the borrowing of specific elements and structural features rather than the adoption of a complete technological corpus.

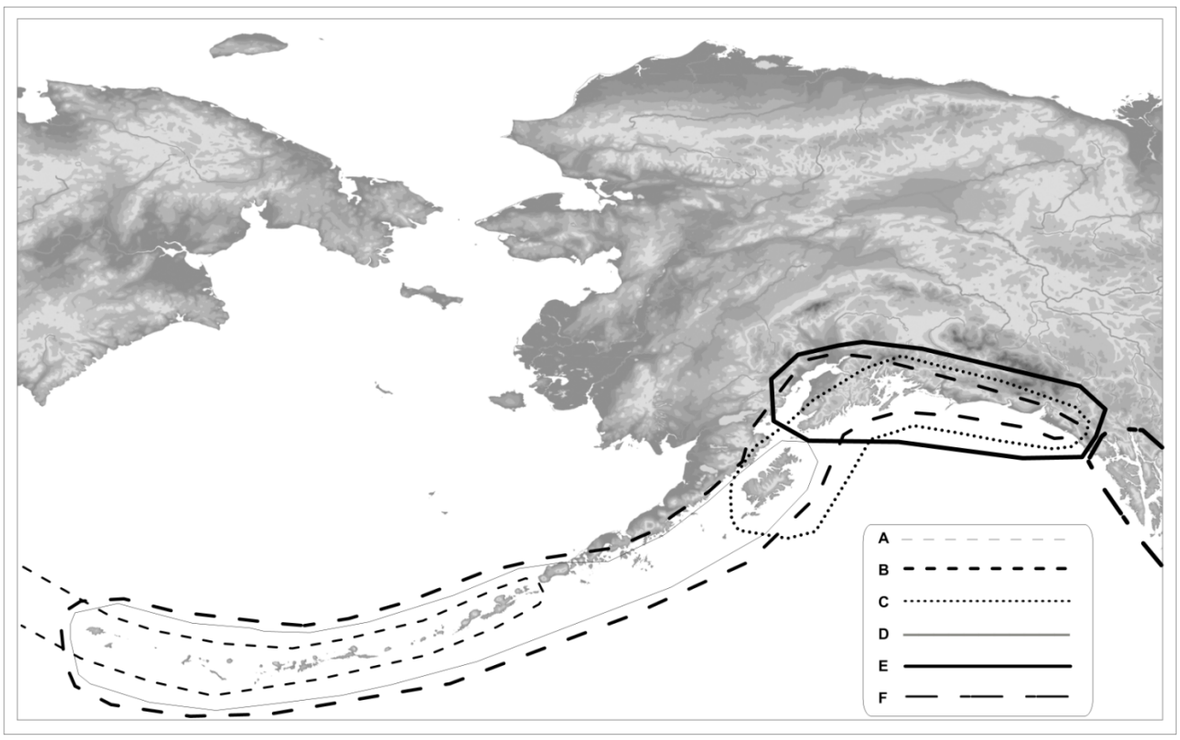

Figure 14. Boat technology "chain" along the North Pacific margin. A: open skin boats with spoon-like bow; B: bifid bow kayaks; C: discoid bow; D: skin boats only; E: skin boats and dugouts; F: dugouts only.

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