The life (lives) and times of native copper in Northwest North America

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Abstract

Native copper was used by several different indigenous ethno-linguistic groups in Alaska and Yukon starting in the Late Prehistoric period and continuing into the early twentieth century. This paper applies a relational biography approach to an analysis of the possible roles of native copper in northern Athabascan and northern Tlingit society. Native copper was used in a variety of contexts, both as practical and prestige technology, and also possessed animacy and agency, two important and closely intertwined concepts in the ontology of northern hunter-gatherers.

Keywords

Athabascan; native copper; hunter-gatherer; animacy; agency; object biography.

Native copper (copper occurring in a pure metallic state, 99.9+ per cent Cu) was used by several indigenous groups in south-central Alaska and southwestern Yukon including: Ahtna, Dena’ina, Tutchone, Upper Tanana and Tanana Athabascans, Yakutat and other northern Tlingit and Chugach Eskimo (Fig. 1). In this paper I follow an object biography approach in examining the roles of native copper in indigenous society. This analysis capitalizes on the convergence of material culture studies (e.g. Bennett 2010; Brey 2005; Gell 1998; Hoskins 2006), archaeology (e.g. Alberti and Marshall 2009; Brown and Walker 2008; Brück 2006; Haber 2009; Zedeño 2009) and non-Western ontologies (Bird-David 1999; Ingold 2000, 2006) regarding the attribution of animacy and agency to non-human things. Ethnographic studies provide a wealth of information regarding this world-wide phenomenon and it is a central tenet of northern Athabascan ontology (e.g. Boraas and Peter 2008; de Laguna 1969; Nelson 1983; Osgood 1966; Ridington 1982, 1988, 1994). The potential for objects to have animacy and agency makes a biographical approach (Gosden and Marshall 1999; Kopytoff 1986) useful to the study of northern Athabascan archaeology and material culture. This discussion provides an example of...
the inseparability of ideology, material culture and ranking (social complexity) among hunter-gatherers, and puts ‘the magic back’ into metallurgy by highlighting the non-material, ideological aspects of native copper innovation (Budd and Taylor 1995: 138).

**Animacy, agency and biography**

Indigenous ontologies attributing life (soul or spirit and emotion) to non-human animals and objects have traditionally been described in anthropology using the term animism (Ingold 2006: 10), an early focus of study in anthropology (Tylor 1958 [1871]). Animism was viewed as an early stage in the evolution of religious thought and characterized as a childlike mistaken epistemology (see discussion by Bird-David 1999: 67–8). Its classification as religion (Groleau 2009: 398) and emphasis on spirits combined with the ethnographic attention given to ritual ‘over-exoticiz[ed]’ (Sillar 2009: 374) animism, distancing it from daily life. But animacy is ‘a condition of being in’, not ‘a way of believing about’, the world (Ingold 2006: 10). Referring to indigenous non-Western theories as epistemologies (world-views) instead of ontologies (worlds) reifies the Western Cartesian duality of active people/passive objects and projects it onto people who experience the world differently. Recent studies of animism and agency have focused on the interdependence of humans and non-human agents as relational (Sillar 2009) or, more specifically, as a relational epistemology (Bird-David 1999) or relational ontology (Alberti and Marshall 2009; Ingold 2006; Viveiros de Castro 2003).

In this paper I use ontology, rather than epistemology, as it better articulates the experiential relationship northern Athabascans have with their environment on both a
physical and a metaphysical level. Similarly, because of the negative implications associated with the term animism, this paper follows Zedeño (2009) in using animacy to refer to the agente potential of non-human animals and things. This perspective emphasizes that relational ontology is deeply embedded in social practice, learning and the experiences of individuals, and not just a set of religious beliefs to be drawn on at special occasions (Zedeño 2009: 408).

The metaphorical analogy between the trajectory of a human life and that of an object has appealed to many scholars interested in material culture (Herva and Nurmi 2009: 161). Just as humans are born, move through successive stages of life and then die, objects are made, have a use-life and are discarded (Schiffer 1972: 159, 1987). Whereas Schiffer (1972: 156, 1987: 13) used ‘life history’ to denote the various processes in a systemic context that impact on the form of an object, Appadurai (1986: 3) used ‘social lives’ to emphasize the changes that can occur in the meaning and value of objects in the context of exchange. Kopytoff (1986: 66–7) also focused on the context of exchange when he applied cultural anthropology’s use of biography in developing generalized human life cycles (‘idealized biographies’) to discuss the ‘cultural biography’ of objects. Asking similar questions about the biography of objects as one asked about the biographies of people would provide a better understanding of the changing value of commodities as they moved through a social network (Kopytoff 1986: 64). The concept of biography incorporates use-life but is more inclusive because it also recognizes that objects are employed to create and maintain identity and social relations (Gosden and Marshall 1999: 169; Jones 2002: 84; Joy 2009: 545), including relations with non-human agents (Zedeño 2009). Brown and Walker (2008: 298) used ‘object agency’ to highlight the fact that objects and their ‘performance characteristics’ impact on human behavior. In Western ontology objects do not have goals, so the agency of an object is ‘relational’: it exists in only relation to a ‘patient’ (counterpart to an agent) (Gell 1998: 22). In non-Western ontologies things with animacy can exert their will upon humans. They are animate because they have agency, and they are agentive because they have animacy; the two attributes are inseparable.

Metals, minerals and shells were appreciated in North America and elsewhere for their visual appeal (Hayden 1998; Renfrew 1986) and association with supernatural spirits and power (Saunders 1998, 2002). Native American consultants working with Zedeño (2009: 412) referred to copper, red paint, fossils and crystals as ‘inherently animate’. Such materials are often referred to as prestige goods by archaeologists (e.g. Brumfiel and Earle 1987) due to their presence in special contexts such as human burials and are used to infer socioeconomic inequality and, by extension, social complexity (Hayden 1998). Prestige technologies are meant to be shown in community contexts where their ability to ‘elicit pan-human aesthetic responses’ can be used to attract the positive attention of potential followers, allies and mates (Hayden 1998: 13). Embedded in Gell’s (1988: 7) concept of the ‘technology of enchantment’ is the idea that the human imagination is greatly affected by objects that stimulate our senses and cause us to question our understanding of the world. The political use of prestige technology to initiate or expand social relations connects its value and exchange (Appadurai 1986: 57). The association of metals and metallurgy with leaders and leadership has been attributed to the transformative (Budd and Taylor 1995) and sensorily stimulating (Herbert 1984) physical, and hence spiritual, qualities of copper and other metals.
Northern Athabascan ontology and technology

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Northern Athabascans are divided into twenty-three separate languages spread across the Subarctic from the Alaskan interior in the west, east to the south-west corner of Hudson Bay and extending south into the Canadian Plains (Krauss and Golla 1981: 67–8). The Ahtna and other northern Athabascans were traditionally hunter-gatherer-fishers. Salmon and caribou were the two most important species in the past and are still important today. Good fishing locations might be occupied much of the year and become important centers of trade but there was a great deal of seasonal mobility (Ives 1990; de Laguna and McClellan 1981; McClellan and Denniston 1981; VanStone 1974). Northern Athabascans self-identified with small local bands but movement between bands was facilitated by kin ties created through the exchange of marriage partners. Northern Athabascans have been characterized as egalitarian but at the time of Russian contact, in the mid to late eighteenth century, the Ahtna, Dena’ina and Tutcheone were ranked societies with nobles, slaves and commoners (Ives 1990; Townsend 1980; VanStone 1974).

Northern Athabascan technology has been characterized by both archaeologists and ethnographers as materially sparse, many tools were made using readily available animal or plant materials (e.g. Dumond 1980; McClellan and Denniston 1981; Nelson 1983; Oswalt 1976; Ridington 1982, 1988, 1994; VanStone 1974). The foundation of northern Athabascan technology is the intimate, socially constructed knowledge of the environment and animal behavior (Nelson 1983; Ridington 1982, 1988, 1994). Much of this information is encoded in stories about proper behavior toward nature (animals, plants, landscape) and nature spirits (supernatural) from the Distant Time when non-human life had human characteristics (de Laguna 1969; McClellan and Denniston 1981; Nelson 1983: 16–19). Distant Time stories provide an oral manual for proper interaction with sentient beings aware of humans’ adherence to these rules, such as proper distribution and disposal of the parts of an animal by a hunter (Boraas and Peter 2008; Nelson 1983). Views of animism distanced it from daily practice (Groleau 2009: 398; Sillar 2009: 374) but the concept of animacy is an integral part of northern Athabascan ontology and technology. The potential for animacy and agency found in the environment means that hunting, fishing and gathering are ritual and spiritual acts by which northern Athabascans maintain social relations with their ‘watchful world’ (Nelson 1983: 14).

Animacy is not a substitute for detailed knowledge of the environment. Landscapes are dynamic cultural constructions tied to cultural perceptions of the environment (e.g. Anschuetz et al. 2001; Basso 1996; Ingold 2000) and an important aspect of the northern Athabascan landscape and technology is the use of resource-specific place names. A consistent naming system was established by northern Athabascans allowing place names, especially for streams and mountains, to be easily memorized and used as ‘cognitive maps’ (Kari 1996: 465, 2011). Most Ahtna place names are environmental, derived from names for plants and animals or landscape features, but some are derived from specific historical or Distant Time events (Kari 1996, 2005, 2011: 248–50; Nelson 1983: 243–5). The northern Athabascan landscape is alive with history and memory (e.g. Andrews 2004; Nelson 1983). Because there is no separation between natural-supernatural in northern Athabascan ontology, or society-nature and society-technology, humans are constantly and simultaneously interacting with other humans, animals, objects and the landscape.
both physically and metaphysically developing and experiencing their ‘local theory of relatedness’ (Haber 2009: 424).

Native copper biography(ies)

Details about an object’s manufacture, use, exchange and deposition can be investigated using a variety of methods (Jones 2002), but cultural anthropologists can write more detailed biographies of people (Watson and Watson-Franke 1985) than can be established for individual archaeological artifacts (Herva and Nurmi 2009: 162; Joy 2009: 543). I address this issue three ways. First, I examine the biographical possibilities of native copper in different forms and contexts, instead of a single artifact (following Kopytoff’s (1986: 66–8) suggestion to focus on a class of artifact). Second, I follow Joy’s ‘relational biography’ (2009: 544) approach, synthesizing Strathern’s (1988: 131) ideas about the biographies of people and Gell’s (1998: 17–18) concept of relational agency. A person’s biography is the sum of their social relationships. The biography of an object can be similarly viewed as the entirety of its social relationships. The object biography of native copper offered here broadly follows a chronological narrative but moves in a non-linear fashion between different contexts to reveal the aggregate of possible social relationships native copper could acquire during its life. Third, archaeologists working in the north have long used ethnography and oral history to interpret archaeological data and inform on past social processes (see discussions in Arundale et al. 1989; Frink and Harry 2008). I combine aspects of northern Athabascan ontology and technology derived from ethnography and ethnohistory, including native copper oral history, with archaeology and materials science data to construct a relational biography(ies) for native copper. Following Kopytoff (1986: 66), I will examine the ‘biographical possibilities’ of native copper and how those possibilities were achieved. Who made and used copper artifacts? Were there recognized stages, or an ‘ideal career’, for the life of a native copper artifact? Additionally, what is the origin of this technology and what was its relationship to prestige and rank?

Birth

I begin this biographical perspective on native copper with an overview of the origin of this technology. Native copper was being used by northern Athabascans before AD 1000, but most well-dated contexts fall between AD 1000 and the arrival of Europeans in the mid-eighteenth century (Cooper forthcoming). Geological native copper has been reported at forty-six discrete locations in south-central Alaska and southwestern Yukon (Cooper et al. 2008). Most sources are found within the traditional territories of the Ahtna, Tutchone, Dena’ina and Chugach as reflected in the use of place names incorporating indigenous terms for copper (Fig. 1 and Table 1). Twenty-two such names are known for the region; twenty are Athabascan and thirteen of those are from the southern Ahtna region, home to speakers of the Lower Ahtna dialect (Kari 1986, 1990, 2005, 2008; Kari and Fall 2003; Orth 1967: 530). The Tlingit name for the White River in Tutchone territory means ‘copper river’ (Glave 1892). Two copper place names in Prince William Sound are
<table>
<thead>
<tr>
<th>No.</th>
<th>Place names</th>
<th>Translation</th>
<th>Cultural affiliation</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tsedi Na</td>
<td>copper river</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
</tr>
<tr>
<td>2</td>
<td>Tsedi Cae'e</td>
<td>copper mouth</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
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<tr>
<td>3</td>
<td>Tsedi Tu'</td>
<td>copper water</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
</tr>
<tr>
<td>4</td>
<td>Tsedi Ts'ese' Na'</td>
<td>copper stone creek</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
</tr>
<tr>
<td>5</td>
<td>Tsedi Ts'ese' Cae'e</td>
<td>copper stone mouth</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
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<tr>
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<td>Tsedi Ts'ese'</td>
<td>copper stone</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
</tr>
<tr>
<td>7</td>
<td>Tsedi Ts'ese' Tates</td>
<td>copper stone pass</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
</tr>
<tr>
<td>8</td>
<td>Tsedi Tl'aa</td>
<td>copper headwaters</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
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<td>9</td>
<td>Tsedi Na' Ngge'</td>
<td>copper river uplands (entire</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
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<td></td>
<td></td>
<td>drainage, not on map)</td>
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</tr>
<tr>
<td>10</td>
<td>Tsedi Na' Luu' (Luu)</td>
<td>copper river uplands (Chitina</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
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<td></td>
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<td>Glacier)</td>
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<tr>
<td>11</td>
<td>Tsedi Ggalaaye'</td>
<td>copper mountain (location</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
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<td>uncertain, not on map)</td>
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<tr>
<td>12</td>
<td>Tsedi Kulaenden</td>
<td>where copper exists</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
</tr>
<tr>
<td>13</td>
<td>Tsedi Kulaen Na'</td>
<td>where copper exists creek</td>
<td>Ahtna</td>
<td>Kari (2008)</td>
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<td>14</td>
<td>Tsetsaan' Na'</td>
<td>copper river (Chisana)</td>
<td>Upper Tanana</td>
<td>Kari (2008)</td>
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<tr>
<td>15</td>
<td>Tssetsaan' Na' Tates</td>
<td>copper river pass</td>
<td>Upper Tanana</td>
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</tr>
<tr>
<td>16</td>
<td>Tssetsaan' Na' Luu'</td>
<td>copper river glacier</td>
<td>Upper Tanana</td>
<td>Kari (2008)</td>
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<tr>
<td>17</td>
<td>Klet-san-dek (Tsetsaan-digh)</td>
<td>copper creek</td>
<td>Upper Tanana/Tutchone</td>
<td>Orth (1967)</td>
</tr>
<tr>
<td>18</td>
<td>Eark-heene-nee</td>
<td>copper river</td>
<td>Tutchone/Tlingit</td>
<td>Glave (1892)</td>
</tr>
<tr>
<td>19</td>
<td>Tsedi Bak'ilani</td>
<td>the one in which there is</td>
<td>Dena'ina</td>
<td>Kari and Fall (2003)</td>
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<td></td>
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<td>copper</td>
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<td>20</td>
<td>Tsedi Bak'ilanitu</td>
<td>creek in which there is</td>
<td>Dena'ina</td>
<td>Kari and Fall (2003)</td>
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<td>copper</td>
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</tr>
<tr>
<td>21</td>
<td>Kanawalek</td>
<td>copper place</td>
<td>Chugach</td>
<td>Birket-Smith (1953)</td>
</tr>
<tr>
<td>22</td>
<td>Kaniuwalem Kuiya</td>
<td>creek of one that has copper</td>
<td>Chugach</td>
<td>Bright (2004)</td>
</tr>
</tbody>
</table>
Chugach (Birket-Smith 1953; Bright 2004). *Tsedi*, literally ‘that which is hammered’, was the term used for copper in the Central, Lower and Western Ahtna dialects and by the Dena’ina. Among the Mentasta Ahtna and other northern Athapaskans the term *tsetsaan*, ‘rock excrement’ was used (Kari 1990: 375; Kari and Fall 2003). Northern Athabascan groups in the Northwest Territories referred to copper as *sa-tson*, ‘bear smoke’ or *tsa-intsanne*, ‘beaver dung’. Petitot (2005 [1893]: 96) claimed this was because the dung of these animals is red but referring to rounded globular copper nuggets as dung may be due to their similarity in form.

Oral history accounts of native copper inform on both its agency and animacy. A Yakutat Bay narrative describes the discovery of copper by a young Ahtna Athabascan man prior to the migration of the Ahtna Kwackwan lineage from the confluence of the Copper and Chitina Rivers to the coast where they were integrated into northern Tlingit society. A female slave had a son and, being poor and of low status, they were disrespected in their village and chose to leave and live in the mountains. Four years later the boy had grown into a young man. One night he was visited in his sleep by a spirit that told him ‘Pass one mountain more. Stay up there.’ The young man went sheep hunting the next day where the spirit had told him to go. That night the spirit came to him again saying, ‘If you see four blue flames on the fire, that’s me.’ Four days later while hunting moose he saw four blue flames in his campfire but was afraid. The next morning the young man found four fist-sized pieces of copper in the ashes where the four blue flames had been. He did not know what they were but used part of one to make an arrowhead, which he then used to kill a moose. After revealing this gift to his mother they returned to their former village. When the chief saw the copper he became excited and wanted to know where they had found it but the mother demanded he first recognize them as ‘brave’ (de Laguna 1972: 899–900).

Another copper origin story concerning the Ahtna told by Jim McKinley credits the discovery of copper, and subsequent Ahtna wealth, to a boy whose uncle did not like him and sent him away from his village. While ostracized the boy heard singing coming from the ground and in digging down to find the source of the singing found a big piece of copper (Kari and Tuttle forthcoming). Another story told by McKinley concerns an old Ahtna village site on the east bank of the Copper River, *Tsedi Kulaende*, ‘where copper exists’. This village was so-named because sometime after the initial discovery of copper someone floating downriver saw light reflecting off a large piece of copper sticking out of the river bank. After an attempt to pull the large nugget out of the riverbank using ropes it fell into the water and could not be recovered but the nearby village was renamed as a result (Kari 2010; Kari and Tuttle forthcoming).

In a Dena’ina story a man named Tcu-Kun killed his wife because she was unfaithful and afterward lived alone in the woods but continued to commit murder. He found metal, presumably copper, in a creek and made several tools including an ax, spear and knife. After living alone for forty years Tcu-kun approached a young boy of ‘poor class’ saying, ‘Don’t cry little boy, I won’t hurt you. I want you to kill me, I’m tired and old.’ Tcu-kun piled up his metal and offered it to the boy as payment for killing him. The boy did as instructed and after killing Tcu-kun went to the house of the chief and told of his killing of the notorious Tcu-kun. The chief took a metal knife and ax for himself, allowed the boy to have the rest and married the boy to his daughter (Osgood 1966: 188–9).
Another Dena’ina story about the discovery of copper told by Shem Pete relates to a specific location, *Tsedi Bak’ilani*:

way before the Russians came they found a big [piece of] copper walking around. It looked like a big porcupine. He [the man who found the copper] peed on that copper walking around. They found the [that?] maybe four hundred or five hundred years ago, before the Russians came to Alaska. A rich man’s cousin hunted around Dghelishla. He saw that copper kinda walk around, come alive, I don’t know. It gave him luck. That’s where that chief got lucky. That porcupine copper died. He got lucky. They cut a little piece and make arrow point. They got rich outa that copper. They sell that.  

(Kari and Fall 2003: 111; italic text added by author)

I have suggested autochthonous development as the most likely explanation for the presence of native copper technology in the region based on the abundance of native copper, oral history emphasizing its local origin and the reasonable expectation that northern Athabascans were capable of noticing native copper and learning how to work it (Cooper forthcoming).

**Life**

*Procurement*  Native copper nuggets range in size from a few millimeters to a few tons. Indigenous people in Alaska and Yukon used 3–4 gram nuggets obtained from streams. Sometimes caribou or moose antler was used to rake through gravel looking for nuggets (Brooks 1900; Schwatka 1996 [1892]). Many native copper sources are at high elevation with steep slopes. Temporary campsites established in this active erosional environment are unlikely to survive due to the movement of large amounts of water and sediment during spring runoff. The Ahtna sometimes coordinated the collection of copper with hunting sheep, also found at higher elevations, but copper was worked at winter village sites (Reckord 1983: 82). Copper place names are most abundant in the traditional territory of the Ahtna, who monopolized its trade (Grinev 1993; Shinkwin 1979). These place names facilitated the transmission of geographical knowledge of native copper over time (Kari 1996, 2011), but could also be interpreted as making claims of ownership on copper (Vine de Loria 1981 in Basso 1996: 156). de Laguna and McClellan (1981: 645) stated that, among the Ahtna, copper ‘demanded religious precautions to secure the nuggets, and specialized knowledge to shape it into knives, daggers, spear heads, and harpoon heads’. Like the spirits of animals copper was aware of human action and intent and could be offended, with negative consequences (Boraas and Peter 2008; de Laguna 1969; Nelson 1983).

*Trade and exchange*  A native copper provenance study demonstrated the possibility of differentiating between some sources in the region on the basis of trace elements, but too few sources have been sampled at present to source artifacts confidently (Cooper et al. 2008). According to ethnohistoric accounts (Grinev 1993; Reckord 1983; Shinkwin 1979) the Ahtna controlled the movement of native copper to the coast in Alaska. The Udizisyu, a Lower Ahtna lineage, may have had the most influence on this trade as they lived in the
southern portion of Ahtna territory where native copper sources are concentrated, and were closer to coastal trading partners than other Ahtna (McClellan 1971: 231).

An Ahtna story that demonstrates both the high value afforded to copper and its ability to act as an agent of social change focuses on Cuuy (literally ‘least weasel’ – Kari 1990; Kari and Tuttle forthcoming). Cuuy was a chief of small physical stature, approximately 2½ feet tall (dwarf or midget), who lived near the Gulkana site. Cuuy was not well-liked, presumably due to his size and having been born to a woman of low status. He attached himself to different wealthy chiefs living around the confluence of the Copper and Chitina Rivers and from them learned how to work copper, an activity at which he excelled. After making fifty arrowheads of copper he took them inland to trade with the Tanana people. This was the first time they saw copper. He was so successful in trading he had to acquire slaves from among the Tanana to help him carry back his furs (Kari and Tuttle forthcoming; Reckord 1983: 53). Cuuy became a chief with sixty followers and lived in a big house held together with the aid of copper nails (Gibson and Mischler 1984: 23).

A story about copper that involves the Kwackwan migration from Ahtna territory to Yakutat Bay was collected by Swanton (1909: 347–68) from the Tlingit. After travelling to the coast and living there several years a man sent six of his nephews along the shore in a canoe to look for people. They found people living in Yakutat Bay but those people sent the newcomers away. The brothers returned to their uncle who then sent them on another trip, this time back to their homeland in the interior to retrieve a large piece of copper (referred to as a ‘plate’), possibly a large nugget (Keithahn 1964). The brothers found the copper, which was ‘very long’ with ‘eyes and hands’, and cut it down the middle before carrying it back to the coast. The Kwackwan gave the copper, whose value was said to be worth ten slaves, to the Yakutat people who accepted it as payment for a salmon stream.

Manufacture

Cold-hammering native copper compresses individual metal grains resulting in a microstructure with multiple linear striations (Fig. 2). Heating cold-worked copper at a temperature of around 300°C for a few minutes causes the nucleation and growth of a new set of equiaxed strain-free grains (Fig. 3). This re-crystallization restores malleability. The microstructure of worked and annealed copper shows equiaxed grains and annealing twins. Twins are a result of the growth of new crystals during annealing which creates a mirrored plane within the crystal and appears microscopically as parallel straight lines. Though twins may be present in geological specimens of native copper due to re-crystallization caused by strain associated with geological events, they are much more numerous in samples of native copper that have been worked and annealed (Wayman 1989). Metallographic examination of native copper artifacts from the Gulkana site (GUL-077) (Cooper 2007: 122–4; Franklin et al. 1981) and oral history (Kari and Fall 2003; McClellan 1975; McKennan 1959; Osgood 1966; Rainey 1939) corroborates the hammering and annealing of native copper in Alaska-Yukon, which was the basic technique used in North America (Leader 1988) and Eurasia (Craddock 1995; Stech 1999).

The chaîne opératoire involved beating nuggets into sheets which were then folded to build up bulk. Small pieces were removed during manufacture but instead of fracturing when subjected to force, like lithic, bone or wood, native copper undergoes plastic deformation (Franklin et al. 1981; Wayman 1989; Workman 1976). Native copper technology blends aspects of lithic technology and metallurgy. The Ahtna and Dena’ina
term for native copper, *tsedi*, ‘that which is hammered’, refers specifically to how this material was worked. Those especially skilled at working copper were known among the Ahtna as *c’etseden*, ‘one who hammers’ (Kari 1990: 375) and among the Dena’ina as *nuk’getset*, ‘they pound it’ (Kari and Fall 2003: 111).

The archaeological distribution of native copper in Alaska and Yukon suggests supply zone behavior (Renfrew 1977), whereby native copper was obtained either directly from a source or in trade from someone with direct access. The most numerous native copper artifacts in Alaska and Yukon are small pieces of scrap, usually thin sheets, left over from the manufacturing process. Seventy-one such artifacts were recovered from the Gulkana site (GUL-077) (Hanson 2008; Workman 1976) and 106 from Dakah De’nin’s Village (VAL-065) (Shinkwin 1979), demonstrating that these two sites were important copper-working centers. Dakah De’nin’s Village is near the confluence of the Chitina and Copper Rivers, which became the focal point of native copper knowledge and expertise (Reckord 1983) probably during the Late Prehistoric period. The biographies of copper artifacts would be similar during the manufacturing stage because they had not yet acquired their unique histories (Appadurai 1986: 42; Schiffer 1972). Their life histories would be temporarily fixed during manufacture into various specific forms but native copper’s potential to be re-worked through annealing means it could begin life anew in a different form, which may have contributed to its animacy.
A total of 569 native copper artifacts have been recovered from seventy-seven sites in Alaska and Yukon. Most sites have only one or a few specimens, but four sites (Fig. 1) have many, accounting for over half of all the artifacts. In Athabascan archaeological contexts native copper occurs primarily as tools; its use as prestige technology was limited. However, regional oral history emphasizes a connection between native copper, wealth, prestige and ranking (Cooper 2006). Native copper continued to be used into the early part of the twentieth century even after imported metal trade goods were available (Cooper forthcoming).

The most common native copper artifacts after scrap are awls (and various awl-like objects probably used as needles, drills and punches). Awls of various materials, most likely bone and copper, were part of the toolkits of both men and women (McKennan 1959: 68). The Ahtna manufactured snowshoes using awls, lacing needles and drills all made of copper (Kari 1990: 375). The next most common copper tools found archaeologically and also attested to in oral history are spear and arrow points and knives. One form of knife made from copper has been referred to as an ulu, an Eskimo term for a knife with one straight edge for hafting and one semi-lunar edge. These knives are also referred to as a ‘woman’s knife’ due to their association with women’s work, and were also used by Athabascans. Copper knives and points were used to kill bears (Upper Tanana, Ahtna and Tutchone) and people (Ahtna and Tutchone) (Kari 1990: 375;
McClellan 1975: 127; Oswalt 1973: 118; Shinkwin 1979: 26). Early in the twentieth century the Ahtna were reported to use ‘ceremonial knives of copper...for cutting the first salmon caught in the beginning of the season’s run’ (Moffit and Maddren 1909: 19). The First Salmon ceremony was ubiquitous among northwest Native North Americans dependent on salmon for subsistence (Gunther 1926). No indication was given that the copper knife used in the First Salmon ceremony looked different from other fish knives or that it was highly regarded at other times of the year.

During an episode of warfare between the Upper Tanana and Tutchone in the early nineteenth century the Upper Tanana used ‘some copper, old copper arrowheads’ (Plate 1), to kill Tutchone. These arrowheads were retrieved from the bodies of the deceased and hammered back into shape to be used again (Katie John in Kari 1986: 101); a reworked and reused copper arrowhead had ‘special power’. Taking a human life was a spiritually dangerous act that required the observance of several ‘life-crisis taboos’ (de Laguna and McClellan 1981: 652). A copper weapon used to kill a human was spiritually as well as physically dangerous. Similarly, during his 1891 travels through Yukon and Alaska Schwatka (1996 [1892]: 129) was told by the Tutchone that if a person were to strike a copper boulder with an ax or any other tool they will soon die. The quote from de Laguna and McClellan (1981: 645) regarding the need for ‘precautions’ when obtaining native copper also supports the idea that copper was potentially dangerous. Athabascan technology was part of a ‘spiritual interchange’ (Nelson 1983: 232). Like the spirits of animals, spirits associated with material objects can be offended by disrespectful humans with the result that they become ineffective or dangerous.

In most situations contact with native copper had positive consequences. In Yakutat Bay native copper was worn as an amulet for good luck (de Laguna 1972: 664). Among the Tutchone copper was believed to ‘keep the body pretty good’ and was worn to ensure good health. A young girl confined as part of her initiation into womanhood might keep copper pieces in her mouth to ensure strong teeth in old age (McClellan 1975: 256). Only at the northern Tlingit site of Old Town in Yakutat Bay, partly composed of Kwackwan (Ahtna) emigrants, is there significant archaeological evidence of the use of native copper as prestige technology. Out of a total of forty-eight copper artifacts from the site sixteen are bracelets, beads or rings. While working there de Laguna was told that copper was worn only by the ‘rich and noble’ (1972: 445).

Death Native copper artifacts in Alaska and Yukon, even those specimens that could be considered prestige technology, are not associated with human burials or other obvious ritual contexts. Native copper is associated with campsite hearths at Gulkana (GUL-077), midden at Dixthada (TNX-004) and semi-subterranean house pits at Dakah De’nin’s Village (VAL-065) and Old Town (YAK-007). In some cases native copper artifacts may represent objects lost and forgotten. Regardless, the first three sites mentioned above are notable exceptions to the generalization that northern Athabascan archaeological sites are lacking in artifacts.

A number of explanations have been offered for this phenomenon including the de-emphasis on technological materiality discussed earlier. An additional factor could be the combined effect of dependence on organic materials and their unlikely preservation in the Subarctic environment (Ives 1990). More recently, Boraas and Peter (2008: 215–21) have
discussed the importance of the concepts of *beggesh* and *beggesha* in explaining the dearth of artifacts at large late prehistoric Dena’ina village sites identified by the presence of house and storage pits. *Beggesh* is the ‘negative or impure’ ‘trace’ or ‘scent’ that may become associated with objects or places; *beggesha* is the opposite, i.e. indicates a state of purity. *Beggesh* can be sensed by animals, spirits and other Dena’ina. The negative consequences resulting from the detection of *beggesh* by spirits dictated that things such as animal bones be disposed of in bodies of water or burned. Similar beliefs among the Ahtna (de Laguna and McClellan 1981: 658–9) and Tutchone (McClellan 1975: 348) regarding the dangerous and potentially contaminating power of the body and spirit of a deceased individual encouraged the abandonment of the deceased’s house as a method for avoiding lingering spirits. The degree to which any of these practices may account for how and why a native copper artifact’s life came to an end is unclear.

Northern Athabascan rules governing proper disposal of material culture were complicated and varied. Archaeological evidence of animacy among northern Athabascans may be difficult to see, but an interpretation of the archaeological record informed by indigenous ontology derived from ethnography, ethnohistory and linguistics provides valuable insight into both the animacy and agency of northern Athabascan technology, especially native copper.
Summary

By applying a relational object biography approach (Joy 2009) to native copper I have attempted to capture its sum total of social relationships and multiple biographical possibilities in indigenous society in Alaska and Yukon. The value and meaning of copper in Alaska and Yukon was in flux during its life depending on the context of use. One of the more dramatic changes in the life history of native copper was its movement from practical technology among northern Athabascans of the interior to prestige technology among the Yakutat Tlingit on the coast, but this dichotomy fails to capture its qualities of animacy and agency. It had eyes and hands, it walked around in the form of a porcupine, it was aware of human behavior, chose to whom it would reveal itself and provided a way to elevate one’s status. Copper was used for the spiritually dangerous activities of killing humans and hunting bears and itself grew in spiritual power as a result of this interaction. Not only was native copper an emblem of rank among the Yakutat Tlingit but as a form of wealth it acted as an agent for elevating one’s rank. Just as the status of lower-ranking people was raised via their association with native copper, copper’s status changed when moving across space from interior to coast. Finally, native copper was not discovered by people as a result of scientific experimentation but instead revealed itself to people.

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