NORTHERN DENE ASTRONOMICAL AND SKY-RELATED KNOWLEDGE: A COMPARATIVE ANTHROPOLOGICAL STUDY

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Abstract

The sky and its contents are routinely overlooked in Northern Dene ethnology as a meaningful part of linguistic and cultural knowledge. However, more than 11 years of primary fieldwork learning with and from elders, speakers, and culture bearers from 12 Northern Dene groups across 32 communities in Alaska and Canada has shown that astronomical knowledge is deeply rooted in both practical and sacred ways of knowing. With a focus on detail and breadth, this comparative ethnological study utilized an experience-based approach to investigate the ways in which Northern Dene Peoples perceive, conceptualize, and integrate the sky and its contents into systems of knowledge, practices, worldview, cosmology, and spirituality. At the center of these knowledge systems is a principal constellation often identified as the incarnated spirit of a Traveler-Transformer figure who circled the world in Distant Time. Although this Traveler is widely known in Dene mythology as the one who instilled balance and order in the world, his enigmatic transformation to the sky was traditionally known by spiritually gifted people. The "Traveler" constellation is not only a world custodian and archetype of an idealized medicine person, but it is also a teacher, ally, game keeper, and the embodiment of the world. Taken together, the Traveler on earth and in the sky provides a powerful conceptual model for behaviors and actions as a central organizing principle and locus of indigenous Northern Dene worldview, cosmology, and spirituality. Two other subsequent chapters focus on general concepts of stars, minor constellations, and the use of stars in time-reckoning, weather forecasting, and wayfinding. These are followed by a chapter pertaining to the sun and moon as animate and personified beings that also embody fundamental models for proper behaviors and actions. The final chapter, prior to the conclusion, centers on socio-cosmic relationships between the Dene and a host of highly sentient atmospheric phenomena that bridge the divide between the

upper cosmos and the lived world of humans. Collectively, this work underscores that the earth and sky are not exclusive of one another but are part and parcel to a unified Northern Dene cosmology and worldview that are deeply grounded in relational significances. This is among relatively few book-length studies in anthropology on the indigenous astronomical knowledge, perceptions, and practices of any extant culture in the world.

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Dedication

For

Heidi, Kinsey, Maeve, Adeline,

and

the Northern Dene

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Chapter 1: Introduction

All knowledge comes to us personally.

- Ahtna elder, Charlie Hubbard

This research is the culmination of more than 11 years of primary fieldwork learning with and from Dene elders, speakers, and culture bearers from 12 ethnolinguistic groups across 32 communities between central-western Alaska and the eastern end of Lake Athabasca. With a focus on detail and breadth this collaborative research has made substantial baseline documentation of Northern Dene astronomical knowledge and terminology while also contextualizing and situating it in meaningful ways of knowing. The results of this work presented here is a comparative ethnological study of the ways in which Northern Dene peoples perceive, conceptualize, and integrate the sky and its contents into systems of knowledge and practices, worldview, cosmology, and spirituality.

The inception of this research began during my previous work in education outreach at the University of Alaska Museum of the North where I delivered a state-wide astronomy program throughout rural Alaska. Cultural responses during school and community presentations, such as students whistling at images of the northern lights, inspired me to seek a deeper understanding of Alaska Native perceptions and relationships to the sky and its contents. John McDonald's (1998) eloquent study on Inuit astronomical knowledge provides significant background and context for the high Arctic while also demonstrating the merit of a comparative anthropological approach that has widely appealed to both academic and lay audiences. A deep search, however, in the libraries and archives revealed a substantial and curious dearth of comparable linguistic and cultural knowledge in each of the 30 or so Northern Dene (Athabascan) languages across Subarctic Alaska and Canada.

While Northern Dene ethnology has produced important research on intimately related topics, such as religion, cosmology, and worldview (Ridington 1978, 1988, Nelson 1983, Mills 1986, Rushforth 1992, Helm 1994, Slobodin 1994, Goulet 1998, Sharp 2001, Guédon 2005) these studies have primarily focused on land-based knowledge, practices, and experiences. Although Northern Dene astronomical concepts occasionally appear in ethnographies (see, for example, Morice 1893, 193-195, 1898, 31-33, Birket-Smith 1930, 78, Jenness 1934, 137, 141, 248-249, Osgood 1937, 173-174, McKennan 1959, 110, 1965, 73, McClellan 1975, 75-80, McClellan, Cruikshank, and Kernan 2007a, 77-80), the coverage of this knowledge is slim and generally wanting of developed interpretations, descriptions, and contextualization that situates this linguistic and cultural knowledge of the sky in meaningful systems of knowing.

A tendency to overlook ways of knowing about the sky in Northern Dene ethnology is not for a lack of attempts to explore cultural constructions of this domain. Rather, the field experiences of anthropologists have simply not inspired a focused and long-term approach for investigating the sky as an essential or meaningful part of Northern Dene life. For instance, Robert McKennan (1959, 110) states:

> The astronomical knowledge of the Upper Tanana is extremely slight. Starlore plays no part in their mythology and only a few stars and constellations are identified by name . . . Small as the astronomical knowledge of the Upper Tanana is, it is apparently no smaller than that of other Northern Athapaskan groups.

While McKennan's assessment of Northern Dene astronomical knowledge is supported by other prominent scholars (see Birket-Smith 1930, 78, Nelson 1973, 185), statements such as these inspired me to seek input from Northern Dene elders about their knowledge, practices, and relationships to the sky.

Contacts made with Gwich'in partners during my previous work helped me coordinate initial meetings with elders in these Alaskan communities. Although elders readily shared terminology and knowledge about practical uses for objects and phenomena in the sky it became apparent that an interview-style approach was completely inadequate for addressing deeper meanings and relational significances. For example, after our first couple meetings my primary Gwich'in mentor, Paul Herbert, shared the names and positions of a massive and previously undocumented whole-sky constellation. However, he insisted that learning the identity of this constellation would only come gradually if I paid attention, stuck with it, and spent enough time traveling the land where the knowledge and practices have context. Even then, there was no promise that I would learn or grasp the greater significance or meaning. As such, I spent the first five or six years of this research deeply reflecting on indigenous epistemologies and the process of learning how to learn (deutero learning) in a Dene framework (cf. Rose 2007, 88-89).

It was mainly through reflecting on my early experiences with Paul that led me to the work of Jean-Guy Goulet (1998) who, among others, has written extensively about the importance of experiential learning through participant-observation among the Northern Dene. In this regard Goulet (ibid., 247) states:

> Social competence among the Dene Tha begins with the recognition that learning ought to occur primarily through observation rather than through instruction, a practice consistent with the Dene view that true knowledge is personal knowledge. The investigator's willingness to learn experientially is the prerequisite to grasping Dene ways of living and doing things. Investigators who cling to research methods that clearly separate observer and observed stand to lose, because in the eyes of the Dene, they distance themselves too much from

> what the Dene consider the authoritarian source of knowledge. If the investigator seeks an explanation, he or she is offered one according to the Dene estimation of his or her experiential learning and understanding. This estimation of the ethnographer's knowledge, not the investigator's research agenda, determines the flow of information, which is, preferably, provided in the form of stories between Dene and anthropologist.

In another passage Goulet (1998, 198) states, "Questioning is not the avenue to more knowledge," rather, he emphasizes that for the Northern Dene, "True knowledge is considered to be that which derives from experience" (Scollon and Scollon 1979, 185 quoted in Goulet 1998, 28).[1] Guy Lanoue (2007, 239-240) shares similar sentiments with respect to engaging in anthropological fieldwork with Dene hosts and states:

> Asking questions, no matter how insightful or provocative the answers they evoke, is sometimes so inappropriate that it will tacitly frame the apparent exchange of questions and answers between anthropologist and host as a hierarchical relationship. By asking questions that emerge from a series of insights temporally bounded by the field experience, anthropologists may be contributing to reproducing an institutionalized form of anthropology that needs its hypotheses to obtain funding. It may be possible, in other words, that the best insights come from forgetting we are anthropologists while in the field and from confronting our emotional reactions to the field after the fact.

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[1] Thompson (1984, 17-18) similarly states: "If one asks older Athabaskan people how they learned skills like snow-shoe making, beading, sewing, or hunting, they will probably say they had to learn on their own. They learned such skills as children by watching adults carefully and eventually making their own attempts. Adults rarely gave them specific directions about how to do something. In traditional Athabaskan culture, children are taught from the earliest age always to observe what others are doing. . . The philosophy behind this is that people should become self-sufficient and think for themselves. There may be a time when there are no people around to ask, and one's survival may depend on being able to improvise."

Learning how to effectively use a local or indigenous epistemology for investigation, however, requires experience and socialization into that particular way of knowing. It is Goulet's (1998) approach to anthropological fieldwork as "an experience in socialization" that I especially identified with. For example, Goulet (ibid. 25-26) states:

> Stories from the field show that fieldwork is an experience in socialization. One withdraws from one's usual social environment and approaches others to learn how they think, feel, and behave. One leaves a society whose conventions one has mastered and enters the society of others who become one's teachers.

Although I had arrived at similar conclusions with respect to learning and following local epistemologies, Goulet's (1998, Young and Goulet [eds.] 1994, Goulet and Miller [eds.] 2007) writing brought grounding and perspective to my early experiences in the field. Reflecting on this work helped me set a course towards more meaningful relationships with my Dene hosts that better shared in the humanity and vulnerability of research. Field experiences that centered on relationships and relinquishing my own research methods in favor of local epistemologies for investigation not only led to long-term relationships and advanced learning but is also sensitive to the fact that research can be a colonizing process in itself (Smith 2012). On the significance of sharing experiences and making oneself "vulnerable" Goulet and Miller (2007, 11) write:

> To 'use participation much more radically as a method than most interpretivists have imagined' (Barth 1992, 66) involves making oneself vulnerable to the complex human existence of others, exploring new forms of knowledge, recognizing unanticipated local structures of power, and engaging in practices consistent with a local body of tacit understanding that informs the interaction of individuals, constituting their reality in coactivity.

However, Goulet (1998, 25) states:

> Moments of vulnerability, however, are not deliberately chosen. They are lived in the midst of the unanticipated crises that are part of any life and relationship. It is the sustained day-to-day involvement with others that allows for a greater appreciation and a deeper understanding of the manner in which Dene Tha see the world and seek to live their lives within it.

This approach is not always easy nor comfortable as it requires greater commitment to the total human experience. To a certain extent this requires letting down one's guard and ethnocentric comforts to permit oneself to be authentically open to experience the realities of one's hosts and teachers while also becoming entwined in mundane life which inevitably includes sharing in tragedies, joys, fears, dreams, problems, opinions, ambitions, and accomplishments, etc. It is often in moments of simply sharing in the lives of one another or in other moments of letting go, such as when brought into the deep fold of a spiritual experience, that one begins to sense and understand the perspectives and realities of others. This approach not only better informs how others constitute reality and their place in it, but it is also conducive to creating reciprocal paths for learning between the researcher and his or her hosts. This is not to dismiss the value of other complementary methods such as interviews or linguistic elicitation, which elders sometimes preferred, it simply underscores the crucial role of following local epistemologies in the investigation of complex ways of knowing and being.

Particularly with my primary Gwich'in, Ahtna, and Sahtúot'ı̨nę mentors, we invested in creating the long-term contexts and experiences necessary to learn from one another in an advanced, open, and meaningful way that was built on relationships that transcended the field site. As such, I interpret my immersion into astronomical knowledge with my closest Dene

teachers as a joint venture in search of knowledge and a shared part of the human experience: a deeper understanding of self, others, the spiritual journey, and a more meaningful relationship with the world. It is not just that the Northern Dene regard true knowledge as "that which one derives from experience" (Scollon and Scollon 1979, 185 quoted in Goulet 1998, 28), but when we devote time to creating experiences with Dene hosts we establish contexts most conducive to advanced learning that may inform and reveal deep systems of knowledge such as those embodied in the Northern Dene sky. As I show throughout this dissertation, it is not that Northern Dene astronomical knowledge is lost or heavily eroded; it is the contexts for learning about this knowledge that are most at risk of loss.[2]

My immersion into Dene astronomical knowledge grew from my work with Paul Herbert, who did much heavy lifting as I learned to better approach research questions with him using a Dene epistemology. Although a significant part of my education with Paul was nonverbal, he began to show me what it is to be Dene on the land and how to learn by observing and doing things as opposed to learning through conversation and instruction. I vividly remember one November day on his trapline when we shared hours of near silence only to hear him explain later that evening that he had been "teaching me all day long." Through Paul I made mistakes and became aware of cultural faux pas while growing as both a person and as a researcher better socialized in Dene ways of knowing. It was not that we negotiated how to work together, it was simply that the only avenue to learn was to follow and trust Paul's teaching process irrespective of my own immediate agenda or timeline.

After traveling hundreds of miles together on the land I came to realize that what seemed to be our random excursions were probably intentionally designed to help me establish a deeper

[2] Guy Lanou brought this perspective to my attention.

relationship and understanding of place, origins, and the inhabitants that we encountered along the way. Moreover, a basic grounding in Dene land-based knowledge and practices proved essential to knowing and understanding what is in the sky, particularly with respect to the sacred. In this dissertation I follow Gervais (2003, 469) and use the term "sacred" to refer to that which "pertains to religious and spiritual beliefs, practices or customs." It is also important to emphasize that some degree of personal competency with subsistence and outdoor skills, such as hunting, dressing big-game animals, hauling meat, chopping wood, plucking ducks, building a fire, or driving a boat and snow machine, etc. were important in my work and travels with Paul given that everyone is expected to contribute to everyday work and chores. Although I emphasize these early experiences as a formative part of my immersion into Dene astronomical knowledge, Paul and I have kept in touch since the beginning of our work together.

What I learned from Paul over the span of years provided a path to learn and discuss sacred astronomical knowledge more directly with elders in other languages areas, presumably, because I shared from a perspective of experiences. In this regard Goulet (1998, xxxii) states:

> . . . Dene tend to restrict their discussion of experiences of dreams, visions and power to people they know well. Such discussions occur between those who are 'in the know.' Therefore, to live such experiences and to share them with other Dene of like experience is to provide evidence that one is not totally deaf or blind to events of the inner life that are intimately connected to developments in our land and in the other land.[3]

[3] Adeline Peter Raboff explained that in its deepest sense, the Gwich'in term, *niłaagaadii*, means, 'they are weighing the depth and understanding of each other's inner development and being.' The Sahtúot'ı̨nę phrase, *ʔedegha náots'erewę*, similarly expresses will and determination to learn, become aware, and grasp things.

> Before communicating about knowledge obtained through dreams and visions, the Dene assess the investigator's personal experiences of such phenomena. Dene offer a degree of explanation to one who knows and understands, according to their estimation of his or her understanding. This estimation of the ethnographer's knowledge, as opposed to the investigator's research agenda, guides the flow of information between Dene and anthropologist.

Charlie Hubbard, an Ahtna elder who I began working with in the latter half of this research, augmented my experiential learning on the land by providing an uncommon openness to discuss Dene cosmology, worldview, spirituality, and ultimately how to live and relate according to Dene laws and values. Charlie not only became one of my closest friends but was instrumental in expanding my terminology and ways of thinking and talking about Dene astronomical knowledge that could not be achieved without verbally broaching sensitive subjects. However, Charlie also taught through riddles and metaphors that required active learning and promoted the personal discovery of meanings and significances that we would later discuss and co-interpret. It is largely through my lengthy conversations with Charlie that I first learned intricacies of sacred Dene cosmology and the journey of the spirit as contextualized by the ancient Dene Traveler figure on earth and in the sky. Charlie was an exceptional teacher, friend, and consummate supporter of this research. With plans to continue working together on some of Charlie's personal projects, such as recording his knowledge of medicinal plants and his life story, it was with a heavy heart and a great sense of loss that I mourned his passing in January 2021.

In addition to my travels with Paul and my work with Charlie, my Sahtúot'ı̨nę teachers in Délı̨nę, Northwest Territories helped me better recognize that I could not fully appreciate the meaning of Dene astronomical knowledge without also experiencing its spiritual dimensions removed from my own ethnocentric comforts. It was in Délı̨nę in 2018-2020 where this research seemed to come full circle as I learned to better understand the significance of the sky and its contents by permitting myself to finally engage with the emotions of spiritual experiences in ritual and place-based contexts with my Dene hosts. One of their main points of emphasis is that there are more ways to learn and know than simply with the mind.

With contributions from more than 60 Dene elders and culture bearers across 12 Dene languages in Alaska and Canada this dissertation is among relatively few book-length studies on the indigenous astronomical knowledge, perceptions, and practices of any extant culture in the world. Most of the research in cultural astronomy more broadly has focused on physical artifacts devoted to astronomical observation and calculation (archaeoastronomy). Relatively less attention has been invested in understanding systems of astronomical knowledge directly from living indigenous consultants (ethnoastronomy). Of the world's approximately 7,000 languages, roughly 1,000, or 15 percent, have received adequate linguistic documentation (Lewis, Simons, and Fenning 2016). In comparison, I estimate that less than 50 book-length studies have investigated the sky as comprehensive systems using an ethnological approach (cf. Kelley and Milone 2011). That is, our current understanding of at least somewhat comprehensive systems of astronomical knowledge informed by living indigenous consultants is based on a sampling of less than one percent of the world's ethnolinguistic groups. Even if these estimates were multiplied by a factor of 10, our understanding of human conceptualizations, practices, and relationships to the sky would still be relatively impoverished. Although I do not suggest that the

sky looks the same everywhere in the world, opportunities for experiencing the sky and establishing relationships to it are available across humanity. The same cannot be said for experiencing other aspects of the environment, such as deserts, oceans, forests, the tundra, mountains, polar regions, grasslands, or even metropolitan areas, etc.

However remote it may be, humans have knowledge of the sky and relationships to it that are no less a part of culture than other land-based knowledge, practices, and experiences. The human relationship to the sky runs deeper than what is consciously observed, influencing circadian rhythms (Aveni 2002, xiv) and abstract concepts such as heaven, or a layered structuring of the universe, for example. The earth and sky are not exclusive of one another, rather they are part and parcel to a society's cosmology and worldview. It is at the intersection of these domains where meaningful relationships between social processes and order and cosmological processes and order can be found.

Nonetheless, Chamberlain (1996, 1) states: 'When it comes to the sky, the gaps in the ethnographic record are often more impressive than what is recorded. . .' The absence of indigenous astronomical studies in North American cultures is particularly striking (Kelley and Milone 2011, 411). What studies do exist suggest that indigenous knowledge of the sky may differ significantly from that found in the Western tradition. In particular, indigenous star groupings or constellations may pattern very differently reflecting unique indigenous cosmologies and projections of worldviews that may likewise edify lived experiences and model proper social relations, behaviors, and actions (see Weltfish 1965, Urton 1981, Farrer 1991, Fabian 1992, Griffin-Pierce 1992, Cannon et al. 2019). However, most indigenous astronomical knowledge systems are presumably eroding due to rapid language shift, religious change, replacement by modern technologies (GPS, advanced weather forecasting systems, clocks, etc.),

indoor living, light and atmospheric pollution, and globalization more broadly. However, as this research demonstrates, inadequate approaches or investments of time have also contributed to an overly bleak assessment regarding the viability of these knowledge systems.

Although Northern Dene astronomical knowledge systems are endangered, they are well-remembered, lived, and constituted in the realities of those few elders and culture bearers who grew up with them and maintain them. This research therefore comes at a critical time given that approximately one third of the elders who I learned from have passed away since the inception of this study. In addition, nearly every Northern Dene language is endangered or moribund. Even among those Dene languages which remain relatively vibrant, complex knowledge systems, such as astronomical knowledge, are particularly susceptible to loss even though every-day language may be maintained. It is with the aim of bringing about new awareness that I hope this research conveys the great extent to which the sky is a part of Northern Dene language and culture while also opening other paths of discovery and reflection.

The Northern Dene

The Northern Dene are a group of peoples consisting of approximately 30 related languages and cultures that have near contiguous distribution from central-western Alaska to Hudson Bay. Although in Alaska, these ethnolinguistic groups are widely referred to as "Athabascans," the term "Dene" is the preferred ethnonym in Canada. This term is derived from the word for 'person' in Slavey and related varieties (Krauss 1987, 105-106, Lovick 2020, 15), such as Dëne Sųłiné, *dëne*; Lower Tanana, *dena*; Upper Tanana, *deneh*; Upper Kuskokwim, *dina*; and Gwich'in, *dinjii*. In contrast, the word "Athabascan" derives from *Ahđapaskâw*, a Wood's Cree place name for Lake Athabasca, meaning 'where there are plants [reed-like grasses] distributed in a net-like pattern' (Krauss 1987, 105). This designation traces to Albert

Gallatin, a former Secretary of Treasury to Thomas Jefferson, who ascribed the name "Athapascas" to the Dene around 1826 (ibid., 106). Gallatin (1836, 116-117 quoted in Krauss 1987, 106) writes:

> . . . all the inland tribes, north of that line [from Churchill on Hudson's Bay to about Anahim Lake in Chilcotin country, west Central British Columbia], and surrounded on all other sides, from Hudson's Bay to the Pacific, by the narrow belt inhabited by the Esquimaux and the other [Northwest Coast] maritime tribes last described, do, so far as they are known, belong, with a single exception [incorrect, here referring to the Kutchin-Loucheux], to one family and speak kindred languages. I have designated them by the arbitrary denomination of Athapascas, which, derived from the original name of the lake since called 'Lake of the Hills' [now again Lake Athabasca], is also that which was first given to the central part of the country they inhabit.

Nonetheless, various spellings and approximations of the word "Dene" also appear as ethnonyms in the early literature (see Gibbs et al. 1867, Petitot 1876a, Morice 1889, 1906). Given the strong preference for this ethnonym among First Nations Peoples of Canada and its increased use in Alaska (Lovick 2020, 15), I use the phrase "Northern Dene" to refer to this collective group of related languages and cultures throughout the North American Subarctic. Northern Dene languages and cultures are, however, often described as a "continuum" (McKennan 1969, 98) lacking discrete "family-tree branches" given that "intergroup communication has ordinarily been constant, and no Northern Athapaskan language or dialect was ever completely isolated from the others for long" (Krauss and Golla 1981, 68). Krauss and Golla (ibid) state:

> The most important differences among Athapaskan languages are generally the result of areal diffusion of separate innovations from different points of origin, each language – each community – being a unique conglomerate. . . Between Northern Athapaskan as a whole and the band or community dialects that are its fundamental sociolinguistic units the only useful larger categories are languages, and even these are sometimes arbitrary.

Likewise, Robert McKennan (1969, 98) states:

> . . . I agree whole heartedly with the description of Northern Athapaskan culture as consisting not of a series of discrete cultural blocks but rather as something of a cultural continuum carried by a series of interlocking local bands whose microcultures differ in only minor details from those of their immediate neighbors. . . Eventually, of course, these small differences build up into more significant ones . . . However, these distinctions are only apparent when comparing cultures widely separated from each other. When one moves from local group to local group, the cultural continuum is readily apparent. It is the similarities that are impressive, not the differences.

In addition to the Northern Dene group, the Apachean or Southern Dene (Navajo and Apache) in the American Southwest and the Pacific Coast Dene who historically occupied small estates in coastal regions of Northern California, Oregon, and Washington compose the broader Dene or Athabascan language family (Krauss and Golla 1981). These groupings are based on geographical distribution as opposed to linguistic relationships between Dene languages (ibid.) Collectively, Dene is among the largest and most widespread indigenous language families in

North America. However, most languages in the larger Northern Dene group are moribund with numbers of speakers ranging from several to the thousands (Figure 1).

Figure 1. A map of Northern Dene ethnolinguistic groups adapted from Krauss (1974), Jetté and Jones (2000, xlviii), Auld and Kershaw (2005), and Yukon Native Language Centre (2014).

The Dene language family also belongs to a larger linguistic phylum known as Na-Dene, which includes the more distantly related languages, Eyak and Tlingit, in the eastern Gulf of Alaska and parts of British Columbia (ibid.). Edward Vajda (2010a, b) posits a wider connection to the Yeniseian language family in central Siberia, which, if confirmed, would reflect "the first substantiation of a language stock between Asia and North America" (Kari and Potter 2010, 1).

A Review of the Literature

The most comprehensive studies of indigenous astronomical knowledge that employ the tools of cultural anthropology are from the Quechua of the Peruvian Andes (Urton 1981), the Bororo of Brazil (Fabian 1992), the Inuit (MacDonald 1998), Pawnee (Murie 1981, Weltfish 1965), Navajo (Haile 1947, Griffin-Pierce 1992), Mescalero Apache (Farrer 1991), Lakota (Goodman 1992), Crow (McCleary 2012), Maori (Best 1955), and other cultures throughout Oceania (Makemson 1941, Goodenough 1953, Gladwin 1970, Lewis 1972).[4] "Exploring Ancient Skies" (Kelley and Milone 2011) is a survey of cultural astronomy research more broadly, whereas the three volume "Handbook of Archaeoastronomy and Ethnoastronomy" (Ruggles [ed.] 2014) is a reference source on theory, methods, interpretations, practices, and case-studies. Although not compiled as a unified volume, Alejandro López's ethnological research on astronomical knowledge systems in the Argentinian Chaco is also notable (see, for example, López and Benítez 2008, López 2008, 2011b, a, 2014, 2015b, c, a, 2017).

While there are numerous studies on cultural knowledge of the sky, most are based on archaeological evidence (see, for example, Malville and Putnam 1989, Ruggles 1999, Xu, Pankenier, and Jiang 2000, Aveni 2001, Gullberge 2020) or are synthesized from library and

[4] There may be additional book-length studies, particularly those published in other languages, that I have overlooked. Nonetheless, the number of book-length studies on indigenous astronomical knowledge that employ the tools of cultural anthropology are few.

archival materials (see, for example, Chamberlain 1982, Miller 1997, Johnson 1998, Lankford 2007, Alcock 2014, Hollabaugh 2017). This is not to dismiss the value of these studies or other numerous journal-length publications. Rather, the short list of monograph and book-length studies referred to above simply underscores the small extent to which investigators have worked with living indigenous collaborators to understand their conceptualizations of the sky in at least a somewhat comprehensive or overarching fashion.

Gary Urton's (1981) book "At the Crossroads of the Earth and Sky: An Andean Cosmology" is among the more detailed ethnographies on a culture's knowledge of the sky. Urton explains that the footpaths and canals that organize terrestrial space into quadrants mirrors the organization of celestial space into quadrants as delineated by the rotating axis of the Milky Way (ibid., 37-65). The Milky Way itself is conceptualized as a reflection of the local Vilcanota River which is responsible for circulating water from the earth back to the sky. Urton also describes a host of star-to-star and "black cloud" constellations that depict various beings and objects used for timing annual activities. For example, the gradual appearance of a dark cloud constellation conceptualized as a llama suckling her calf corresponds to the actual calving period of llamas in Misminay between late November and April (ibid., 185-188). Urton also discusses how several indigenous constellations were reformulated as crucifixes through processes of religious change, suggesting that when important symbolic or iconic features of religious ideology and worldview change, these symbols change accordingly. Although Urton's ethnography is a leading source on Andean astronomical knowledge, it is wanting of rich quotes that would amplify the voices of his contributors and add greater context.

Like Andean cultures, the Lakota (Siouan) strongly recognize mirroring between the earth and sky as depicted by an hourglass symbol (*Kāpēmni*) composed of two triangles or

"vortices" touching tip to tip (Goodman 1992, 15-19). This mirroring is underscored by the relationship between constellations and corresponding sacred sites in the Black Hills of present-day Wyoming and South Dakota. Goodman (ibid., 2), who worked with more than 60 Lakota contributors, notes that select members from different Lakota bands formerly journeyed through the Black Hills each summer "synchronizing their movement to the sun along the ecliptic." Goodman states (ibid.): "As the sun moved into a particular Lakota constellation, they traveled to the site correlated with that constellation and held ceremonies there." A much larger gathering took place midsummer when the group arrived at Devils Tower for the Sun Dance. Although Goodman's monograph is relatively short, it is also important for demonstrating that long-term partnerships with indigenous collaborators may reveal rich astronomical knowledge systems that are maintained into the present time (cf. Kelley and Milone, 425).[5]

Mirrored relationships between the earth and sky are, of course, salient features of other indigenous cosmologies around the world. The Pawnee (Fletcher 1902, Murie 1981, Chamberlain 1982) of the American Midwest and the Bororo of Brazil (Fabian 1992), for example, organized their respective villages according to the idealized positions of stars and other celestial orientations and motions informed by their mythology and oral history. As such, the sky and its contents are important models for social organization and practices in these societies.

John MacDonald's (1998) ethnography on Inuit astronomical knowledge suggests high utility for forecasting weather and time-reckoning. The Inuit also have a sizable repertoire of sky-related myths that inform social behaviors and actions. MacDonald's work is notable for its

[5] See Lee and Rock (2012) for a Lakota/Dakota star chart.

comparative approach and broad coverage of sky-related objects and phenomena informed by contributions from more than two dozen Inuit elders.

Throughout Oceania, indigenous peoples are renowned for their astronomical knowledge associated with navigation during long distance voyages on the ocean (see Makemson 1938, 1941, Goodenough 1953, Best 1955, Åkerblom 1968, Gladwin 1970, Lewis 1972, 1978, Riesenberg 1972, Kursh and Kreps 1974, Johnson and Mahelona 1975, Finney 1998, Moyle 2003, Osmond 2007). However, investigators have reported so extensively on stellar knowledge tied to wayfinding that one might question whether other culturally relevant aspects of the sky not associated with voyaging have been overlooked. For example, what general knowledge of the sky might be known and how did people who were not navigators or specialists relate to the sky and its contents?

Within the Dene family only Navajo and Mescalero Apache (southern Dene) knowledge of the sky is well documented. Haile (1947) delineates 37 Navajo constellations composed of numerous smaller groups of stars or asterisms. Navajo constellations are generally referred to as *sǫ́ dine'é* ('star people') and the asterisms that compose them are predominantly named using body part terminology (ibid., 5, 7-11, 35). Haile also includes a hand drawn star chart from a Navajo collaborator and explains that Navajo stellar knowledge is primarily known and used by specialists in the context of divination and healing ceremonies associated with sand paintings. Narratives concerning the creation and arrangement of the Navajo constellations appear in Haile (ibid., 1-4) and O'Bryan (1956, 16-21), whereas Maryboy and Begay (2010) provide short summaries and artistic renditions of the major Navajo constellations.

Trudy Griffin-Pierce's (1992) ethnography, "Earth Is My Mother, Sky Is My Father" details the use of stars and constellations in Navajo sand paintings/healing ceremonies. While

Haile (1947) provides the most comprehensive list of Navajo star names, Griffin-Pierce (1992) provides contextualization and detailed analysis of Navajo astronomical concepts and practices not found in other sources, particularly with respect to aesthetics and socio-cosmic relationships. Griffin-Pierce (ibid., 167-168) stresses that despite some significant cultural similarities between the Navajo and Pueblo groups, the strategy of naming stars after body parts is not prevalent in neighboring cultures. As I show in Chapter Two, this stellar naming strategy is widespread throughout the Northern Dene region and presumably has deep antiquity in the Dene family.

While Apache knowledge of the sky has received less attention from scholars than Navajo astronomy, Claire Farrer (1991) conducted thorough ethnographic research on the use of stellar knowledge in Mescalero Apache ceremonials. Although Farrer's research is quite detailed, she identifies surprisingly few star names. Farrer's papers, "Mescalero Apache Terminology for Venus" (1986) and "Star Clocks: Mescalero Apache Ceremonial Timing" (1987), provides additional insight into Apache stellar time-reckoning not discussed in her much larger work, "Living Life's Circle: Mescalero Apache Cosmovision" (Farrer 1991). Farrer's latter work emphasizes the significance of a quartered circle as a conceptual model for behavior and actions. She states, it is "the base metaphor upon which all social, psychological, philosophical, and moral life is predicated (ibid., 207)."

Only few ethnographies reflect attempts to elicit Northern Dene astronomical knowledge as specific topics of inquiry. These include studies on the Dakelh (Morice 1893, Jenness 1943), Dëne Sųłıné (Birket-Smith 1930), Gwich'in (Osgood 1936, McKennan 1959), Dena'ina (Osgood 1937), Koyukon (Nelson 1983), Deg Hit'an (Osgood 1958, 1959), Upper Tanana (McKennan 1959), and Southern Tutchone and Tagish (McClellan 1975).

While the studies listed above are important for their generally rich ethnographic descriptions, they prove relatively little insight into Northern Dene astronomical knowledge aside from briefly mentioning one or two constellation names and their use in time-reckoning, a few signs used in weather forecasting, or a paragraph or two about the northern lights, halo phenomena, rainbows, meteors, the sun and moon, methods for influencing unfavorable weather, thunder and lightning, month names, and eclipses. Notably, McKennan (1959, 110) concludes that Upper Tanana astronomical knowledge is "extremely slight" but states that "it apparently is no smaller than that of other Northern Athapaskan groups." McKennan (ibid.) suggests: "The lack of darkness during the summer months may explain this indifference to stars."

Richard Nelson's research on Gwich'in (1973) and Koyukon (1983) relationships to the boreal forest include several paragraphs devoted to stellar concepts. While Nelson concludes that the Gwich'in "have very little knowledge of astronomical phenomena, with names for only a few stars and constellations" (1973, 185), he discusses several Koyukon constellations gleaned from Jules Jetté's (1909) unpublished manuscript on time-reckoning (Nelson 1983, 39). However, he notes that none of his Koyukon instructors learned about the stars and writes:

> The long period of darkness and the clear skies present a matchless opportunity to watch and chart the heavens, but the Koyukon have little practical reason to do so. They navigate by landforms, and they devote their ideology to the more immediate living world, so they watch the stars just for pleasure or to mark the passage of time (ibid.).

Fragments of information about Northern Dene astronomical knowledge occasionally appear in traditional narratives compiled as part of collections of Dene oral literature. For example, Kari (1986, 27-28) published an Ahtna narrative that describes practices relating to an

unidentified morning star. In a footnote Kari (ibid., 29) also mentions that the term used to denote the Christian God, *Nek'eltaenn*, formerly referred to "a certain constellation of stars that looks like a man." A few other sources that are also suggestive of a beneficent figure in the sky or stars are those published by Morice (1893, 79-81, 193-195, 207), Farrand (1900, 30), Teit (1919, 228-229), Jenness (1934, 248-249, 1943, 539, 546-550), Osgood (1937, 173-174), and Ridington and Ridington (2013, 13-22). A beneficent man or man-animal figure who incarnated in the stars is a central organizing principle of Northern Dene astronomical knowledge, which I discuss at length in Chapters Two and Three. Mythology relating to the sun, the boy in the moon, and girls who married stars is widespread throughout the Northern Dene region. I extensively list these references in Chapters Four and Six.

The largest collections of sky-related terminology are found in dictionaries of Northern Dene languages. Dictionaries of the Koyukon (Jetté and Jones 2000), Dena'ina (Kari 2007), Ahtna (Kari 1990), and Kaska (Kaska Tribal Council 1997) languages are especially important sources for Northern Dene astronomical terms and phrases and are the most frequently cited references in this dissertation. The Koyukon dictionary includes more than 8,000 lexical entries and draws from the ethnographic and linguistic manuscripts of the Jesuit priest, Jules Jetté, with additions by Koyukon linguist, Eliza Jones. Likewise, Kari's Ahtna and Dena'ina dictionaries cover a wide range of subject matter related to all aspects of traditional life and culture. The Kaska dictionary has decent coverage of sky-related terminology and includes terminology from the Sekani and Mountain Slavey. Other dictionaries produced by the missionaries, Émile Petitot (1876a), Laurent Le Goff (1916), and Adrien Morice (1932b, a), contain relevant sky-related terminology for Dene First Nations languages in Canada.

A caveat relating to linguistic sources, however, is that the few star and constellation terms glossed in dictionaries of Northern Dene languages tend to be vaguely equated, if at all, with their Western counterparts. A related issue is the common use of ambiguous terms to gloss star groups such as the problematic phrases, "Morning Star" and "Little Dipper" which typically refer to Arcturus and the Pleaides in Northern Dene contexts as opposed to Venus and Ursa Minor as assumed in the Western system. In other words, even those few star names that appear in the documentation often require additional clarification from Dene speakers to sort out correct identifications.

Unpublished manuscripts and audio recordings held at the Alaska Native Language Archive (ANLA), the University of Alaska Fairbanks Oral History Program, and the Jesuit Oregon Province Archives (JOPA) provide some additional ethnographic information about Northern Dene sky knowledge. In particular, Jules Jetté's unpublished manuscripts on Koyukon time-reckoning (1909), mythology (1898-1906), and superstitions (1905b, 1911) contain the most detailed descriptions of astronomical knowledge for any Northern Dene culture. While Jetté's most thorough account of Koyukon stellar knowledge spans only two handwritten pages, his descriptions and identification of stars is relatively detailed. However, most of Jetté's sky-related lexicon appears in the "Koyukon Athabaskan Dictionary" (Jetté and Jones 2000) previously mentioned. Jetté's scholarship more broadly is important for its immense breadth and careful attention to lexicographic and cultural details, particularly since he conducted this work in the late nineteenth and early twentieth century.

Frederica de Laguna and Catharine McClellan's (1960) unpublished Ahtna fieldnotes contain some sky-related knowledge and terminology that corroborate data obtained by Jetté. Notably, de Laguna and McClellan provide notes about a "Heavenly Fox" composed of nine

body part star names that are not, however, identified with their Western counterparts. The ANLA and UAF Oral History Program also house several important audio recordings on stellar knowledge from Gwich'in (Ginnis and Mishler 1986, Salmon 1992), Koyukon (Brush 1985, Jones and Moses 1989), Upper Kuskokwim (Deaphon 1977, Esai and Kibrik 2001), Dena'ina (Pete et al. 1981), and Upper Tanana (Tyone and Kari 1994) speakers. Several of these are monolingual recordings in a Dene language.

Although historical sources such as those from Hearne (1958 [1795]), Mackenzie (1793 [1931]), Franklin (1828), King (1836), Simpson (1843), Richardson (1851), Whymper (1869), Campbell, (1958), Petitot (2005 [1891, 1893]), and Murray (1910) help contextualize Northern Dene life at a time when astronomical knowledge would have been more widely used in day to day circumstances, they provide minimal information related to Northern Dene knowledge of the sky. While the literature and archival record provides only a glimpse into Northern Dene knowledge and practices associated with the sky, patterns emerge from the cumulative documentation that suggest a potentially rich domain of linguistic and cultural knowledge that requires more careful attention than given by previous investigators.

Additional literature that crucially informs Northern Dene astronomical knowledge, cosmology, and worldview concerns the stories of ancient or Distant Time, which chronicle the transformation of the world and its inhabitants into their current forms. These stories not only account for origins, but they also frame and edify lived experiences, social behaviors and actions, and connections and relationships to the land and other inhabitants of the world. A widespread Dene Traveler figure who circled the world to implement these transformations constitutes the largest cycle of stories in the Distant Time genre. In this respect, Chad Thompson (1990a, 3)

states that Distant Time stories are "the canon upon which Koyukon religion is based," of which the Traveler cycle is "the longest of these stories."

Crucially, the nature of the world in ancient time accounts for a humanlike agency or animating life force perceived in seemingly all things. "Animism" refers to the set of beliefs and practices associated with such agency. This is well captured in a Northern Dene context in Richard Nelson's (1983) ethnography, "Make Prayers to the Raven." Although I refrain from repeating my review of the Traveler figure literature covered extensively in Chapter Three, it is important to note that the Traveler and his ancient journey are widely regarded as Dene archetypes of an idealized medicine person and the first vision quest (see Ridington 1978, 18, 1990, 71, Ridington and Ridington 2013, 38, Thompson 1990a, 14-15, Guédon 2005, 248).

Although Frank Speck (1918, 188) was perhaps the first anthropologist to recognize the North American Traveler figure as a shamanic personality, Robin Ridington (1978, 1988, 1990) significantly carried this interpretation forward as a theoretical model in Northern Dene studies.[6] Variations of this model were subsequently described and identified by Thompson (1990a) and Guédon (2005, 248-258) in their research with the Koyukon and Upper Tanana ethnolinguistic groups, respectively. Ridington and Ridington (2013, 38) state, for example, that the Dane-zaa Traveler was "the first hunter, the first person to go on a vision quest, and a model for the first dreamer. Likewise, Guédon (2005, 248) identified the Traveler as the "prototype of the human

[6] Throughout this dissertation, I adhere to the preferences of my Northern Dene collaborators and use "medicine person" in lieu of "shaman" as a comparative cover term/phrase while defaulting to the respective Dene terminology in language specific contexts. I essentially follow Descola (2013a [2005], 20) and define a shaman or medicine person as someone who serves the interests of his or her respective society as "a mediator between human beings and spirits [other-than-human persons] with whom he [or she] can, at will, enter into contact by means of a voyage of the soul (in a trance or a dream) that enables him [or her] to mobilize their help in such a way as to prevent or ease the misfortunes of humans." This definition serves to loosely orient my thinking about those who publicly engage and mediate with "other-than-human persons" while also providing a sense for the related socio-cosmic complex known as "shamanism" in northern circumpolar contexts.

shaman." Among the most important studies relating to the Traveler in Northern Dene anthropology is Robin Ridington's (1978) "Swan People" which explores the Traveler's role in the Dane-zaa Prophet Dance.

Methods and Approach

My central research question asked: How do Northern Dene peoples perceive, conceptualize, and integrate the sky and its contents into systems of knowledge and practices, cosmology, worldview, and spirituality? To answer this question, I used a comparative anthropological approach that has spanned 11 years of ethnographic fieldwork across 12 Northern Dene groups and 32 communities between central-western Alaska and the eastern end of Lake Athabasca.[7] A comparative approach using multi-sited ethnography facilitated three main outcomes: 1) much-needed baseline documentation of Northern Dene astronomical and sky-related knowledge, 2) a larger number of potential contributors who maintain this endangered linguistic and cultural knowledge, and 3) a basis for comparison across ethnolinguistic groups to better inform a historical perspective of Dene astronomical knowledge and practices. This approach has special utility given that these data have been collected all within a little more than a decade by the same investigator which offers a powerful basis for comparisons within and across Northern Dene groups. Few other studies in Northern Dene ethnology have used a comparative and multi-sited approach at this scale.[8]

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[7] The Ph.D. component of this research began in 2015 and grew from my M.A. research on Alaska Dene stellar astronomy (see Cannon 2014).

[8] Cornelius Osgood spent decades conducting ethnographic research in Northern Dene communities in Alaska and Canada in order to collect comparable data to "test ethnological theories" (Osgood 1985, 383). However, after 30 years of research, Osgood concluded that, "these studies were not equivalent and for me to test the various ethnological theories current when my studies had begun probably would not be worthwhile for anyone" (ibid.). Catharine McClellan (1975) completed a comparative ethnography in the Yukon and Kate Duncan and Judy Thompson published comparative museum studies on Northern Dene beadwork and clothing (Duncan 1989, Thompson 1990b, 1994, 2013). Several other studies that have comparative aspects are Cruikshank (1990, 1998) de Laguna (2000), Helm (2000), and Guédon (2005).

Although this research is skewed towards Alaska and the Northwest Territories, snowball sampling, a nonprobability sampling method (Bernard 2011, 148-149), proved useful for connecting with participants and identifying research sites. Of approximately 65 participants, roughly three quarters were elderly Dene-first language speakers between the ages of 70-102 who spent much of their lives on the land pursuing subsistence activities. The remaining quarter of these participants were between the ages of 32-69 and came from diverse backgrounds. A map of the communities that I visited for this research is shown in Figure 2.

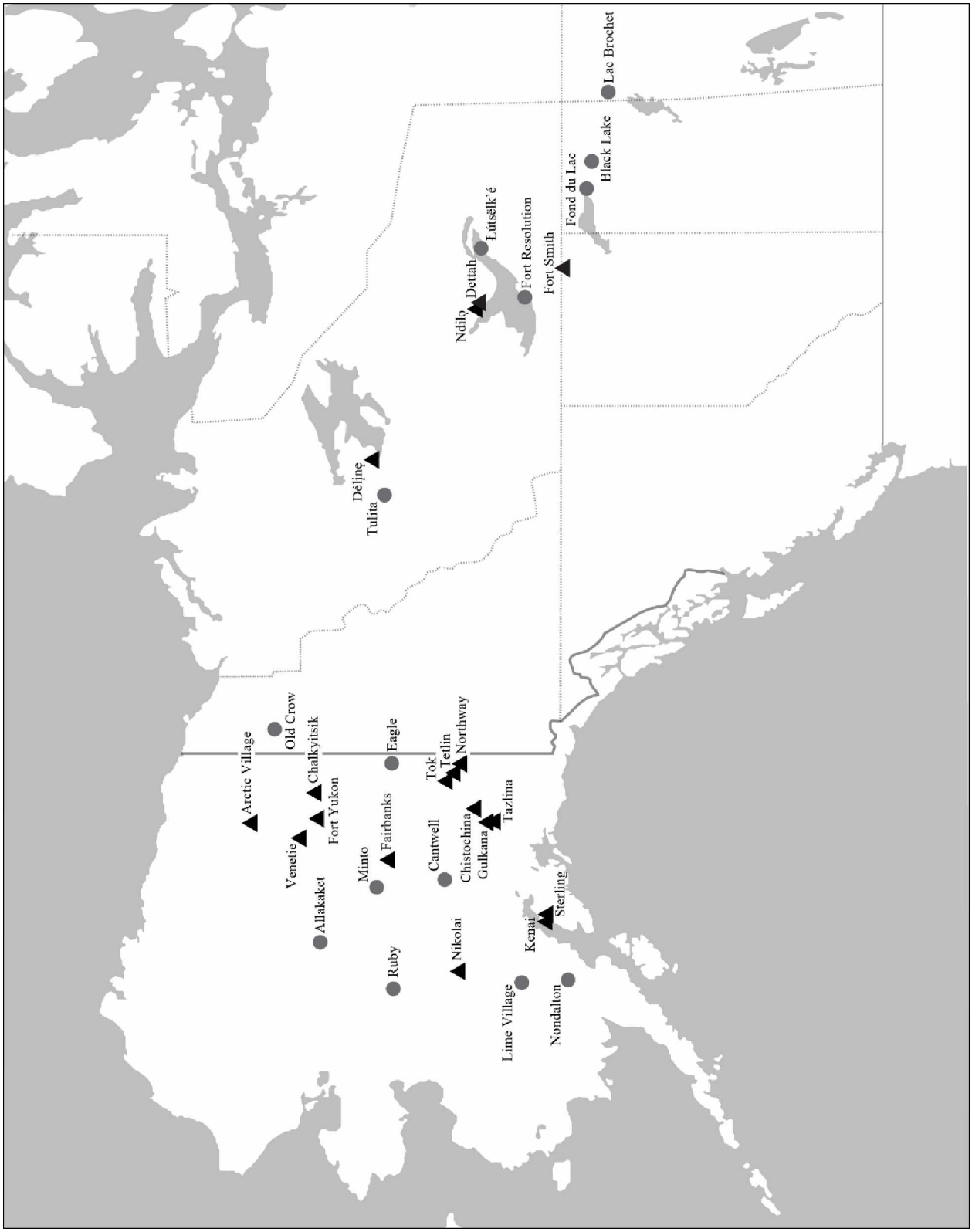

Figure 2. A map of the author's research sites. Black triangles show the communities visited by the author, whereas shaded circles show the home communities of Dene participants who worked with the author at another location.

Living in Fairbanks, Alaska is another factor that made this comparative research possible. Approximately centered among Alaska's 12 Northern Dene language groups, Fairbanks offers relatively direct and inexpensive access to Dene communities both on and off the road system. Fairbanks is also a hub for rural communities in interior Alaska, which provided numerous opportunities to meet with Dene elders and collaborators on short notice when they came to town or in other happenstance situations such as at the grocery store, post office, University campus, or at my own home. In comparison, my research in Canada was significantly more expensive while also vetted through a permitting process administered by the Aurora Research Institute.

When I traveled to communities, I made shorter but more frequent trips that usually ranged between 3 to 12 days. When possible, I stayed with my Dene hosts to better share in everyday experiences. Although my initial work began in Alaskan Gwich'in communities, I gradually expanded this study in a somewhat circular fashion, traveling to new communities whenever opportunities arose while also returning to places where I had already made connections. Conducting fieldwork in this way enabled the work to gradually build on itself within and across language areas while also providing opportunities to return to communities to share the progress of my work. Elders and collaborators especially seemed to enjoy hearing specifics about the continuity of Dene knowledge and practices that I had learned in different locations around the Subarctic, which often led to new topics of discussion.

A combination of conversational interviews, linguistic elicitation, and experiential learning through participant-observation (described in the general introduction) particularly contributed to my understanding of Northern Dene astronomical knowledge, practices, and lifeways. Heuristic or experience-based knowledge is not only organic to Dene ways of learning,

but it has proven essential for passably investigating a Dene knowledge system largely understood and disseminated through covert modes of transmission. Moreover, a long-term experience-based approach affords the requisite opportunities and contexts to become better socialized in Dene ways of knowing (see Goulet 1998).

Linguistic documentation was a central part of my research that I have integrated into my ethnographic writing. Although I have little formal training in linguistics, my work in Fairbanks and in the field occasionally involved collaboration with colleagues who are linguists of Northern Dene languages; namely, James Kari, Gary Holton, Alex Jaker, and Olga Lovick. Through practical experience and collaboration with colleagues, I learned useful methods and strategies for linguistic elicitation and documentation while also becoming proficient in transcribing a couple Northern Dene languages. In those languages where I have less proficiency, I have generally had the opportunity to check my transcriptions and translations with a linguist or, in some instances, have them as partners in the field to assist with documentation. I also have some proficiency in basic conversational Gwich'in and strive to use Dene language as much as I am able when collaborating with Dene speakers.

Throughout this study I recorded interviews and Dene language texts and terminology in WAV audio format on a Marantz PMD661MKII solid state digital audio recorder using one or two external cardioid condenser microphones (Audio-Technica Pro 37). An obvious advantage of audio recordings is that they can be reviewed and preserved for other listeners after the fieldwork is conducted. This facilitates triangulation of research methods and maintaining a dialogue with collaborators and tribes before and after data collection in an effort to coproduce knowledge and to ensure compliance with any restrictions of storage, dissemination, and ownership of local or tribal knowledge. I made transcriptions and translations of Dene

terminology in the field and at home using ELAN transcription software. I also used spectrograms and pitch contours generated in Praat (a phonetics speech analysis software) to analyze problematic terms and phrases where tone, nasalization, or voiceless consonants were difficult to hear. I recorded other data as hand-written fieldnotes, photographs, and videos.

Another aspect of my research was to regularly observe the sky from my home in Fairbanks to become more familiar with its dynamic diurnal and seasonal appearance. In a couple critical instances that I describe in Chapter Two, I was given tasks to find a certain faint star as a prerequisite to learning deeper layers of knowledge. As such, having an awareness of the sky's contents and motions from a Subarctic perspective facilitated my immersion into Dene astronomical knowledge. Although I strived to make outdoor observations of the sky with my Dene teachers, such as when recording star names, the weather was not always conducive for this work. In addition, elderly Dene collaborators do not always have the agility, endurance, or eyesight for outdoor observations or work on the land. For this reason, I utilized Stellarium night sky simulation software and large sky-related photographs mounted on styrene to stimulate discussions and elicit terminology. Stellarium is a free open-source software capable of simulating the sky at any location on earth in the past, present, or future. I displayed this software on a laptop computer, which proved useful for identifying stars and constellations described by Northern Dene collaborators. Selecting any star on the screen with the cursor provides an array of metadata including the star's apparent magnitude, color index, declination, altitude, and its Bayer or Flamsteed designation.

After completing each trip to a community, I transcribed the audio recordings and then manually coded the data according to thematic categories such as the northern lights, eclipse rituals, rainbows, meteors, the thunderbird, lunar and solar halos, methods for deterring weather,

the Boy in the Moon, or cultural groupings of stars. Data within each thematic group was further divided into subgroups according to how the knowledge is used, conceptualized, or applied in a socio-cultural setting. For example, data related to the northern lights was coded as a general thematic group composed of multiple smaller subgroups based on relationships to caribou, colors and formations, sounds and smells, attracting and deterring, embodied beings and ancestors, and injury or abduction. The number of subgroups within each category depended on the diversity of knowledge collected on each broad thematic topic, also organized by language. These groups were subject to change, becoming further refined as new data were collected that revealed more accurate emic categories. In addition, these thematic groups incorporated all other data found in the literature, dictionaries, and archives, providing comparative catalogues of Northern Dene astronomical and sky-related knowledge and terminology. While this coding method reflects some biases of the investigator, the intent of coding was to use it as a discovery tool to further tease out themes that could be further explored with Dene elders and used to compare terminology, knowledge, concepts, and practices across Northern Dene groups. This approach facilitates the identification of shared knowledge throughout the Northern Dene family as well as identifying those characteristics, perspectives, and practices that may be specific to a certain region or language area.

All data used for this research followed the informed consent process, as per approved University of Alaska, Fairbanks Institutional Review Board (IRB) protocol (432041-3). Throughout the two years that I spent writing this dissertation I often called my Dene collaborators and other colleagues to share, amend, and refine my interpretations of the data. Three participating Dene First Nations and a Tribal Consortium of 42 communities in interior Alaska provided letters of support for this research. Language borrowed from two of the author's

previously published papers (see Cannon and Holton 2014, Cannon et al. 2019) appears in places throughout this dissertation. False starts have generally been omitted from quoted material. All photos are the author's unless otherwise noted. Funding for this research was supported by the National Science Foundation under Grant No. OPP-1317245 and Grant No. OPP-1753650. Additional support was provided by the Aurora Research Institute, the Arctic Institute of North America, the Smith's Landing First Nation, the Dɛ́ɬı̨nę Got'ı̨nę Government, the Kenaitze Indian Tribe, and the Tanana Chiefs Conference.

A Note on Northern Dene Orthographies

Each Northern Dene language has at least one practical orthography. A diversity of orthographies means that even though Northern Dene languages share many of the same sounds, these are often represented differently in written form. As such, comparisons of the written languages may give the impression that certain words exhibit greater differences or similarities than reflected in the spoken language. I identify several issues below.

One issue relates to sounds that are the same, but spelled differently, such as the correspondence between <x> and <kh> as found in the Sahtúot'ı̨nę and Gwich'in words for winter, *xaı* and *khaii*, respectively. When used in Dene orthographies, the <kh> almost always corresponds to <x>, and <gh> is its voiced counterpart.

A second issue relates to sounds that are different but are in direct correspondence (cognate) with respect to the historical shift of a sound or sounds from Proto Dene. For example, *tɬ'yah*, *tl'il*, *tl'uul*, and *tɬ'ul*, are cognate terms for "rope" in Gwich'in, Dena'ina, Tanacross, and Dëne Sųłıné, respectively. Again, however, orthographies must be consulted to identify correspondences given that sounds may not be spelled the same. For example, Ahtna <k> is cognate to Upper Tanana <k>, but the sounds are different (phonetic [q] and [k], respectively).

On the other hand, Ahtna <k> is cognate to Dena'ina <q>, but those sounds are the same (phonetic [q]).

Although the representation of vowels are best understood by referring to specific orthographies, it is worth noting that the Koyukon writing system is a near special case with its doubled consonants (e.g., <kk>, <gg> = no English equivalents) and English vowel spellings (e.g., <ee> = i, <oo> = u). Although many Dene languages mark either high or low vowel tone, it is often inconsistently used from one transcriber to the next. In few instances, however, tone crucially distinguishes between minimal pairs, as exemplified by the Gwich'in words, *shih* ('grizzly bear') and *shìh* ('food').

In this study I use the practical orthographies developed by the Alaska Native Language Center for each of the 12 Alaska Dene languages (see Thompson 1984, Kari 2019b, Lovick 2020).[9] For all dialects of Dëne Sųłıné and the Wıılıìdeh dialect of Tłı̨chǫ I follow Jaker and Cardinal (2020) and Jaker (2012), respectively. For the Sahtúot'ı̨nę dialect of North Slavey I follow Rice (1989), with the exception of the schwa "ə" which is a more recent convention. In all cited material I use Native language spellings as quoted.

Dissertation Organization

Chapter Two is the foundational section of this dissertation as it describes my immersion into Northern Dene astronomical knowledge while also presenting a large body of comparative data about a principal constellation often identified as a sacred Traveler-Transformer figure. The Traveler went around the world in ancient time to establish balance and order while also transforming the world into its present form. When he completed his journey, his spirit incarnated in the stars as the principal Northern Dene constellation. This Traveler constellation,

[9] Although the state of Alaska recognizes 11 Northern Dene languages, I follow Kari's (2019b) designation of Middle Tanana as a distinct Dene language as opposed to a dialect of Lower Tanana.

known by few remaining elders, embodies a huge epistemology and conceptual model for relating to the universe and its inhabitants in all modes and transformations of life and spirit. Taken together, the Traveler on earth and in the sky is a central organizing principle and locus of indigenous Northern Dene worldview, cosmology, and spirituality.

In Chapter Three, I provide an interpretation and analysis of the Traveler constellation while situating these astronomical knowledge systems and epistemologies in a wider corpus of anthropological literature. I begin by discussing the significance of the Traveler in Dene mythology and then narrow on his worldwide journey as the first visions quest and his subsequent transformation to the sky as a Dene archetype of an idealized medicine person. I conclude this chapter by briefly discussing the Traveler constellation in the context of religious change.

Chapter Four addresses several additional stellar themes: 1) general concepts of stars, 2) the "Star Husband" story, and 3) a constellation of hunters or dogs pursuing one or more animals in the sky. Unlike the Traveler constellation, these stellar themes are part of a general domain of knowledge that are overtly recounted with a starlore. Chapter Five provides an overview of Northern Dene divisions of time followed by descriptions of how stars are used for time-reckoning, wayfinding, and weather forecasting. Chapter Six addresses the sun and moon as personified beings, time-referents, and conceptual models for behaviors and actions that also provide an array of signs and prognostications about the weather and the future welfare and security of people. The final section of this chapter describes Dene responses to eclipses as the ritualization of proper behavior and actions required to restore balance and socio-cosmic relationships that, in turn, restore the sun and moon to their proper state.

Chapter Seven describes atmospheric phenomena that underscore an array of socio-cosmic relationships between the Dene and a host of powerful beings and forces of nature that bridge the divide between the upper cosmos and the lived world of humans. This chapter is divided into sections that pertain to the northern lights, meteors, atmospheric halos, sundogs, sun pillars, rainbows, the Thunderbird, deterring unfavorable weather, and colors of the sky. In total, this research shows that the sky is part of a highly sentient Northern Dene universe that is integral to the construction of social, spiritual, and cosmological ways of knowing, being, and relating. The final chapter contains my concluding statement and summary of significant findings, contributions, impressions, meanings, and comments about future directions.

Chapter 2: Northern Dene Traveler Constellations

He went ahead of us to pave the way [and] he is the keeper of all knowledge.

- Ahtna elder, Charlie Hubbard

Yámǫréya settle everything. Settle everything and they're recording up there. So, all these stories, these are all his story. Story will be sitting there [in the stars].

- Sahtúot'ı̨nę elder, Charlie Neyelle

He help you up there, you know. If you need help down here and he'll help you the way you want it. If it get dark and wind blowing real hard and he talk with that star, you know.

- Koyukon elder, Johnson Moses

In this chapter I describe an enigmatic area of Northern Dene stellar knowledge as I have come to understand it in a comparative context. At the center of these knowledge systems is a Traveler-Transformer figure (hereafter referred to as the "Traveler") who went around the world in ancient time to make the earth a safer and more useful place for humans to live. During his journey, the Traveler transformed dangerous giant animal people into the distinct animal species present today. He removed a common language formerly spoken by all things and made agreements with his transformed subjects, which established a core of taboos, protocols, and laws that shaped Northern Dene lifeways and attitudes towards the world and its inhabitants. He also invented indigenous technology such as the canoe, snowshoes, and the bow and arrow and he is often regarded as the "keeper of all knowledge." The Traveler's journey and legacy is also indelibly imprinted in Northern Dene landscapes as the one who went ahead to pave the way for people.

Previous scholars have noted that the Traveler and his journey are Dene archetypes of an idealized medicine person and the vision quest, respectively (see Ridington 1978, 18, 1990, 71, Ridington and Ridington 2013, 38, Thompson 1990a, 14-15, Guédon 2005, 248). Notably, the Traveler commenced his journey during adolescence after receiving a vision, usually through dreams. After encountering and overcoming each obstacle along his journey, the Traveler incrementally gained and embodied the power of each of his transformed subjects (everything on earth), thereby becoming a powerful medicine person while also establishing the proper conditions for a balanced and inhabitable world. The stories and places related to the Traveler's transformations and adventures not only explain and contextualize lived experiences, origins, and relationships with the land and its inhabitants, but they are also edifying with respect to socialization, gaining wisdom and power, and proper personal conduct. As such, the Traveler is a central organizing principle and locus of indigenous Northern Dene worldview, cosmology, and spirituality.

Although the mythic Traveler cycle is the longest of the Northern Dene stories related to the events of ancient time, his fate after completing his journey is either unresolved or left open-ended in elders' stories. In this chapter I present ethnographic sketches based on my work with elders and collaborators from twelve Northern Dene language areas to show that the Traveler's spirit incarnated (became real or visible) in the sky or stars after completing his worldwide journey. Knowledge of these constellations is rooted in the traditional beliefs and practices of medicine people where personal relationships with the Traveler are gradually formed through a heuristic process. Although conceptualizations of these constellations vary across the Northern Dene languages the comparative approach used in this research reveals a broader pattern while also preserving important cultural and language specific differences. For instance, there is an

inversion in several Dene cultures where the constellation is a malevolent being that the Traveler transformed or eradicated as opposed to the Traveler himself. In any case, this chapter shows that the Traveler is fundamental to understanding Dene conceptualizations and relationships with the land and sky that integrate into a more holistic cosmology, worldview, and spirituality than previously described in Northern Dene studies. As an ally, teacher, gamekeeper, and embodiment of all things who animates himself back to the world, the Traveler on the earth and in the sky simultaneously links the past, present, and future, while also relating the individual, the society, and the universe.

The first section of this chapter centers on the Gwich'in Traveler constellation, *Yahdii*, and is intended to provide background and context about my gradual immersion into Dene astronomical knowledge at time when I was new to anthropological fieldwork and could not have anticipated the direction or outcomes of this research. This section emphasizes that learning about this enigmatic domain of knowledge was really about a process of learning how to learn in a Dene framework. It also emphasizes the utility in approaching anthropological fieldwork like "an experience in socialization" (see Goulet 1998, 25-26). As opposed to learning by instruction, I describe how my primary Gwich'in mentor, Paul Herbert, created contexts that enabled me to gradually piece together the meaning, significance, and identity of the Traveler constellation, *Yahdii*. This learning process was framed by extensive travels together on the land, elders' words and stories, and my own personal experiences and discoveries. After piecing together the identity of *Yahdii*, I recognized that it is the journey itself which instills the constellation with meaning and establishes a personal relationship with this world custodian par excellence as an ally, teacher, helper, gamekeeper, and embodiment of the world. Through the discovery of this constellation, one discovers themselves and recognizes their own relationship to the world as an

ancient and continuous part of it while also reaching a fuller understanding of all that the Traveler was and continues to be for humanity and the universe. Although my immersion into this stellar knowledge was slow, tedious, and sometimes confusing, my experiences with Paul and other Gwich'in elders provided a bridge to learn about similar constellations and astronomical knowledge systems in other areas throughout the Northern Dene region.

The second and third sections describe Ahtna and Sahtúot'ı̨nę Traveler constellations, which builds on the Gwich'in material to show the nuanced ways that the Traveler is a locus of Northern Dene cosmology, worldview, and spirituality. Together these opening sections demonstrate the maintenance of analogous systems in widely separate Northern Dene communities (>1,200 km apart) while also providing a basis for comparison in three cultural areas where I developed particularly close relationships with bearers of these knowledge systems. Each of these sections emphasize the learning process while also describing the importance of the Traveler's Milky Way trail and the Morning Star(s) as integrative parts of Dene cosmology and metaphors for proper living. The Traveler's Milky Way trail links the earth and sky as a path that souls follow, whereas the Morning Star(s) is a light and untethered spirit ascending directly to the Traveler and/or a place of afterlife above or among the stars. These sections also underscore the Traveler's role as a gamekeeper and that the ability to discover or incarnate his latent image in the stars hinges on living out the conceptual model that it embodies.

The remaining sections in this chapter are somewhat more abbreviated but continue to demonstrate the strength of a comparative approach by describing both the variability and continuity of these knowledge systems in eight other Northern Dene cultures. Although most of the data in this study is based on my own fieldwork, the final section of this chapter is reserved for discussing supporting material from the published and archival records. Taken collectively,

this chapter documents and describes a framework for understanding the Northern Dene land, sky, and universe centered on a pan-Dene Traveler figure from ancient time who continues to watch over the world as the embodiment of all things.

The Gwich'in Constellation, *Yahdii*

Paul 'Snook' Herbert began learning Gwich'in astronomical knowledge at a young age from his great grandmother, Belle Herbert, who raised him at Shuman House and Chalkyitsik in northeastern Alaska.[10] In reference to his childhood, Paul explained, "My great grandmother used to take me out there every night to talk about the stars; every clear night." Although few individuals were taught specialized stellar knowledge, it was integrated as a part of that child's broader education. These lessons and experiences centered on learning values, respecting the world and its inhabitants, becoming aware and paying attention, learning the local landscape, trail systems, animal behaviors and fishing locations, bearing hardships, and more generally, becoming a knowledgeable and contributing member of society. While each family had their own ways of teaching children, Paul commented on the crucial role that elders played in his education after moving to Chalkyitsik around age nine:

> When I was growing up there was a lot of old people in the village and my grandfather [Sam Herbert] was one of them. I had two grandfathers, OK, but my grandfather that stayed with us, he get up at four o'clock in the morning; every morning at four. Then he'd go outdoors. I don't know what he does out there, but he's doing the same thing that I'm doing now [observing the sky to predict the weather]. He's going out there and sees what the day's going to be like. And then he come in and he eat breakfast. He eat and then he goes out the door.

[10] Belle Herbert was probably born sometime in the 1860's. She recounts some of her life experiences in the bilingual chronicle, "Shandaa: In My Lifetime" (Herbert and Pfisterer 1982).

And all these old people, early in the morning, they gather, and they tell stories. They tell stories about what they did, what their ancestors did, where they trap, where they hunt, and all that – and what they did. And man, I was hot on his heels when he was going to their little meeting early in the morning. And I just sit in the corner and I listen. I listen real good. You know, wide-eyed and all ears. I took it all in. OK, then when it was my time to get out trapping and hunting, I knew where the trails were. I know where to go. So, I paid attention. I listen real hard and nobody had to teach me. I didn't have to go with anyone. I did it all on my own. And when I went places, it was just like I had already been there (Figure 3).

Figure 3. Paul Herbert at his cabin in Chalkyitsik, Alaska in June 2016 demonstrating a technique for dip-netting muskrats from beneath the ice while holding an antique dipnet (*deetł'yah*) made by his grandfather.

I first met Paul in November 2011 when I knocked on his door in Fort Yukon unannounced after presenting an education outreach program on astronomy at the local school for the University of Alaska Museum. Although I momentarily found myself in the hotseat

explaining who I was and what I was doing, Paul offered me tea and a seat at his kitchen table. I mentioned something about a recently harvested winter black bear and porcupine outside his front door, which led to an opening conversation about hunting and trapping.

When Paul asked what I wanted to know about the sky, I explained that I was hoping to find someone who knew Gwich'in names for stars. To provide context, I showed him a comparative wordlist that I had compiled on Dene names for the Big Dipper and explained that few other constellations are attested in Northern Dene languages. However, I suggested that it seemed improbable that the Dene would focus on this relatively small group of seven stars while apparently ignoring most others in the vast remainder of the sky. Yet, the collective documentation reaching back to Simpson (1843, 187) shows that the Big Dipper or Ursa Major is the only constellation that has cognate or near cognate names across the Northern Dene region. The first group of terms, those cognate to Gwich'in, *Yahdii*, appears in Tlingit and 17 Dene ethnolinguistic groups occupying a contiguous area stretching from the Alaska-Yukon border region east to Hudson Bay (Cannon and Holton 2014, 4).[11] In the remaining Alaskan Dene and Apachean languages, terms glossed as the Big Dipper or Ursa Major exhibit more variability, each derived from a verb stem describing the constellation's motion, such as Ahtna, *Nek'eltaeni*, 'that which moves over us' (Cannon 2014:58-59).[12] The wordlist I shared with Paul is similar to that shown in Table 1.

[11] The etymology of the term *Yahdii* ('sitting in the house') and cognates thereof is not transparent. Gwich'in *Yahdii* derives from the Proto-Dene gerundive form *həsda·ə ('sitting'), via the regular sound changes *h > y, *s > h, *a > i (see Krauss and Golla 1981, Krauss and Leer 1981). Proto-Dene *həsda· itself is a reduced form of yeχ=sda· ('sitting in the house'), in which the peg prefix *he- is dropped in the presence of the noun *yeχ ('house'); this full form is then borrowed into Tlingit as *Yaxté* (Cannon and Holton 2014, 7).

[12] I have not identified cognates that extend to the Pacific Coast Dene.

Table 1. Names for the Big Dipper or Ursa Major in Northern Dene, Tlingit, and the Apachean languages.

Name	Language (ISO 639-3) - dialect/region	Source
yahdii	Gwich'in (gwi) - Alaska	(Peter 1979, 41)
yuhdii	Gwich'in (gwi) - Canada	(GSCI and GLC 2003, 22)
yuhdyee	Gwich'in (gwi) - Canada	(GSCI and GLC 2003, 22)
yihjah	Hän (gaa)	(Ritter and Paul 1980, 74)
yihdâa	Upper Tanana (tau)	(John and Tlen 1997, 63)
yíhda	North Slavey (scs)	(Rice 1989, 241)
yìhda	Sekani (sek)	(Hargus 2000, 135)
yìhda	Tłı̨chǫ (dgr)	(Saxon and Siemons 1996, 133)
yïhda	Witsuwit'en (bcr)	(Hargus 1999, 11)
yihta	Dakelh (crx)	(Morice 1932b, 37, 95)
yéhtai	Tsilhqot'in (clc)	(Morice 1890, 133)
yìhdā	Kaska (kkz)	(KTC 1997, 382)
yehda'	Tahltan (tht)	(Palgrave ca. 1902, 148)
yehda	Dëne Sųłıné (chp)	(Le Goff 1916, 750)
yèshta	Dane-zaa (bea)	(Petitot 1876a, 80, 261)
yèda	Southern Tutchone (xsl)	(Tlen 1993, 57)
zhída	Dene Tha' (xsl)	(SSDEC 1999, 159)
zhéhde	Northern Tutchone (ttm)	(Ritter 1976, 44)
yax't'e	Tagish (tgx)	(McClellan 1975, 78)
yaxhté	Tlingit (tli)	(Edwards 2009, 319)
nek'e nekeghaltaexi	Ahtna (aht)	(Kari 1990, 330)
nek'eltaeni	Ahtna (aht)	(Kari 1990, 330)
neek'e'eltiin	Upper Tanana (tau)	(Cannon et al. 2019, 13)
neek'e'elteen	Tanacross (tcb)	(Cannon et al. 2019, 14)
naagheltaale	Koyukon (koy)	(Jetté and Jones 2000, 500)
nosekgheltaale	Koyukon (koy)	(Jetté and Jones 2000, 733)
noghiltale	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 78)
nogheyoli	Lower Tanana (taa)	(Kari 1994, 369)
nakltanē (naq'eltani)	Dena'ina (tfn)	(Radloff and Schiefner 1874, 11)
yuq'eltani	Dena'ina (tfn)	(Kari 2007, 148)
naqa'ech' niqaghuqesi	Dena'ina (tfn)	(Kari 2007, 148)
naqaghuqesi	Dena'ina (tfn)	(Kari 2007, 148)
náhookǫs	Navajo (nav)	(Young and Morgan 1980, 542)
náhokosé	Western Apache (apw)	(Bray 1998, 297)
naahakosee	Jicarilla Apache (apj)	(Phone et al. 2007, 341)
náhaakusí	Mescalero Apache (apm)	(Breuninger et al. 1982, 60)
náhokosé	Chiricahua Apache (apm)	(de Reuse 1998, 65)

Paul's response to this inquiry inspired me to begin a master's degree and motivated my next nine years of fieldwork through the completion of this doctoral research. After glancing

through the wordlist, Paul explained that *Yahdii* is a huge constellation composed of other named groups of stars. He said that the Big Dipper is just part of it, known as *vitsì'* or *Yahdii*'s tail, while the Pleaides and Milky Way are called *vanch'àl* ('his snout') and *są' gwat'an tąįį* ('trail of stars'), respectively. Although Paul only vaguely described *Yahdii* as some type of man-animal figure, he offered to teach me the other stars that compose this constellation on the condition that I learn about it outside where the knowledge has meaning and context.

Unfortunately, it was midday with overcast weather, and I was scheduled to fly back to Fairbanks later that afternoon. Before I left, Paul shared traditional knowledge about the northern lights, a constellation of three morning stars used for determining the timing of hunting activities at dawn, the ritualized motion of the sun, and how to predict weather from sundogs and atmospheric halos. My inaugural meeting with Paul was revelatory in the sense that it suggested that Northern Dene linguistic and cultural knowledge of the stars is still maintained despite a paucity of documentation in the published and archival record. This conclusion had been alluded to with less certainty during my previous work in Arctic Village in 2009.

I enrolled in a master's program in the spring of 2012 and received funding through my graduate committee chair, Gary Holton, early the following year that supported exploratory research on Gwich'in astronomical knowledge.[13] With funding in hand, Gary and I returned to Fort Yukon to meet with Paul in March 2013. A former archaeologist from Anchorage, Sarah Corbin, was also visiting Paul and joined in our discussions. While the four of us waited for the stars to appear on the evening of the 26th, I showed Paul names for the Big Dipper in a few other Dene languages that also suggest that it is a tail (see Petitot 1876, 260, Le Goff 1916, 750, Monus and Isaiah 1977, 78, Rice 1978, Kari 1990, 112). I also showed him dictionary entries for

[13] National Science Foundation Grant No. OPP-1317245.

several unidentified constellations that have names based on body part terminology (Kari 1990, 254, 2007, 148, Jetté and Jones 2000, 500). Although I posited that a larger unified constellation composed of body part star groups may be common across the Northern Dene region, I explained that the documentation does not provide clarity on matters of conceptualization or stellar nomenclature. In response, Paul asked:

> Would you have a different idea if I went out there and showed you? Would you have a whole different picture of it if I went out there and showed you what's out there? It's dark out there now, we could see it. Let's go.

After pulling on our warm clothes and boots Paul took the three of us out by the Yukon River at 25ºF (-32ºC) below zero and began rapidly identifying star groups in all quadrants of the sky, each named using a Gwich'in body part term. When he had finished, Gary paused and asked, "That's all part of *Yahdii*?" Paul replied, "Yeah," and walked back inside. The rest of us continued gazing at the stars, stunned to learn that this unified constellation, formerly identified as just the Big Dipper, spans the entire visible portion of the sky.[14]

I took hurried notes under headlamp while we reviewed the constellation with each other for another 20 or 30 minutes. When we came back inside to warm up by the woodstove in Paul's living room our conversation naturally led to the question of *Yahdii*'s enigmatic identity. However, the answer to this puzzle would take another five or six years to piece together as part of a heuristic process inherent to learning Northern Dene stellar knowledge. In response to our questions, Paul simply replied: "Can't talk about that. I'll just show you where he's at and that's it . . . You know where's he's at now. OK, we'll go that far today." I went back outside later that

[14] After working with Paul I listened to an archival recording that Craig Mishler made with the late elder, Frank Ginnis, where he clearly states, "*Yahdii* cover all the sky" while referring to *vantsįh* ('his nose') and several other body parts using English terms (Ginnis and Mishler 1986).

evening and reclined in a snowbank until I had carefully recorded each of the stars in *Yahdii* with their Western counterparts. Gary and I reviewed audio files the next morning at breakfast to transcribe the Gwich'in names that Paul provided for each of the star groups in *Yahdii*.

I continued my stay in Fort Yukon for several additional days to meet up with a local friend, Ed Alexander, who took me around the community to visit other Gwich'in elders. Our conversation with the late traditional chief, Simon Francis Sr., not only corroborated the whole-sky conceptualization of *Yahdii* as broken into numerous body part star groups, but it also expanded on other salient topics, such as the constellation of three morning stars, terminology for phases of the moon, how to predict weather from sundogs and atmospheric halos, phrases for *Yahdii*'s apparent motion and position in the sky, and knowledge about the northern lights.

On my last evening in Fort Yukon, I walked back to Paul's place and he agreed to step outside again under a brilliantly clear sky to confirm the stars in *Yahdii* for my notes. Although I would learn several additional names for stars in the years to come, I did not expect this to be the final time during our extensive work together that Paul would identify *Yahdii* in its entirety in an outdoor context. After Paul went back inside, I continued to marvel at the size of *Yahdii*, too large to see all in one view. His head alone occupied the entire southwest portion of the sky over the Yukon River, while his feet were low in the opposite direction over the lights of town.

Collectively, *Yahdii* spans greater than 143 degrees across the sky and is composed of at least 16 asterisms named using Gwich'in body part terms (cf. Cannon and Holton 2014: 2-3, Cannon et al. 2019, 8-9). *Yahdii* also wears a single-strapped bag (*va'ǫhtsùu*) on his left side and holds a walking stick/spear/medicine staff (*vatòo*) in his left hand.[15] The Milky Way (*vatąjį*) is

[15] Thomas O'Brien and David Salmon describe the *toh* as the "Athabascan staff of life" used extensively in year-round travel to negotiate difficult terrain, knock snow off branches, test ice conditions, point out the route ahead, or "draw maps of the landscape in the snow or dirt" (O'Brien 2011, 81). They state: "*Toh* was the people's helper and friend. The necessity for the *toh* diminished, and eventually was displaced when villages became more settled and

his snow-packed trail that circles the world. *Yahdii* is crouched on all fours facing down over earth in a protective position analogous to imagining the sky as a large, inverted bowl. The low-altitude asterisms near the horizon (head, hands, feet, and cane) are considered closest to earth, while the stars near in the center of the sky (body, heart, and tail) are the farthest away. Body parts on the left and right side of *Yahdii* are distinguished using Gwich'in terms *tł'ǫhts'ąįį* ('left') and *shreets'ąįį* ('right'), applied from his point of view. Late January through March present ideals times to observe this whole-sky constellation as *Yahdii* is arched across the zenith, or *zheetł'an* ('sky middle'), in Alaska's early evening sky. In autumn, *Yahdii*'s left side is partially below the horizon, or *zheelin* ('around the edge of the sky'), becoming more centered towards morning. The apparent rotation of stars through the sky is referred to as *Yahdii ahaa* ('*Yahdii* is walking') or *Yahdii geelee nideekhaa* ('*Yahdii* moves/travels over the span') (Table 2; Figure 4).

permanent. Many elders shifted from the true full-scaled *toh* as a hiking or walking staff to the shorter small cane or walking stick. Rev. [David] Salmon truly respected the *toh*. He knew how important it was to the people and said, 'You can't go without it' (ibid.)."

Table 2. Identification of asterisms in the Gwich'in whole-sky constellation, *Yahdii*, the three morning stars, and Polaris. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.

Asterism	**Translation**	**Stars**
vitsì'	his tail	The Big Dipper
tł'ǫhts'ą̨į̨ vanlì'	his left hand	o Leo (Subra), α Leo (Regulus)
shreets'ą̨į̨ vanlì'	his right hand	γ And (Almaak), β Tri
tł'ǫhts'ą̨į̨ vatth'àn	his left leg	a general region of stars
shreets'ą̨į̨ vatth'àn	his right leg	a general region of stars
tł'ǫhts'ą̨į̨ vidzèe	his left ear	α Gem (Castor), β Gem (Pollux)
shreets'ą̨į̨ vidzèe	his right ear	α Aur (Capella), β Aur (Menkalinan)
vanch'àl	his snout	Messier object 45 (Pleiades)
vantsı̨h	his nose	(variation)
vindee	his eyes	ι Aur (Hassaleh), β Tau (Elnath)
vikì'	his head	all the stars comprising the ears, eyes, and snout
vizhin	his body	15 Lyn, o UMa (Muscida), h UMa (Alhaud IV), 36 UMa, θ Uma (Alhaud V), ι UMa (Talitha), κ UMa, (Alkaphrah), 31 Lyn (Alsciaukat)
vatthą̨į̨'	his flesh	(variation)
tł'ǫhts'ą̨į̨ vakwàì'	his left foot	α Boo (Arcturus), η Boo (Muphrid)
shreets'ą̨į̨ vakwàì'	his right foot	α Cyg (Deneb), γ Cyg (Sadr)
tł'ǫhts'ą̨į̨ vigin	his left arm	a general region of stars
shreets'ą̨į̨ vigin	his right arm	a general region of stars
vidrii	his heart	27 Lyn
vatòo	his cane	the stars in the top of the cane are η Leo, γ Leo (Algieba), ζ Leo (Adhafera), μ Leo (Rasalas), ε Leo. The stars in the bottom of the cane are all the stars between o Leo (Subra) and α Hya (Alphard)
va'ǫhtsùu	his bag	X UMa (Taiyangshou), ψ UMa, μ UMa (Tania Australis), λ UMa (Tania Borealis)
vatą̨į̨	his trail	Milky Way Galaxy
są' gwat'an tą̨į̨	trail of stars	(variation)
yeedàak gahàajil	they went/rose far up	three morning stars: δ Boo (Thiba), ε Boo (Izar), α Boo (Arcturus)
k'iidàk gahàajil	they went/rose straight up	(variation)
vành oozhrii	it is naming the morning	(variation)
zheetł'an dha'ą̨į̨	star in the middle of the sky	α UMi (Polaris)

Figure 4. Artistic depiction of the Gwich'in whole-sky constellation, *Yahdii*, the three morning stars or *Yeedàak Gahàajil* (the lower star in *Yahdii*'s left foot and the two beside it) and *Zheetł'an Dha'ąįį* (Polaris, below *Yahdii*'s right knee) as seen from Fort Yukon on November 15, 2018 at 07:30 local time. Zenith lies in the center of the circle. Illustration by Mareca Guthrie in consultation with Chris Cannon and Paul Herbert.

During the first few years of my research, I had greatly underestimated the spiritual and relational dimensions of Northern Dene stellar knowledge given that time-reckoning, wayfinding, and weather forecasting were the most productive and forthcoming topics to discuss

with elders. Nonetheless, Paul affirmed that *Yahdii*'s identity is sacred knowledge that is not casually discussed while also proposing that I would "know all about it" if I stuck with it for four or five years. What I did not realize at the time was that Paul was introducing the potential to discover *Yahdii*'s identity through my own experiential or heuristic learning process. After showing me *Yahdii*'s outline in the stars Paul laid the crucial foundation to guide my immersion into this knowledge system by directing me to look for an unspecified "red star" that just certain people can see. He said:

> There's one red star up there somewhere. I'm not telling you where, but there's a red star like that, you see that. OK, just certain people can see it. You see, so it's kind of a sacred thing. If you don't believe in it, you don't see it. And it's up there. Go out there and look. Look for it. And if you see it, do tell me . . . I could show you, but you wouldn't learn that way, so you've got some work to do.

Although I worked with Paul regularly, I did not perceive any significant progress towards understanding *Yahdii*'s identity until I had correctly located this dim "red star" three and a half years later. My assigned task to find this star was not only a response to my overly frank questioning, but it also exemplifies a heuristic learning process designed to promote a stronger relationship with the sky and to incite introspection, awareness, and curiosity about ourselves and the world around us. When I asked Paul why more people don't know about the stars he replied:

> For instance, if you went out, you [will] see something that somebody else doesn't see. OK, there's people like that. OK, I can go out there and I can see what you don't see. So, there's people like that. [Some people] don't see what's going on around them. You see what I mean? There's a lot of people like that.

They're there, but they're not there. So, you can't just ask anybody about the stars.

Paul's comment not only alludes to developing a keen awareness of one's surroundings, but also to becoming spiritually awake and cognizant.

At the end of my visit in 2013, Paul offered that I could stay at his place whenever I came to Fort Yukon and proposed getting out on the land to learn in a meaningful way. Our first trips together were on his trapline within 30 miles (≈ 48 kilometers) of town. I was probably more of a hindrance than a help as we harvested grouse, porcupines, or checked the occasional bear den while resetting traps at a blistering pace (Figure 5). These initial outings were somewhat challenging as I made the mistakes of an outsider new to a cultural setting, which often prompted a response intended to draw attention to my error or oversight. Nonetheless, Paul was beginning to show me what it is to be Dene on the land and how to learn in an experience-based context. Although Paul's teaching style is primarily nonverbal, the process of learning by observing and doing became comfortable and familiar with time. These travels also exposed me to some of the more subtle signs interpreted from the land, such as the time we observed a raven "drop its packsack" indicating the presence of an animal (a lynx) ahead in one of the traps.[16]

[16] A Raven is said to "drop its packsack" when it momentarily twists over on its back midflight as if removing a backpack. This behavior is interpreted throughout the Northern Dene region as a general sign of hunting luck as described by the following Gwich'in, Upper Tanana, Ahtna, and Tanacross phrases, respectively: *deetryą' nineet'aadhak* ('raven fell'), *taatsąą' diixeel na'dehnay* ('raven dropped his packsack'), *saghani ggaay nghaele' sle 'i'aes* ('raven drops his packsack'), *taatsąą' nxeel' nsųų tsi nahdihthiy* ('raven, drop your good packsack [to me]').

Figure 5. Paul Herbert and his nephew singe the quills of a porcupine that was harvested from a vacant bear den along their trapline near Fort Yukon in November 2013.

As our work progressed our excursions on the land lengthened into multi-day trips ranging between 3-9 days. We made most of our shorter trips up the Draanjik River to Paul's cabin in Chalkyitsik where we would base out of to visit other places in the area. Our two longest trips, however, occurred during the hunting season in autumn when we traveled nearly 600 miles (≈ 965 kilometers) roundtrip by boat on the Porcupine River between Fort Yukon, Alaska and Old Crow, Yukon. Although we only discussed sky-related knowledge when we observed something new or relevant, these travels better socialized me into broader Dene ways of knowing that would prove crucial to understanding what is in the sky. Experiencing relationships between the land, animals, and stories that I had heard and read about was particularly transformative to my understanding of a Gwich'in perspective of the world. All the while I continued asking

myself who or what is so significant to Gwich'in culture that it would be arched over the sky as a massive constellation known by few remaining traditional knowledge bearers?

Connections and relationships began to merge after I correctly identified the "red star" that "just certain people can see." When I confirmed the location of this star with Paul after searching for several years, he said that it is called *vidrii* (27 Lyn) or *Yadhii*'s heart. Discovering his heart assumes an understanding of *Yahdii* and a relationship with him. Although Paul did not say who *Yahdii* is, he described him as a teacher, ally, and "caretaker of the world" and explained that learning about him was traditionally tied to the process of gaining knowledge and power as a *dazhan* ('medicine person'). However, I was still not making the crucial connection that revealed *Yahdii*'s identity and felt that I had missed something during our conversations and travels together. Paul suggested that I had more work to do.

After returning to Fairbanks, I began to think more deeply about *Yahdii* in the context of medicine or spirit power and the broader orientation of Dene values and relationships to the world that most children of Paul's generation were taught. I also continued following the research where it led, redirecting my focus to questions concerning Dene cosmology, worldview, spirituality, shamanism, and religious change.

By the spring of 2017 I began to connect our travels throughout the Yukon-Porcupine River drainage system with major sections of the route taken by the Gwich'in Traveler figure, *Ch'iteehàakwaii* ('the one who started out paddling among things') who was sent to transform the world in ancient time.[17] The more I thought and learned about analogous Traveler figures from collaborators and elders in other Dene cultures across the Subarctic, the more emphatic I

[17] *Ch'iteehàakwaii/Atachuukąįį* is sometimes conflated or interchanged with the more comical figure called *Vasaagìhdzak,* presumably a borrowing from the analogous Cree figure *Wesakidjak* and variants thereof (Cannon et al. 2019, 17).

became that the Traveler must also be *Yahdii*. Although my first opportunity to verify this connection occurred in the Ahtna region while working with Wilson Justin, I was eager to propose this connection to Paul.

Through my experiences with Paul and other Gwich'in elders I had learned that *Ch'iteehàakwaii* began his ancient journey as a young man on the Upper Porcupine River after inventing the birchbark canoe. During his journey he transformed dangerous giant animal people into their present forms while simultaneously altering the landscape. Among his numerous deeds and adventures, he traveled with the giant *Zhee Choo* ('big sky') and directed the muskrat to dive for earth during a great primordial flood. Like other Northern Dene peoples, the Traveler's exploits, in conjunction with those of his Distant Time (*deenaadàį'*) associates is pervasive to the orientation of Gwich'in attitudes, values, and perceptions about the world more broadly. Ancient events and transformations not only explain the physical appearance of the world and its inhabitants, but they also edify and give meaning to behavior, character, and relational aspects, particularly those between humans and animals.

One such transformation occurred at a rocky bluff that we visited called *Vadzaih Tr'ik* ('caribou stomach/rumen'), located on the Porcupine River near the Alaska-Yukon border. *Ch'iteehàakwaii* killed a giant man-eating caribou at this site before slinging its "guts" against the side of the bluff which has a striated lithic pattern resembling the folds on the inner wall of a caribou rumen.[18] After killing the ancient caribou, *Ch'iteehàakwaii* removed its sharp canine teeth as revealed by the diastema (gap between teeth) in the lower jaw of contemporary caribou.

[18] Cf. McKennan (1965, 121) who states: "Jateaquoint [i.e., *Ch'iteehàakwaii*] had built a canoe in the Mackenzie River country. He came down the Porcupine River in this canoe past the place where La Pierre House now stands. He spent the night in the canyon below Old Crow. About halfway up the canyon wall on the south side of the river one can still see a peculiar mixture of light and dark rocks. These are the entrails of an animals which Jateaquoint hurled up there."

In this way, *Ch'iteehàakwaii* transformed caribou into a safer and more useful animal for humans, while also establishing protocols for the future treatment of caribou. The spiritual essences of other ancient beings are embodied in various landforms along the Porcupine River and throughout Gwich'in country. These places instill the region with an enduring sense of presence and watchfulness that evokes a feeling that the ancient past is alive and with one in the present as if time has collapsed into a single lived experience (Figures 6 and 7).

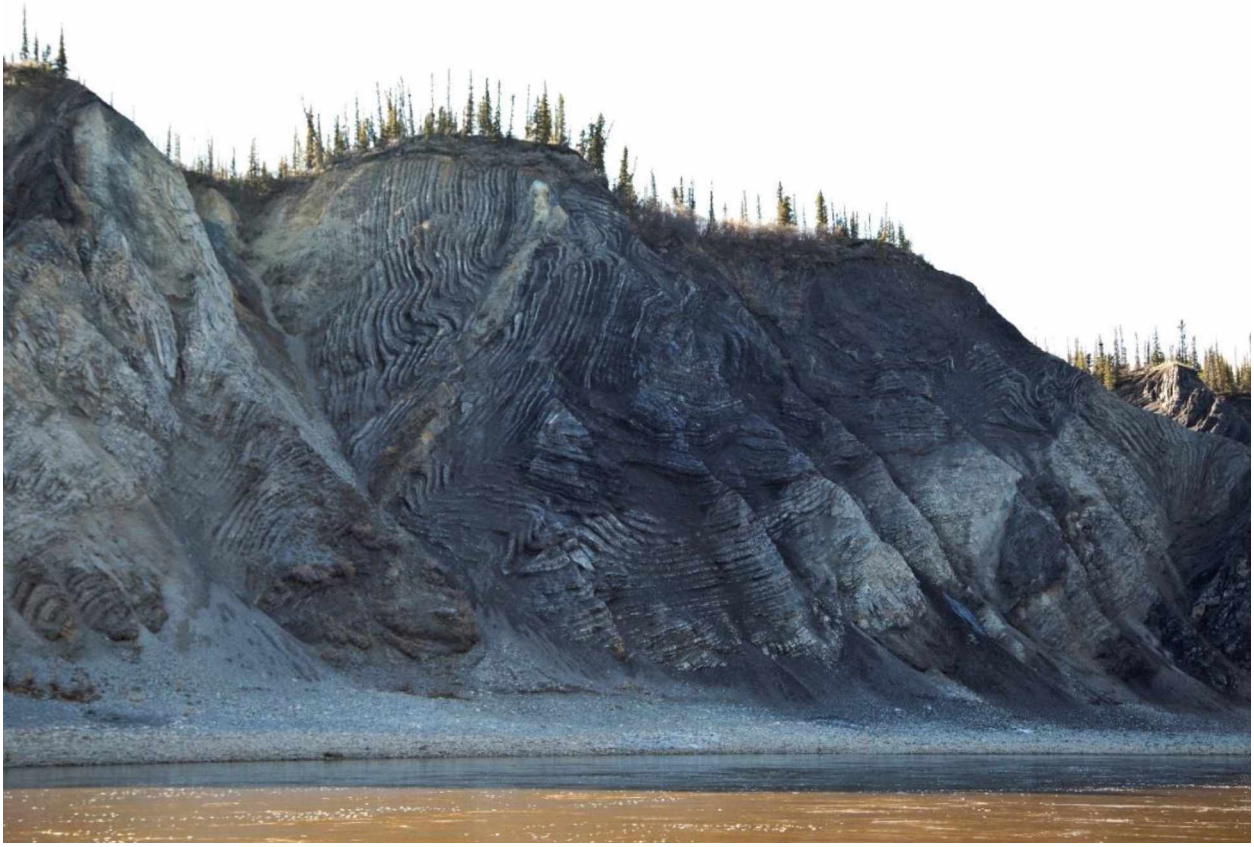

Figure 6. *Vadzaih Trìk* ('caribou stomach/rumen') along the Porcupine River near the Alaska-Yukon border.

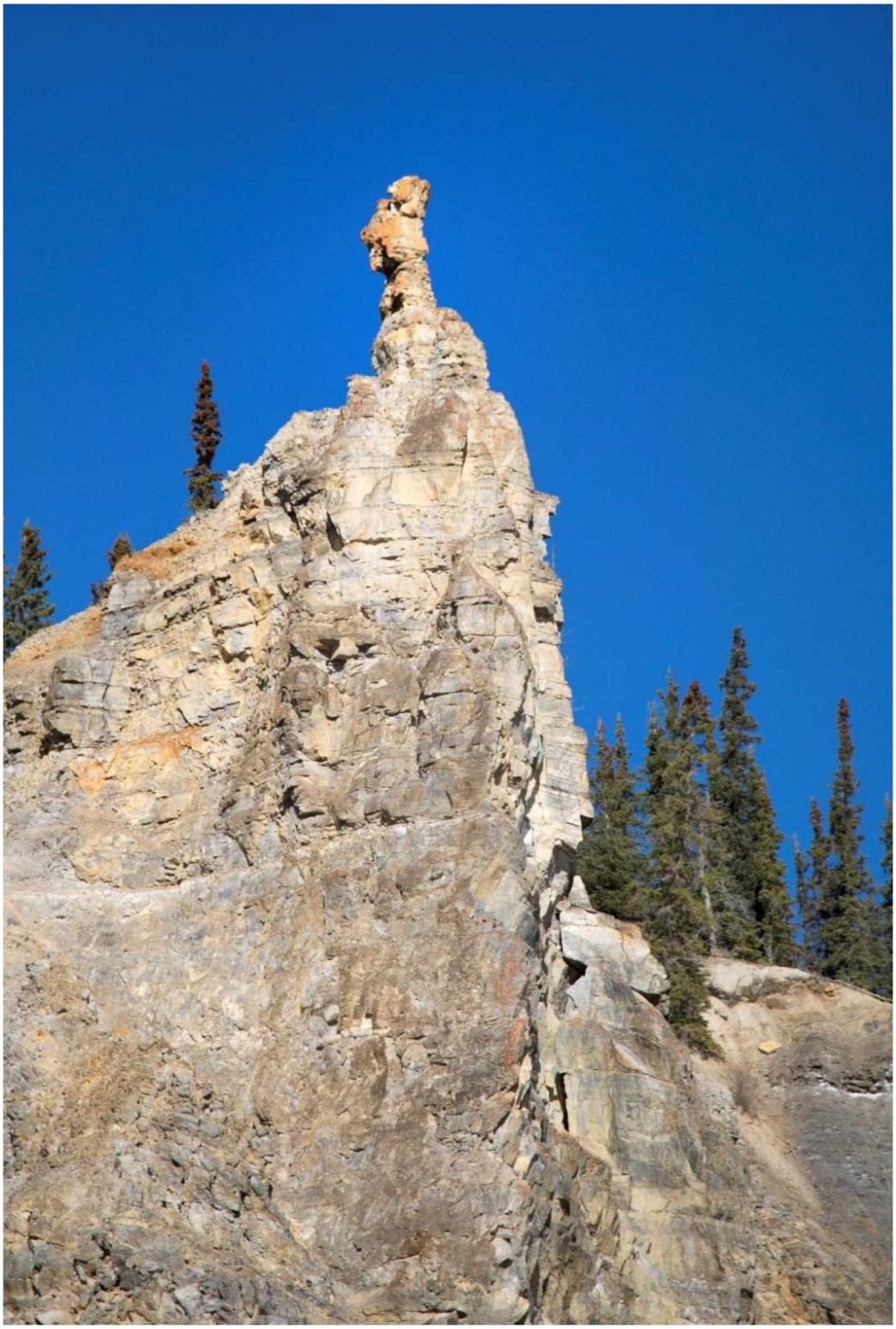

Figure 7. *Tr'ìnjaa Kich'iinghwaii*: 'woman came out of the woods carrying a pack.' A woman who was turned into stone for breaking a taboo overlooks the Porcupine River from the top of a rocky outcropping located several miles above the Campbell River. Her hooded coat, pants, face, and right arm are clearly discernable. This landmark is also known as *Shaaghan Chii* ('old woman rock') in the Vuntut Gwich'in dialect.

As *Ch'iteehàakwaii*'s journey progressed he embodied the knowledge and power of each of his transformed subjects, while also inventing important Gwich'in technology such as the canoe, snowshoes, bow and arrow, and spear. His collective journey to make the world a safer, balanced, and more useful place for humans is regarded as the first vision quest, which he completed in old age after gaining his full power as the first *dazhan* and the embodiment of the world.

Although the fate of *Ch'iteehàakwaii* is unresolved in elders' stories as a paddler lost in the Yukon Delta or ocean, Gwich'in elders who have specialized knowledge of the stars know that he or his spirit (*vank'yàa*) incarnated in the sky as the massive constellation, *Yahdii*. Verifying this connection with Paul and three other Alaskan Gwich'in elders was confusing in the sense that I had proposed this connection in years past with negative affirmation. In retrospect I realize that Paul was not intentionally misleading me, it was just that I had been fishing for connections without putting in the necessary work to know and discover *Yahdii*'s identity through my own heuristic learning. It is the process of self-discovery framed by teachings from the land, elders' words and stories, and personal experiences that is foundational to understanding *Yahdii* and securing a relationship with him. Elders want others to make these connections, but they must do the work themselves.

Although elders discuss *Yahdii*'s identity with brevity and discretion, he is regarded as an ally, teacher, and the embodiment of all knowledge, beings, and forces of nature. As such he is also a gamekeeper, distributor of medicine power, and the "caretaker of the world." *Yahdii*'s image in the stars depicts the ancient Traveler transforming into one of his animal helpers or embodiments. Although *Yahdii* is described as part human and part animal, the specific type of animal to which these features correspond is deeply personal knowledge that aligns with an

individual's primary animal helper or ally acquired through dreams (*gininlyaa*) or the vision quest. Despite minor conceptual differences specific to individuals, the actual stars corresponding to *Yahdii* are well-corroborated by several traditional knowledge bearers.

Just as *Ch'iteehàakwaii* gradually gained knowledge and power throughout his travels, a "spiritually gifted person" prescribes a *dazhan* novitiate a special form of the vision quest comprised of five or six increasingly difficult phases to test and combat his fears. Through these experiences and challenges a person gains power and more fully becomes themself by recapturing and embodying all the beings of his former incarnations.[19] Emerging from the final stages of this journey assumes an understanding of *Yahdii* and a relationship with him as a primary ally, teacher, and model of an idealized *dazhan*. In this respect, one traditional knowledge bearer explained: "The higher the power, the more schooling you've had. . . *Yahdii* is like the highest power. By the time you know about *Yahdii*, you know a lot." The specific association of *Yahdii* with *zhan/shan* ('medicine power/shamanism') is supported by another elder who explained: "The Big Dipper and other [stars], they talk about a lot of other things. But they [*dazhan nąįį*] don't talk about too much. And they know it's probably a sacred thing and a lot of things they don't tell us, you know."

The dim "red star" depicting *Yahdii*'s heart is his soul or spirit which is the embodiment of all that he worked with while transforming the world. Discovering his heart in the stars is equivalent to knowing his heart and soul, which fundamentally reflects a spiritual awareness of oneself and a relationship with *Yahdii* and the world as an ancient and continuous part of it.

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[19] Although men's rites of passage center on the vision quest, women also learned Gwich'in astronomical knowledge and contained significant inherent power for their ability to give life. With respect to the Sekani, Guy Lanoue (2001, 14) states: "Women are considered to possess innate power because of their reproductive capacity (symbolized by menstruation). In brief, women are negatively charged as regards contact with the unseen Other of the animal world, but they are positively charged insofar as they are believed to represent power." Lanoue (ibid.) continues by quoting a hunter who explained ". . . men have power, but women are power."

His heart/soul is also the point from which he projects or animates himself and all his embodied knowledge and power back to the universe. The ability to see and know *Yahdii*'s heart/soul rests on observing the Dene laws, humility, proper living and respect for the world and its inhabitants, and spiritual awareness coming together in a meaningful way within oneself.

Each of the necessary pieces to discover *Yahdii*'s identity are on the land, in the elders' words and stories, and within each person. It was traditionally the spiritually gifted people who were able to put the pieces together to discover *Yahdii* and secure a relationship with him as an ultimate teacher, ally, and provider who embodies the world's collective soul. Knowing his heart is analogous to knowing one's own spirit and all that *Yahdii* was and continues to be for humanity and the world. The reason that knowledge bearers hesitate to discuss his identity until after his heart is known is because by then the individual will already know. Overtly revealing *Yahdii*'s identity risks betraying one's own relationship with him. As such, mentors such as Paul may provide the tools and cultural frame to guide an experience-based learning process, but it is ultimately up to the individual to connect the pieces and teachings.

In addition to *Yahdii*, a linear constellation of three morning stars called *Yeedàak Gahàajil* ('they went/rose far up') appear in sequence on the northeast horizon from mid-October to early December. While these stars, δ Boo (Thiba), ε Boo (Izar), α Boo (Arcturus), are utilized to determine the timing of subsistence activities at dawn (see Chapter 5) they are also regarded as "three spirits" ascending to "heaven." These spirits are returning to *Yahdii* to remain in a place of afterlife above or among the stars, or else they are "sent back" to continue the soul's cyclical journey of reincarnation or *nehdlį* ('to be again').[20] *Yahdii*'s Milky Way trail is a path that souls follow to the afterlife, whereas the morning stars are light and untethered spirits ascending

[20] Note that *Yahdii* is regarded as a transformer and teacher and not the Creator.

directly to "heaven." One traditional knowledge bearer explained that *Yahdii* walks each night until he sees *Yeedàak Gahàajil,* illustrating conceptual unity between these two constellations. The ascent of these morning stars also relates to the Gwich'in adage, "go with a light backpack" or *na'ǫhtsùu ghyaa go'įį* ('keep your bag empty/hollow') which reminds people that too many material possessions and emotional baggage will keep one's spirit tied to earth. A goal in life, also described by Ahtna and Sahtúot'ıne elders, is to complete the human experience with an "empty backpack." Alternative names for the morning stars are *K'iidàk Gahàajil* ('they went/rose straight up'), *Vành Oozhrii* ('it is naming the morning'), and *Vats'at K'èegogwaajil*.[21]

Although several other individual stars have names, such as Polaris or *Zheetł'an Dha'aįįį* ('[star] in the middle of the sky'), a third and final constellation described as a dangerous tiger-like being that *Ch'iteehàakwaii* was not able to control continues to watch and listen from above to "lure you into his trap." While the name and precise stars that correspond to this constellation are known, my Gwich'in teachers prefer not to share this knowledge as it is the antithesis of everything that *Yahdii* was and continues to be. Risks or dangers associated with this malevolent being are assuaged by closely observing traditional values, taboos, and protocols. While I did not learn a specific eschatology associated with this being as I later describe in the Ahtna section, one elder explained that the world will end when the relative positions of the stars in *Yahdii* become stretched or skewed. This prophecy underscores the role of *Yahdii* in the continuation of the world as well as societies responsibility to treat the world properly and to live within the norms of established social constructs.

[21] Stan Njootli of Old Crow visited Paul one evening while I was staying with him in Fort Yukon and explained that there used to be three morning stars but one of them disappeared. He referred to them as *Vats'at K'èegogwaajil*. An archival audio recording of the late elder, David Salmon (1992), also contains a name for a constellation of three morning stars that he refers to as *Vats'a' Gach'agahaajil*.

While the prophetic and prognostic aspects of Gwich'in constellations are perhaps less pronounced than those described by elders in the Ahtna region, these concepts persist throughout the wider domain of Gwich'in astronomical knowledge. These celestial auguries and portents were once interpreted by medicine people or else they are known though personal discovery and realization. This precept is illustrated by one elder who explained his own attempts to learn Gwich'in stellar knowledge:

> All that time I talked to quite a few person [elders], but they always tell me that lots of things that will happen tomorrow is always written with the star they said; up there. But that's all they said. And they never tell how it look or anything.

Although many aspects of Gwich'in astronomical knowledge belong to a specialized and sacred way of knowing, other aspects such as time-reckoning, stellar wayfinding, and predicting weather based on the appearance of stars was once general knowledge, particularly in the Yukon Flats. However, the boundary between secular knowledge and a *dazhan*'s way of knowing is diffuse and probably always varied more by degree than by type given that the opportunity to discover *Yahdii*'s heart is apparently open to those who observe Dene laws and choose a path of humility, respect, and discipline.[22]

In many respects, stargazing itself is a spiritual experience where the observer seeks or affirms a relationship with *Yahdii* through processes of incarnation (to make real or visible). Several middle-aged residents of Fort Yukon and Chalkyitsik recalled seeing elders before the 1970's who stood outside their cabins on clear nights to observe the stars for extended periods in bitterly cold weather. As children, these individuals were confused by this practice given that one

[22] The late Gwich'in elder, Daniel Flitt, noted that Fort Yukon once had a baseball team called the "*Yahdii* club" which had a local rivalry with the "Hudson Stuck Club." A reference to *Yahdii* in a team sport may suggest a more contemporary context for *Yahdii* as a spiritual ally. However, this team name may simply refer to the Big Dipper, which *Yahdii* is now commonly equated with in a contemporary context.

of the elders continued to regularly observe the stars after she was nearly blind. Another resident of Fort Yukon who asked her grandmother about her regular observation of the stars in winter was simply told, "If you watch long enough, then you will understand."

Today, indigenous Gwich'in stellar knowledge is maintained by just a few elders and the word *Yahdii* is almost exclusively used to denote just the seven stars in the Big Dipper. The late elder, Simon Francis Sr. summarized the endangered status of this knowledge in the following statement: "*Yahdii*, long time ago no white man, but he [Gwich'in people] know that star. He watch that star all the time. What time, and all that. So, even some old people know that yet, but not many people."

The Ahtna Constellation, *Nek'eltaeni*

Yahdii and the Ahtna whole-sky constellation, *Nek'eltaeni* ('that which moves over us') are close analogues in representation and cosmological and spiritual value. Although I met with more than a half dozen Ahtna collaborators across four communities who shared knowledge about this constellation, Charlie Hubbard and Wilson Justin took a central role in this research as primary contributors while also becoming good friends.

Charlie is an elder who grew up speaking Ahtna in Cantwell, Alaska. He was a hunting assistant to Jake Tansey and his grandfather, Evan Stickwan. Charlie also served as an Army Ranger and worked in several skilled fields. He began learning Ahtna stellar knowledge from his grandfather at age four. Wilson Justin is an Ahtna culture bearer born in Nabesna, Alaska. He is a strong advocate for his people and is actively engaged in indigenous rights issues, celebrations, and teaching. Various members of Wilson's family have maintained Ahtna stellar knowledge for generations. Charlie's understanding of *Nek'eltaeni* is remarkably like the Gwich'in system

previously described, whereas Wilson learned two additional constellations tied to prophecies that also integrate with the mythic Traveler cycle.

As found in Gwich'in, systems of Ahtna stellar knowledge were primarily retained and passed down within families, usually from a grandparent to a grandchild, regardless of sex. Paying attention and developing a sense of awareness was fundamental to learning about life and the world more broadly, which Charlie described as *sdits'ak de daaghe ne'eł nihwdulzes* ('to become aware by listening'). As opposed to learning through instruction, Charlie explained, "We weren't told to sit here and they're going to tell us something. So, never in that way. It was not like a class. We weren't told we're going to teach you something. You just had to pick up on it." With respect to his childhood education and training, Charlie explained:

> When I was growing up and we were really young; five, six years old, seven years old, eight years old. They would wake us up whether it was summer or winter [and] they wouldn't give us time to get dressed, put our shoes on or nothing. They would take a cloth and if there's more than one kid, each kid would have a different colored cloth. And they would take it down the trail. And you wouldn't know when they took it down the trail and they'd hang it up. And you had to run down the trail and find it and bring it back; even in the wintertime with no shoes. Maybe they'd let you put socks on, but you had to run. No coat, no warm clothing in the winter. And summertime you usually went barefoot. Run down the trail, bring it back. That was to teach stamina and to bear hardship, so you knew how to deal with hardship, and it was part of a training.
>
> Nobody in my village - nobody got spanked. Nobody got spanked. You got scolded. And you got scolded in such a way that you just never did that again,

whatever you did wrong. But it was respect for each other, and stuff was so strongly taught that you never talked about anybody. You never teased anybody. You never laughed at someone. You laugh together, but you never laughed at someone. You never put anybody down. You always treated them as a peer or an equal.

We never called the grownups by name. And now when they say, 'Uncle Charlie,' it's not because I'm their uncle. Uncle in my culture was a term of respect. It's like mister or something. And the mothers and women, especially the head of a family, the mother, you never called them by their name. That was driven [in] so hard that in filling out paperwork we had a hard time remembering my grandfather's first name.

In addition to its retention and passage in certain families, Ahtna systems of stellar knowledge traditionally belonged to a *dyenen*'s ('medicine person') way of knowing. Although circumstances varied a *dyenen* either grew into his or her spiritual gifts over time or learned through a mentorship that usually began at a young age and centered on shadowing a senior family member gifted in these ways of knowing. For a male, this training continued until early adolescents when he was prescribed an extended form of the vision quest to test and combat his fears and to "learn to speak to the animals." One elder explained that while preparing for the vision quest the novitiate or *uk'eze c'eyaanen* ('s/he eats alongside him') observed the sky, waiting to commence his journey until a morning star (Altair) called *son' kadghildzak'* ('star moves up') appeared in a cloudless sky for three consecutive days.[23] If this occurred, the novitiate departed on the morning after the third appearance to seek knowledge and power

[23] The phrase *uk'eze c'eyaanen* ('s/he eats alongside him'), which denotes someone in training to be a medicine person, refers to the practice of eating meals with one's mentor apart from others in the household.

through visions (*u'elni' dulzeni*) and encounters with the nonhuman world. Gaining social recognition as a *dyenen* was not overtly formal and occurred subtly as a man or woman learned his or her spiritual gifts and successfully used them to benefit or assist others in public contexts.

Ahtna *dyenen* utilized *son' kadghildzak'* throughout their careers to determine the correct time to travel during trance or an outer body experience known as *sden teyaasen* ('s/he walks separately'). Because the spirit of a deceased person, animal, or being is thought to rise with the sun, concentrating on the morning star at dawn also assisted the *dyenen*'s spirit to rise from his or her own body for travel during trance.[24] However, this star is also regarded more broadly in Ahtna culture as a general source of luck that children were taught to look for each morning (cf. Kari [ed.] 1986, 27-28). This practice serves as a daily reminder to keep the soul light by leading a life of discipline, hard work, humility, and empathy. As with the Gwich'in system, the morning star is regarded as a pure spirit that ascends directly to *Nek'eltaeni*, untethered by the emotions and baggage of this world. Early dawn is also the most important time to go hunting and is a period of great stillness and spiritual exchange between the lived world and the other world. As such, *son' kadghildzak'* is appropriately observed to determine the timing of hunting activities at dawn. On the relationship between *Nek'eltaeni*'s Milky Way trail (*utene*) and the time when the morning star rises, Charlie explained that in the quiet of the early dawn the Milky Way "slides towards earth and it turns." He said, "That's when your life turns" and it is the beginning of a new day.

Aside from *son' kadghildzak'*, a couple culture bearers describe Ahtna constellations as prophecies that were placed in the sky around the beginning of time to tell the Dene of the major events and epochs that will occur throughout the world's history. The whole-sky constellation,

[24] Note that the Gwich'in constellation of three morning stars, *Yeedàk Gahàajil* ('they went up/rose), is conceptualized as three spirits rising towards *Yahdii* and a place of afterlife and/or spiritual exchange.

Nek'eltaeni was the first being and prophecy to appear among the stars. However, before *Nek'eltaeni* went to the sky he was the culture hero and Traveler figure known as *Yabaaghe Tezyaann* ('the one who went around the edge of the world') who was sent to earth among dangerous beings. The name of this Traveler is also referred to as *Yabaaghe Tuu Teeshyaay* ('the one who went around the edge of the water/ocean'), *Netseh Telyaanen* ('the one who leads us ahead'), or *Ciił Hywaa* ('smart young man') depending on the Ahtna dialect.[25]

As a young man, *Yabaaghe Tezyaann* was sent to earth to begin a solo journey around the world to transform an archaic animal people into the distinct animal species present today. He removed a common language formerly spoken by all things and established peace and order on earth to make it a safer and more useful place for humans to live. As Charlie summarized, "He went ahead of us to pave the way" and "he is the keeper of all knowledge." The Traveler not only eradicated and transformed dangerous monster-like beings on earth, but he also made agreements with his transformed subjects, which established a core of taboos, protocols, and laws that shaped Northern Dene lifeways and relationships to the natural world.

Yabaaghe Tezyaann circled the world like the sun, beginning in the east and then traveling to the west. At the end of his journey, he was an old man who had gained significant knowledge and medicine power after having worked with all the animals, beings, and "forces of nature." *Yabaaghe Tezyaann* died in old age after completing his epic journey around the world as the first *dyenen* and the first person to go on a vision quest. As such, the Traveler is the Dene archetype for seeking, gaining, and using medicine power, while also a model of compassion.[26] After completing his journey in old age, his spirit subsequently manifested in the sky as the

[25] Kari and Tuttle (2018, 59) also refer to the Traveler as *Natu' Baagha Tezyaann* ('the one who went around the seashore').
[26] Regarding the Traveler figure Krupa (1999, 125) states: "Indeed most versions of the [Traveler] narrative do concern the origin, purpose, and social context for the human acquisition and use of spirit power."

whole-sky constellation, *Nek'eltaeni*; a large man-animal or therianthrope figure composed of at least 18 asterisms named using body part terms. *Nek'eltaeni* also wears a backpack (*ughaele'*) and holds a walking stick/weapon/medicine staff (*utets*) in his left hand. As previously noted, the Milky Way is his trail (*utene*). *Nek'eltaeni*'s representation as a therianthrope or shapeshifter not only indexes ancient time when humans and animals were one, but it also attests to his significant medicine or spirit power as the embodiment of all things. This constellation is also occasionally referred to as *Nek'eltaenen* ('that [human] which moves over us'), *Nen'keltaeni* ('that which moves over the earth'), *Nek'e Nekeghaltaexi* ('that which moves in a circle following us'), or simply *Nekeghaltaexi*.[27] His wife, *U'aa Uk'etayaał* ('his wife will walk after him') is the early dawn light described as *yaat'aay hwnidzaex* ('the sky is soft' [like thawing snow]) following *Nek'eltaeni* on his Milky Way trail (Table 3; Figure 8).[28]

[27] Cf. Kari (1990, 330).
[28] In Chapter Six, I propose a connection between the Gwich'in Traveler and *Yakaih Tr'ik* ('Northern Lights Female') as his wife.

Table 3. Identification of asterisms in the Ahtna whole-sky constellation, *Nek'eltaeni*. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis. Numbers preceding asterism names refer to locations in Figure 8.

Asterism	**Translation**	**Stars**
1. uce'	his tail	Big Dipper (within Ursa Major)
2. tl'aghests'en ula'	his left hand	o Leo (Subra), α Leo (Regulus)
3. kuzuun ts'ene ula'	his right hand	two unidentified stars in Cassiopeia
4. tl'aghests'en uts'ene'	his left leg	ψ UMa, ν UMa (Alula Borealis), ξ UMa (Alula Australis)
5. kuzuun ts'ene uts'ene'	his right leg	λ Dra (Giausar), κ Dra, β UMi (Kochab), γ UMi (Pherkad), ζ Dra (Aldhibah)
6. tl'aghests'en udzaghe'	his left ear	α Gem (Castor), β Gem (Pollux)
7. kuzuun ts'ene udzaghe'	his right ear	α Aur (Capella), β Aur (Menkalinan)
8. bentsiis	his nose	Messier object 45 (Pleiades)
9. unaegge'	his eyes	ι Aur (Hassaleh), β Tau (Elnath)
10. utsaadle'	his abdomen	15 Lyn, o UMa (Muscida), h UMa (Alhaud IV), 36 UMa, θ UMa (Alhaud V), ι UMa (Talitha), κ UMa, (Alkaphrah), 31 Lyn (Alsciaukat)
11. tl'aghests'en uke'	his left foot	the combined stars in his left heel and toes (see below)
12. uketatl'	his heel (of left foot)	β Leo (Denebola)
13. ukelaghose'	his toes (of left foot)	δ Leo (Zosma), θ Leo (Chertan)
14. kuzuun ts'ene uke'	his right foot	β Dra (Rastaban), γ Dra (Eltanin)
15. tl'aghests'en uggaan'	his left arm	31 Lyn (Alsciaukat), κ Leo (Al Minlear), λ Leo (Alterf)
16. kuzuun ts'ene uggaan'	his right arm	δ Aur, 2 Lyn, β Cam, α Cam, HIP17884, ε Cas (Segin)
17. udzedze'	his kidney	unidentified star near the cup of the Big Dipper
18. uciz'aani	his heart	27 Lyn
19. utedze'	his walking stick	β Cnc (Tarf), ε Hya (Ashlesha), ζ Hya (Minazal V), α Cnc, (Acubens), 31 Leo, ρ Leo, σ Leo, β Vir (Zavijava)
20. ughaele'	his backpack	β UMa (Merak), ψ UMa, μ UMa (Tania Australis), α Lyn, 31 Lyn (Alsciaukat)
21. utene	his trail	Milky Way Galaxy
denae ce'e tene	big man's trail	(variation)
Ciił Hwyaa yates ghilyaa	Smart Boy stepped over the sky	(variation)

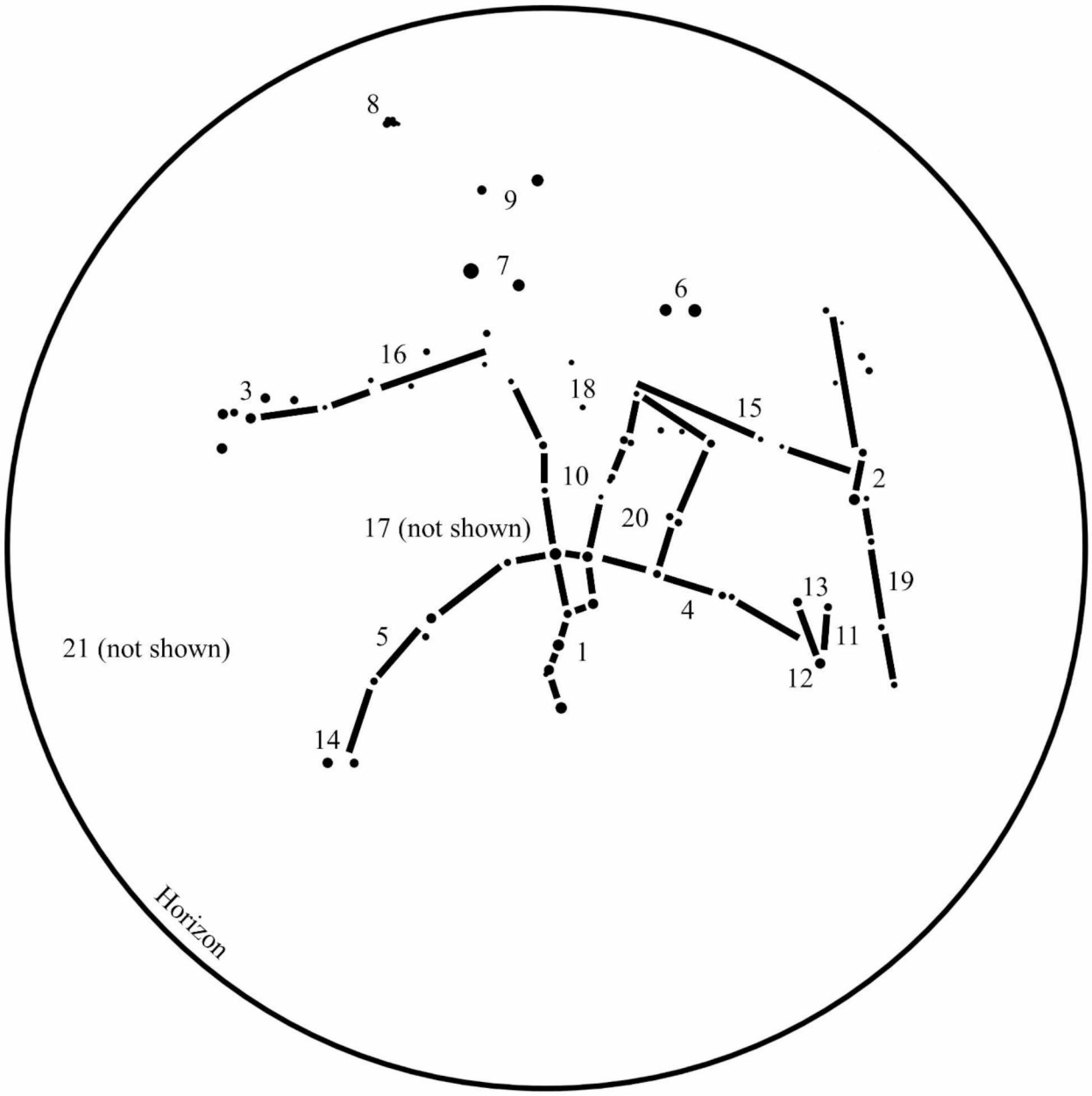

Figure 8. Identification of asterisms in the Ahtna whole-sky constellation, *Nek'eltaeni*, as seen from Cantwell, Alaska on March 25, 2018 at 23:30 local time. Zenith lies in the center of the circle. Numbers correspond to asterisms listed in Table 3.

In contrast to the Gwich'in representation, *Nek'eltaeni*'s left foot is divided into two additional asterisms that delineate his toes (*ukelaghose'*) and heel (*uketatl'*). His backpack, described as "formless," is something of a bush bag used to carry a few personal possessions, small game, and harvested plants and berries, etc. *Nek'eltaeni*'s walking stick or cane (*utets*) is

first and foremost a weapon that he used to hunt and transform dangerous giant animals of the past. *Nek'eltaeni* is also in a crouched position, like *Yahdii,* with outstretched arms as if embracing and protecting the world, which Charlie variously described as *nen' k'eltaen* ('he leans with the world'), *ne'eł teltaen* ('he leans with us'), *nen' ts'e' c'udelnesi k'e* ('he reaches/holds the earth'), and *necehw nelnes* ('he's reaching around [people]'). Charlie made the following basic sketch of *Nek'eltaeni* to illustrate his body position (Figure 9). Aside from a couple variant names for the Milky Way and an unidentified star called *udzedze'* ('his kidney'), Charlie contributed the full list of asterisms shown in Table 3, many of which were corroborated by other Ahtna speakers.[29]

Figure 9. A basic sketch of the full-sky constellation, *Nek'eltaeni*, drawn by Charlie Hubbard.

[29] In addition, Charlie identified Polaris as *son' dilteyi* ('star is strong') and explained that the rhythm of certain Ahtna songs are syncopated to the twinkling of Polaris, while also noting that long-ago people descended from the stars like the cottony seeds of a poplar tree or fireweed (Cf. Guédon 1974, 70, Simeone 2018, 80-84). Charlie said, "Another thing you should know is we are star people. We come from the stars. Because of stars, we are here." Charlie described the twinkling appearance of Polaris as *son' nelts'etl'* ('star is blinking') and *u'eł nahwdghelnes* ('that which is off and on'). He also identified the three brightest stars in Orion's Belt (ζ Ori, ε Ori, δ Ori) as *taak'i niłk'eze dezdlaeyi* ('three things side by side') or *son' niłk'eze dezdlaeyi* ('stars side by side'), which were used for timing seasonal hunting activities.

Not all culture bearers agree that the whole-sky constellation is *Nek'eltaeni* himself. Rather, some describe it as an iconic representation of his image placed in the sky to remind the Ahtna of their ancient laws and the work that he did to make the world a safer and more useful place for humans to live. Nonetheless, "a doorway located at the center of the Milky Way" leads to an unseen realm above the stars where *Nek'eltaeni* continues to reside and watch over earth as a protector, world custodian, gamekeeper, and centering force and distributor of knowledge and medicine/spirit power. Regardless of interpretation, Charlie explained that people not exposed to *dyenen* ways of knowing do not know that *Nek'eltaeni*'s identity is that of *Netseh Telyaanen* (aka *Yabaaghe Tezyaann*, *Yabaaghe Tuu Teeshyaay*, or *Ciił Hywaa*).[30]

Learning about *Nek'eltaeni* and discovering his image in the stars was once among the more important spiritual experiences in traditional Ahtna religious life and other elders, such as Charlie, do regard it as the incarnated spirit of the Traveler. The names and positions of the stars in *Nek'eltaeni* were not explicitly taught or shared. Instead, a *dyenen* introduced this potential. He or she told people to "believe" in *Nek'eltaeni* and that his latent image would appear in the stars for a *c'ini deł'aenen* ('one using the mind'). One culture bearer explained: "He's [*Nek'eltaeni*] in the sky and only you can find it. No one else could find it for you. And it has to be just the perfect time in your life, or you're doing something good for you to find it."

In other words, the personal discovery of this constellation is an uplifting and coveted religious experience where belief, humility, respect, awareness, and spirituality come together in

[30] In their unpublished Ahtna fieldnotes, Frederica de Laguna and Catharine McClellan (1960) include a sketch of an unidentified constellation labelled the "Heavenly Fox" or *Nekena C'uyaaxi*, glossed as 'he turns around the world'. While scant information is provided about this constellation it is no doubt the Ahtna Traveler, *Ciił Hywaa* ('Smart Young Man'), who is regularly described as a fox or lynx-like person. De Laguna and McClellan labeled eight body part star groups that compose this constellation as elicited from the late Ahtna elder, Frank Stickwan of Tazlina, Alaska. Updated in the modern orthography, these names are: *uce'* ('its tail'), *uk'ay' c'elode* ('its femur head'), *uk'aye* ('its pelvis'), *udzedze'* ('its kidney'), *uciz'aani* ('its heart'), *udzaghe'* ('its ear'), *bentsiis* ('its nose'), and *ula'k'aedi* ('its palm'). Although none of the stars are correlated with their Western counterparts the drawing seems to correspond to Ursa Major.

a meaningful way within oneself to incarnate *Nek'eltaeni* in the stars. After this constellation is known through personal experience and discovery, the individual retains access to him as a guide, teacher, ally, gamekeeper, and a model to live by. The individualized nature of this experience is not all that dissimilar to the Christian concept of "finding God." Charlie explained:

> Religion was taught one on one. It wasn't a whole congregation. It was taught one on one, and it went right along with nature, you know. If you didn't respect the world, you didn't respect *Nek'eltaeni*, see. And so that was the religion . . . You know, we want to be good people. You know, *nen' daaghe ses 'sdelts'ii, son' daaghe ses 'sdelts'ii*. We live [in health] by the earth, and we live [in health] by the stars (Figure 10).

Figure 10. Charlie Hubbard at his home near Sterling, Alaska in September 2019 speaking about the constellation *Nek'eltaeni* as a model to live by and as a guardian of the world.

Ahtna people spoke or prayed to *Nek'eltaeni*. Those who "knew" a dim star corresponding to his heart established a particularly strong connection to him. Charlie used the phrase, *uciz'aani dighnaat* ('his heart shines') to refer to this star as "the point of your life." As Charlie explained, *Nek'eltaeni*'s heart "shines" because it embodies all that he worked with and transformed for the benefit of humanity, which he projects back to the universe through his heart or soul. As with the Gwich'in system, discovering his heart affirms that one is leading a life consistent with his teachings and it reflects an awareness of the place where the spirit or soul came from and where it will return after following his Milky Way trail. The late elder, Markle Pete, of Tazlina explained that elders incited curiosity in others to discover *Nek'eltaeni* by telling them, "You would be a rich man if you figure out what it (stars) is." Those who discover *Nek'eltaeni* learn that this statement or riddle refers to spiritual awareness, obtaining a guardian, ally, and model to live by, as opposed to monetary or material wealth.

Charlie Hubbard provided a similar riddle in September 2019, which was also designed to incite long-term introspection about the significance of *Nek'eltaeni*. He asked, "*Son' ne'eł stahwdghelniic* ('why do the stars intrigue us')?" On the one hand, no matter where we stand on earth, we are always beneath the zenith at the center of the sky and never at its edge. As the stars rotate around us, they help us discover that the Traveler never disappeared but continues to keep us at the center of his protection and attention. On the other hand, this riddle also relates to the Dene concept of rebirth or reincarnation, known in Ahtna as *uyii nac'esdlaen* ('he/she/it is born again'). Respecting the world is to respect *Nek'eltaeni* as the embodiment of all knowledge, life, and forces of nature. As Charlie explained, the stars "intrigue us" because they remind us where our spirit or soul came from and where it will return after following *Nek'eltaeni's* Milky Way trail (also a metaphor for living correctly) to complete the cycle of our human experience (Figure

11).[31] Crucially, these teachings also suggest that the discovery of oneself and internal emotions and well-being manifests outwardly, affecting one's relationship to the world. To know and be in touch with oneself is to be connected with the world and universe.

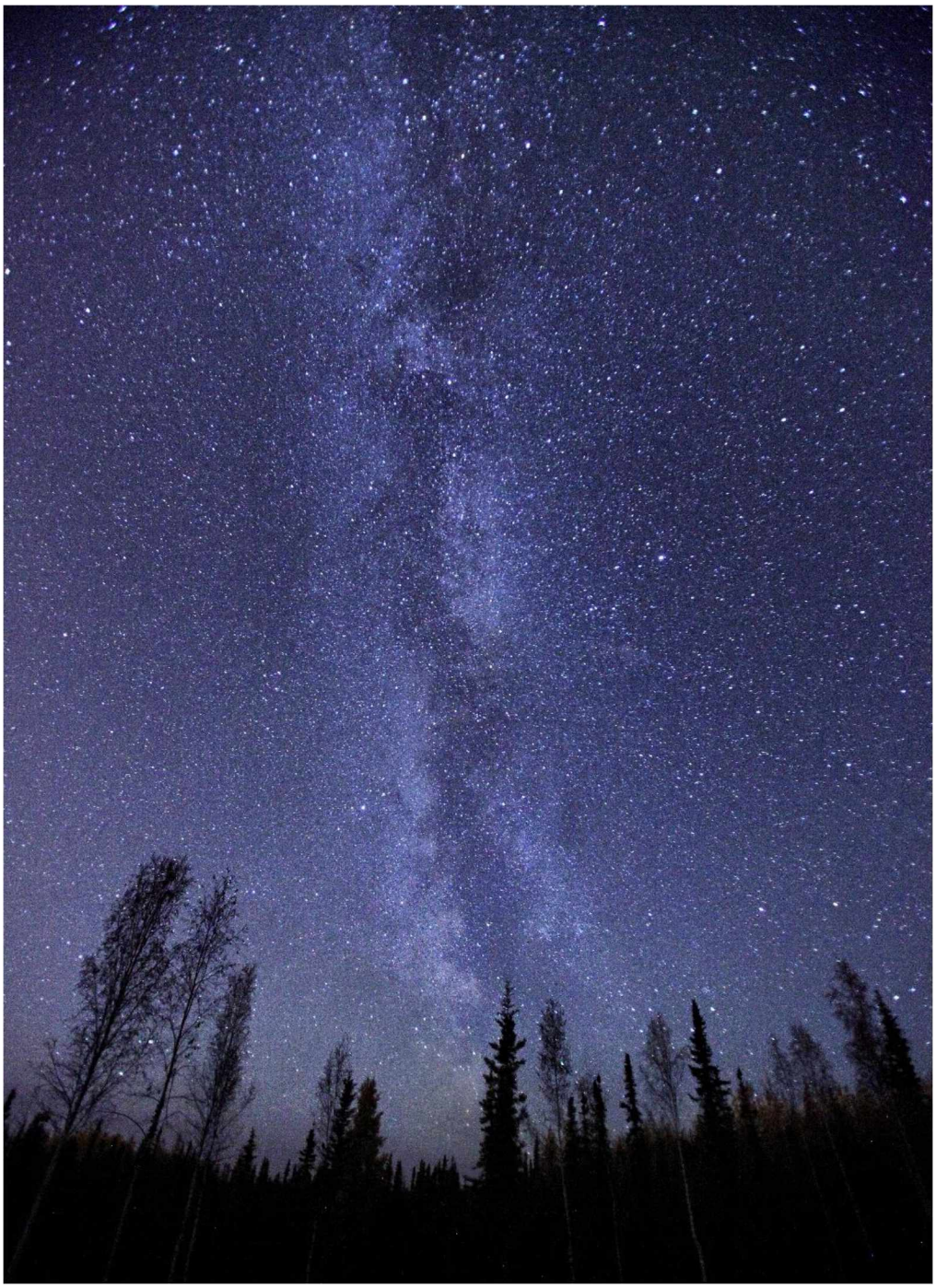

Figure 11. A view of the Milky Way in central-interior Alaska.

[31] Cf. Guédon (2005, 522-523).

As a gamekeeper, *Nek'eltaeni* distributes animals to those who live in accordance with his laws and honor the ancient contracts that he made with each of his transformed animal subjects. As such, there is an intimate connection between hunting success and living correctly. Because humans lack the physical strength, fitness, and senses of animals, people must use their minds and live with humility so that through *Nek'eltaeni* the animals will give themselves to the "hunter" or person in need. Charlie explained:

> . . . it's like one of the things they used to tell us, 'You got no teeth, you can't bite. You know, you got no hair, you can't stay warm. You got no fingernails (claws), you can't scratch, you can't claw, you can't dig. You got no strength. You know, you can't run. You can't hear. You can't smell. You can't see. So, what makes you a great hunter? Are you a great hunter, or did the animal deem you worthy enough to give you his life; see? And I taught that to my kids.

In a more traditional context, a *dyenen* would draw from his or her relationship with *Nek'eltaeni* to help others achieve success in hunting and harvesting. To exemplify *Nek'eltaeni*'s role as a gamekeeper, Charlie described a ritual that he observed his grandfather perform for other hunters and trappers in the community:

> He used to concentrate. He'd hum (Charlie demonstrates with rhythmic humming). I think it was just to calm himself. And even before the men in the village would go trapping, they'd come to him. And he would take a double spring trap and set it on the floor and they would all sit around it. And *Nek'eltaeni ts'e' dac'udetkan*, he prays to *Nek'eltaeni*. You know, for the animals to come to the trap. And then he used to put his hand right on the pan and slap it. And the trap would never close. He'd take his hand away (Charlie makes a loud clap to

> indicate that the trap snapped shut after he took his hand away). And so, me and my uncle Nome, we watched this. We watched in the corner. So, for squirrels they have number zero traps; one spring . . . And so, we're copying grandpa [with small number zero traps]. And so, I did all the stuff he did. And I put my hand in the trap. Bam! And of course, you can't cry, cause you're not supposed to be doing this, you know. We weren't supposed to be copying him, but I was copying him anyway. [It] snapped on my fingers. But it always amazed me. He put his hand right in the big double spring trap, you know, and it would never close until he moved his hand.

Like the Gwich'in system, speaking openly about *Nek'eltaeni* can betray one's relationships with him and does not reflect the great humility that this knowledge should engender in oneself. Charlie emphasized, "All knowledge comes to us personally." He explained that once you know and "feel *Nek'eltaeni*, everything opens up and it's a source of relief like a burden was taken off you." He added, that when you feel this, "you don't want to talk about it because it's personal." Instead, discussions about *Nek'eltaeni* are conducted in moderation and only under the right circumstances, given that the world is imbued with observant beings, perhaps better characterized as "other-than-human persons." In addition, personal names are avoided when addressing another person or thing of status. Lena Charley of Chistochina explained: "*Nek'eltaeni* we call him. They used to pray too, like [in] Native language. They always say we can't call too much; *Nek'eltaeni*. Like us, everything, we had to be careful."

According to the prophetic interpretation, after *Nek'eltaeni* went to the sky the Dene gradually forgot his ancient teachings and resorted to conflict, violence, and war. In response, *Nek'eltaeni* sent the *Dastnaey Ggaay* ('little people who are ahead') to earth as a second wave of

"messengers" to remind the Dene of the work he did to transform the world for the benefit of humans. Although these other-than-human persons provided the Ahtna with sacred language and songs, they were mistreated and returned to the sky without accomplishing their task. This prophecy and group of messengers is depicted as the Pleiades, or else as a broad assemblage of stars "randomly sprinkled through the sky."

Although the Pleiades is also identified as *Nek'eltaeni*'s nose (*bentsiis*), this asterism appears in autumn just prior to the story telling season when the land freezes over and the attentiveness of other-than-human persons is somewhat allayed or muted in temporary dormancy. The appearance of the Pleaides in autumn signifies the return of the *Dastnaey Ggaay* to hear the ancient stories told from about October through December. This is also the appropriate time to recount the Traveler cycle as told in nightly installments over the span of about two weeks.

The third constellation and prophecy to appear in the sky has only been identified in English as the White-Winged Man," which prophesied the arrival of non-Natives in the Ahtna settlement area. The "white wings" are interpreted as the pages of books or else as the sails of the first ships to arrive in Alaska. Throughout this epoch humanity does not closely adhere to the ancient laws, taboos, and protocols established by *Nek'eltaeni* and the world continues in disharmony.

The fourth and final prophecy warns that if *Nek'eltaeni*'s teachings are eschewed, then an ancient Dene enemy will return from the sky to initiate world destruction. This final prophecy and being is referred to with the circumlocution, *Nec'aadze' Teltaen* ('he leans away from us') and is identified as a tiger-like figure or other-than-human person who has "knives in his mouth for teeth." Alternatively, another elder conceptualizes it as something of a sasquatch-like being

who "spews evil". This is a remnant monster or *ggux* from ancient time that *Yabaaghe Tezyaann* was not able to control or transform during his journey around the world. The only way *Nek'eltaeni* could keep this dangerous being away from people was to roll it into the sky where the two circle each other overhead as seen in the apparent rotation of stars about Polaris or *son' dilteyi* ('star is strong'). Charlie described the motion of these two constellations as *ku'eł nekehwtngelnes* ('they are going around each other'). The proper name for the malevolent being and its location in the stars is tightly held or lost knowledge enmeshed in malevolent consequences. Charlie explained that if someone was caught talking about it or looking for it in the sky they were cut off and asked, "*Nts'ehwgha hwnił'aen*, why are you looking for it? You know, *nts'e neniy 'kuhwdalzet* ('why are you thinking about it') . . . How are you thinking about it? In other words, it gives you like evil thoughts." While *Nek'eltaeni* is a model of socialization, order, compassion, and morality, *Nec'aadze' Teltaen* is its antithesis.

The present epoch is a liminal period between the third and fourth prophecies described above. The fourth epoch is prophesied to begin when perennial snow disappears from Alaska's tallest mountains, when it no longer cools down at night, and when the world turns back to grasslands, which is the habitat of the ancient enemy.[32] The elders I learned from observe climate change and social problems with concern to the onset of this final period. However, the potential to alter this course pervades as a viable option that encourages a moral, compassionate, and respectful life steeped in traditional values to allay this terminal epoch. In other words, the outcome of the celestial drama between *Nek'eltaeni* and *Nec'aadze' Teltaen* will be determined

[32] Cf. Shem Pete's (1975, 9) Susitna prophecy: "I am Shem Pete. My father had an older brother. He was a powerful shaman. He used to say this: 'Susitna will disappear. It will disappear. Only grass will grow there. That grass will cover the whole village. The Tanainas of Susitna will disappear.' Thus he spoke. 'Susitna will disappear. All the people living there will disappear,' he would say. This would make the people mad. There were six hundred of us. Every year twenty or thirty more would be born. 'Why would we disappear?' they would say. 'I tell you that's how I see it, he would tell them. 'It will disappear. There will be only Americans. Do you understand?'"

by human actions. These four prophecies and epochs are said to repeat in a perpetual cycle of world destruction and rebirth.[33]

In any case, elders feel that the most dramatic changes to the world are yet to come. Constellations and other-than-human persons embodied in the sky and its contents are acutely perceptive to words and actions, which have high stakes as there is always someone or something observing and listening. Talking about the stars is akin to talking about a powerful *dyenen,* and a world transformer, teacher, provider, and guardian. It also encroaches on the responsibilities of a *dyenen* to deliberate with other-than-human persons and to interpret these sacred auguries. Perhaps most importantly, is a desire to protect one's own relationship with *Nek'eltaeni*. For these reasons, Northern Dene astronomical knowledge is largely understood and disseminated through abbreviated discussions and other covert modes of transmission, such as drawing pictures, learning through experience, talking about this knowledge only during certain types of weather or seasons, and even through writing.

Today, this way of knowing is kept in the memories of a few traditional knowledge bearers across several communities who have independently maintained it as family-based knowledge passed down hereditarily through at least five known generations. Some variation exists. For example, Charlie learned the system as described above, but without the second and third prophecies. In addition, as late as the 1950's a couple of my teachers were still receiving instruction in *dyenen* ways of knowing.

[33] In comparison to the Dane-zaa, Antonia Mills (1986, 86) states: "Four times already, the *Duneza* say, *Yaqesati* has destroyed the world when its pattern has become too divergent from the harmony of the original plan. . .The *Duneza* believe that the world is going to end because too many people have forgotten, or never learned, to respect the forces necessary to keep the world going. The White man is particularly oblivious to it: only when he and Indians can hold it in their minds can it be maintained."

Although Ahtna astronomical knowledge is at risk of being lost, it is well remembered by those few traditional knowledge bearers who learned about it. Regarding the specialized nature of Ahtna stellar knowledge, Wilson Justin explained:

> . . . The medicine people were the night people. They were in charge of the night skies. Their job was to ensure that the sacredness of the symbols in the stuff that *Nek'eltaeni* left to guide us was not interpreted to the benefit of any one person or group. So, they made it off limits to people. Only the medicine man kept their interpretations in their rank and file. That's why you run into the issue of why there's so much fuzziness, whereas I come directly from a medicine man family. I'm supposed to know this stuff. I don't, but I'm supposed to.

Charlie offered the following closing remarks regarding the way people should think about *Nek'eltaeni*. He said:

> . . . he leans with the earth, our land, our world. *Nek'eltaeni*, he takes care of the land, you know. *Naene su xu' ni'stazen* ('we should think like this'), that's the way we should think. And *xu daaghe' sdelts'iis* ('according to this, we stay'). It's how we live.

The Sahtúot'ı̨nę Constellation, *Yíhda* or *Yámǫréya*

Stellar knowledge learned from Charlie Neyelle of Délı̨nę ('where the water flows'), Northwest Territories is remarkably like the Gwich'in and Ahtna conceptualizations found in Alaska, illustrating the maintenance of analogous systems in widely separated Northern Dene communities (>1,200 km apart). Charlie is a treasured traditional knowledge bearer and spiritual leader in his community who has a lifetime of experiences on the land. His father, Johnny Neyelle, taught him an extensive repertoire of stories in the Traveler cycle in complement with

the Sahtúot'ı̨nę̨ names for stars. The Délı̨nę̨ Prophet, *ʔehtsǝ̀ǝ* Naedzo, introduced Charlie to other spiritual aspects embodied in the sky and its contents, particularly the significance of finding and knowing the Traveler's heart.[34]

I made three trips to Délı̨nę̨ between October 2018 and March 2020.[35] This was the final community included in this research and perhaps the most deeply rooted of those I visited in terms of Dene language, culture, and spirituality. In this section I not only describe Sahtúot'ı̨nę̨ stellar knowledge, but I also attempt to show why an openness to spiritual experience is necessary for understanding the ancient Dene Traveler as a framework for knowing and being Dene.

When coordinating my first visit to Délı̨nę̨ in October 2018, Charlie proposed meeting over two consecutive evenings at a spiritual building on the eastern end of the community known locally as the "Prophet's House" or "Prayer House." This log structure was built at the former home site of the late prophet *ʔehtsǝ̀ǝ* Ayah and is maintained as a spiritual place to commemorate the community's past loved ones and the four Délı̨nę̨ Prophets. The Prophets or *Nakwǝnáreʔę̨* ('ones who walk in front') were endowed with the gift to travel to heaven to receive messages and instruction directly from *Newehts'ı̀ne* or God. The lessons and teachings of the local Prophets are a fundamental part of Catholicism in Délı̨nę̨ and factor into nearly all facets of

[34] Before Joseph Naedzo (1887-1973) became a Prophet, he was a gifted hunter who exceeded his quota of animals. To curb his hunting success, the Creator gave him the choice to lose his eyesight or the use of his legs. Naedzo chose to lose his eyesight given that he would need his legs to travel around to spread the word of God. Naedzo is said to have repeatedly travelled a road to heaven to learn the gospel directly from the 12 Apostles. He began teaching as a Prophet after he completed his mentorship in heaven. Naedzo's own story about becoming a Prophet appears in Helm (1994, 22-24).

[35] The population of Délı̨nę̨ is around 530 people and has been in self-governance since 2014 setting a path towards indigenous self-determination and sovereignty. The community speaks a distinct dialect (Sahtúot'ı̨nę̨ kǝdǝ́) of North Slavey with other dialects spoken in Tulita, Norman Wells, Fort Good Hope, and Coleville Lake. The Sahtúot'ı̨nę̨ ('Bear Lake people') various identify as Sahtúgot'ı̨nę̨ ('people of Bear Lake'), and Sahtú Dene ('Bear Lake person/people') and maintain close cultural and family ties with the Tłı̨chǫ.

religious and spiritual life. The outdoor area around the Prophet's House serves as a ceremonial ground and gathering place for the community.

My colleague, Alex Jaker, accompanied me on my first trip to Délı̨nę to assist with linguistic documentation. Alex is trained as a phonologist and has worked with Tets'ǫ́t'ıné and Wıìdıìdeh speakers in the Yellowknife area for the past 15 years or so. While we waited to meet with Charlie on our first full day in the community, a local resident, Mandy Bayha, sought us out at the Grey Goose Lodge after hearing about our research from her uncle who was helping to coordinate our visit. She had just returned from her own travels where she was introduced to wayfinding in Oceania and had coincidently decided to begin looking into the astronomical knowledge of her own people around the time that we arrived in Délı̨nę. Her collaboration and assistance were important to my work and socialization in Délı̨nę and influenced my understanding of Dene culture and spirituality.

On our first evening, Mandy picked us up at the Grey Goose lodge around 6:00 pm and drove us to the opposite side of town to meet Charlie at the Prophet's House. As we setup, I summarized what I had learned about the stars in other Northern Dene communities and asked Charlie if there might be a similar conceptualization and way of knowing in Délı̨nę. I noted that the Sahtú term, *Yíhda,* glossed in several sources as the Big Dipper (Rice 1989, 241, Modeste and Tatti 2012), is cognate to terms used by other elders I had learned from who refer to a much larger constellation (e.g., Gwich'in, *Yahdii*, Upper Tanana, *Yihdaa*, Tets'ǫ́t'ıné, *Yéhdaa*, and Wıìdıìdeh, *Yìda*). Charlie listened quietly as I spoke and then responded by describing how he grew up hearing stories from elders while they visited each other at their homes for tea. During one of these gatherings he listened to the late prophet, *ʔehtsə́ə* Naedzo, speak at length about the sun. After summarizing Naedzo's detailed knowledge, Charlie said:

> He's very, very knowledgeable on the land. So, this man, he had a magical tie to the sun. And then one person asked *ɂehtséo* Naedzo how he get to know the sun more. And he said, 'Usually through dream. Dream, and also using your learning'. . . So, he explained the way it [sun] set and then all this time he had magical tie to the sun, and moon, and stars, and Dippers. And he tell story about all this.

Through the knowledge of the Délı̨nę Prophets and his elders, Charlie introduced how people seek, gain, and use wisdom and medicine power (*ı̨k'ǫ́*), while also inferring the great wealth of teachings and social models embedded in traditional and personal stories. After introducing this context, Charlie began sharing an evening of stories about the Sahtú Traveler, *Yámǫréya* ('the one who went around the world'), as we sat on the floor around him in the Prophet's House (Figure 12).[36]

[36] Also known locally as *Yámorıa* and *Yámǫdéya*.

Figure 12. Charlie Neyelle tells stories about the Sahtú Traveler, *Yámǫ́réya* at the Prophet's House in Délı̨nę, N.W.T. in October 2018. Charlie (right), Chris Cannon (foreground), and Alex Jaker (background).

In the beginning an *ʔı̨tsı́né godı́* ('living spirit') that resonates through all things sent his two grandsons, *Yámǫ́réya* and *Yámǫhga* ('the one beside [the one who went] around the world'), to the bush to begin their 'spiritual training' or vision quest (*ts'aht'íne*).[37] This powerful spirit or animating life force instructed them to use their minds to obtain knowledge about everything in the world. Through their dreams or *náts'etə* they experienced what it is like to live as every object, being, and entity in the universe, thereby gaining its knowledge and establishing "magical

[37] *Ts'aht'íne wı̨lé* (lit. 's/he became a hat person') is presumably a reference to a woman's puberty hood but is used to refer to both women's and men's rites of passage, puberty seclusion for women and the vision quest for men. The term *ʔejirétła* ('s/he runs around'), refers to the public announcement made throughout the community when a man or woman shows the first signs of adulthood; the first menstruation for women and a vocal change for men.

ties" to everything. When the brothers finished dreaming, they concluded that it was time to return to their grandfather, having nothing else to learn. Charlie said:

> Both of them, they agree. They agree, I think they done everything, everything in the world. They learn how to live even [as] the tree. Even a flower, grass, all of it. They used to live with it. And they learn all the universal (i.e., universe). They learn all this universal. And they have so much power. And they [are] using that power. So, they're both brothers and they got nothing else to study no more. They figured they done everything, everything in the world . . . So, they're both telling each other, 'I think I went through the whole thing. And then nothing else that I can learn no more. So, well we're both ready. Well, let's go to grandpa.' Grandpa [is] a very powerful *ʔɻtsíné* ('spirit') . . . he's the one that [has] knowledge about everything.

After returning, their grandfather asked them, who would be the first to go around the world to "settle" or transform everything, as it is today. The younger and braver brother volunteered first and so he received the name *Yámǫréya* while his older brother received the less significant name, *Yámǫhga*. Both brothers were giant "spiritual people" who commenced their journeys around the world in opposite directions to transform dangerous giant animals and beings as they went. As his first order of business, *Yámǫréya* elected to "settle" a pair of giant man-eating tigers. He attracted them by skating across a vast frozen body of water on "metal shoes" and then outdistanced them to an ice-encrusted snow house where he waited inside. Both tigers circled the shelter searching for a weak spot to collapse it under the weight of their bodies. When they finally peered in the openings made at either end, *Yámǫréya* drew from his

connection to thunder power (*nágǫhtene ɻk'ǫ́*) to drive his spear through the lower neck of each tiger. Charlie indicated the location by pointing to the suprasternal notch at the base of his neck.

When the offspring of the deceased tigers arrived at the snow house, they confronted *Yámǫréya* for killing their parents and pleaded that they depended on them for obtaining food. *Yámǫréya* conceded to spare the lives of the juvenile tigers on the condition that they would grow no larger, thereby fixing the size of contemporary tigers. However, before *Yámǫréya* chased them from the region, he mistakenly fed them human flesh removed from the stomachs of their deceased parents. For this reason, tigers were not trained to eat the proper type of food and remain a threat to humans. After concluding this story, Charlie said:

> [It is] a long story though and this is the beginning. This is the top. And then right to the end, it might be all night. One week and then it'll be the end. It goes on and on, and on, and on . . . If I finish it, probably two, three, four days. And you'll see. Then you [will] understand. Everything too, it exists right there. You know, all this universe. You see tree, flower, water, air, cloud, it's *Yámǫréya* settle them all. And he put in good area; everything. [He] made everything good.

After "settling" the tigers, *Yámǫréya* proceeded around the world from top to bottom traveling in a sunwise direction. In a subsequent episode, he ascended a narrow path between two mountains where he encountered a lion that snared people along its trail. *Yámǫréya* used the knowledge from his dreams to think ahead of the lion, eventually killing it with an arrow shot in its lower neck. As found in the Gwich'in and Ahtna systems, the malevolent lion/tiger being incarnated in the stars as an unidentified constellation known by the archaic term, *ɂemǫ́ǫhdzí*.[38]

[38] The name of this figure is also occasionally associated with the tiger. See Fletcher and Neyelle (2019, 43-44) for a published version of *Yámǫréya*'s encounter with the lion.

Charlie connected each of these stories with the landscape and explained that the spiritual essence of *ʔemǫ́ǫhdzí* is embodied in *Saoyúe* ('grizzly bear mountain') located between the Keith and McVicar Arms of Great Bear Lake. The lion continues to emit an odor from within the mountain that some Dene notice when traveling in the area. Charlie explained:

> You know, *Saoyúe*, that Grizzly Bear Mountain on the other side? That's where he [*Yámǫréya*] put him under ground . . . Yeah, he's there now. So, when you go by and then you smell; smell like this. And that'd [be him]. So, he wouldn't come out. So, he settle down [inside the mountain].

Other sacred places like *Saoyúe* that retain the spiritual essence of an ancient transformed being are known as either *yǝ́dıı* or *dǝ́re'oh*. These places are found throughout the Sahtú estate.[39] The Sahtúot'ı̨nę also prophesize that the giant beings from ancient time or *yahnı́e* will return at the end of the world, especially if people stray from the teachings and laws established by *Yámǫréya.* As Charlie stated, "That star tiger up there, he'll come back. And it's gonna come out if you don't take good care of it [the world]."

As *Yámǫréya* continued his journey he invented Sahtúot'ı̨nę technology, transformed flora and fauna, and shaped the landscape. In a vivid series of four related stories a family of bears attempts to kill *Yámǫréya* by sending him on a quest to dangerous places to obtain materials for making arrows. He characteristically perseveres through each obstacle, procuring feathers from a giant eagle, sinew from a giant caribou, flint/obsidian from a giant frog, and spruce pitch from the transformed snot of wolverines. Accordingly, the completed arrow and

[39] See Tatti (2015) for a detailed discussion on *yǝ́dıı* and Sahtúot'ı̨nę spirituality more broadly. Cf. Basso (1978, 696-697), Andrews et al. (2007, 308), and Heine et al. (2007, 12-15) for analogous concepts identified as *yareıdı* in Willow Lake Slavey, *weyuduı* in Tłı̨chǫ, and *chijuudiee* in Gwichyaa Gwich'in, respectively.

each of its raw components corresponds to a bright star: *k'ı́t'a* ('feather,' α Tau), *kw'ǝ́* ('sinew,' β Ori), *k'ı̨dáre* ('arrowhead,' α CMa), *ts'ı dzéh* ('spruce pitch,' α Ori), and *k'ı́* ('arrow,' α Aur).

The bear is also the last animal that *Yámǫréya* returned to live with, suggesting its great power as a dreamer and hunter that required *Yámǫréya*'s full acquisition of knowledge and power to overcome or "settle". Throughout the Northern Dene region, bears are often referred to with a circumlocution such as "old man" or "grandfather" and are not overtly spoken about while they hibernate out of respect that they might hear people in their dreams and remember them in springtime.[40] Like the brothers' initial dreaming in the bush, establishing a "magical tie" to something is accomplished by dreaming about it many times, thereby gaining its knowledge. Charlie commented on this process:

> Like one person . . . he was a magical tie to fish. So, every bone, he dream about it. And then in the next bone, what is it, he dream about it. And then all of the scale; every scale. There are hundreds of scale. They're each [a] dream. He dream about it in a vision. And then he goes, and goes, and goes until he had a full knowledge of just one thing.

In the final episode of the story cycle, *Yámǫréya* and *Yámǫhga* met at a cliff in the Ramparts near Fort Good Hope after having spent their lives transforming the world. Their reunion was not, however, conciliatory as *Yámǫhga* intended to kill *Yámǫréya* out of jealousy for his superior courage and power. Just when *Yámǫhga* thought he had his younger brother trapped at the cliff, *Yámǫréya* placed his hands and feet through the rock face like ascending steps. Charlie said:

[40] Cf. Hallowell (1926).

Yámǫhgá was a little bit jealous about his brother, *Yámǫréya*. So, he try to get rid of his brother. But his brother was so brave. So, you won't get caught on him. But he always escape from him. So, he love him. He love *Yámǫhgá*. He love his brother, so he try to get away from him. But he's (*Yámǫhgá*) really angry. He was a little jealous, so he chase *Yámǫréya*. And *Yámǫréya* came around a rock cliff; really high mountain. He ran into the corner of the cliff and he really sure that he caught *Yámǫréya* because he had no place to go. So, when he got there and then he saw *Yámǫréya* put his hand right through the rock. And he make a step through the rock. That rock's still there today. And here *Yámǫhgá* couldn't do that.

Yámǫréya continued climbing to the sky where his spirit incarnated in the stars as a protector, teacher, gamekeeper, and distributor of embodied knowledge and power. In contrast to the Gwich'in and Ahtna systems, Charlie emphasized that the entire *Yámǫréya* story cycle began "recording" in the stars as the events unfolded and that it is all sitting in the sky waiting to be read. In other words, the stars are *Yámǫréya*'s stored experiences of the world's transformation, left for other observant people to find, read, and know. Charlie explained:

> They place all this, like [what they learned] is still up there. . . *Yámǫréya* did that. So, he get rid of all the giant, all these dinosaurs [*náhʔáacho/gocho*]. And that is all recording up there . . . When I had my tent out and look up at the sky, it just full of star. Just full of star and my dad told me don't look up there too much; because of all this. *Yámǫréya* settle everything. Settle everything and they're recording up there. So, all these stories, these are all his story. Story will be sitting there [in the stars].

After nearly two hours of stories, we all stepped outside the Prophet's House to take a break. Charlie lit a cigarette and motioned up towards the stars in the north pointing out the Big Dipper and the Traveler's outline. The constellation itself is called *Yámǫréya* and is composed of at least 11 groups of stars named using body part terminology. The Big Dipper is his container or cooking vessel identified as *Yíhda* or sometimes *lıbóchə́*.[41] The Milky Way is his trail known by the unpossessed forms, *télu*/*tǫlu* or the indefinite, *ʔetene*. Aside from the Big Dipper, the *Yámǫréya* constellation is composed of relatively inconspicuous stars suggesting a specialized domain of knowledge. In comparison to the Gwich'in and Ahtna whole-sky constellations, *Yámǫréya* is less than half their size, spanning just over 64°. Nonetheless, the collective assemblage of named and unnamed stars remains unified in the *Yámǫréya* story cycle. In addition, the star Altair (α Aql), known as *sak'énaáʔa* ('that which rises after the sun'), is described as a "spirit that appears in many forms" and may be conceptually related to *Yámǫréya* as any spirit rising towards him as found in the Gwich'in system. *Sak'énaáʔa* appears as a morning star around the winter solstice but is also known as *sak'éeda* ('it goes down after the sun') when seen in the evening sky in autumn "when the animals are fat." The later description seems to refer to a spirit that is sent back to earth in a new incarnation, particularly as an animal in autumn. In addition, Arcturus (α Boo) is also referred to as a "morning star" called *bek'éahka* ('it makes light/whiteness after it'), which is used as a clock in conjunction with the handle of the Big Dipper. A list of Sahtúot'ıné star names is shown in Table 4 accompanied by a detailed view of the *Yámǫréya* constellation (Figure 13) and a whole-sky perspective of the stars identified by elders in Délıné (Figure 14).

[41] The collective constellation is occasionally referred to as *Yíhda*. However, Charlie generally reserves this name for the Big Dipper, while referring to the collective constellation as *Yámǫréya*. *Lıbóchə́* is a calque from the French for 'ladle' or 'dipper'.

Table 4. Identification of asterisms in the Sahtúot'ı̨nę constellation, *Yámǫréya*/*Yíhda* and other conceptually related stars and constellations. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.

Asterism	**Translation**	**Stars**
1. ʔı́hts'ę́ belá	his left hand	24 Leo (Rasalas), 17 Leo (Algenubi)
2. są́ą belá	his right hand	ζ UMa (Mizar)
3. ʔı́hts'ę́ bekw'oné	his left leg	ζ Leo (Adhafera), 41 Leo (Algieba), η Leo (Al Jabhah), α Leo (Regulus)
4. są́ą bekw'oné	his right leg	ν UMa (Alula Borealis), ξ UMa (Alula Australis), 72 Leo (Zubrah), δ Leo (Zosma), θ Leo (Chertan)
5. bekwí	his head	θ UMa (Alhaud V), φ UMa (Alhaud VII), υ UMa (Alhaud VI), 23 UMa (Alhaud IV), τ UMa (Alhaud II), 4 UMa (Althiba III), ο UMa (Muscida), 15 UMa (Alhaud I)
6. bezhı́ı̨, bezhıne	his torso	ψ UMa, ν UMa (Alula Borealis), 37 LMi, 21 LMi, HIP 47029
7. ʔedzə́	something's heart	λ UMa (Tania Borealis)
8. ʔı́hts'ę́ bekə	his left foot	α Leo (Regulus), ο Leo (Subra)
9. są́ą bekə	his right foot	θ Leo (Chertan), β Leo
10. ʔı́hts'ę́ begwóné	his left arm	ι UMa (Talitha), κ UMa (Alkaphrah), 10 UMa, HIP 44700, 38 Lyn, α Lyn
11. są́ą begwóné	his right arm	ψ UMa, χ UMa (Taiyangshou), 5 CVn
12. lıbóchə́	ladle	calque term for Big Dipper (in Ursa Major); *Yámǫréya's* cooking vessel, also called *Yíhda*
13. télu/tǫlu, ʔetene	trail	Milky Way Galaxy
14. ʔemǫ́ǫhdzí	(archaic)	an unidentified constellation of an ancient Tiger-like figure
15. k'ı́	arrow	α Aur (Capella)
16. k'ı́t'a	feather of arrow	α Tau (Aldebaran)
17. dzéh	spruce pitch	α Ori (Betelgeuse)
18. kw'ə́	sinew	β Ori (Rigel)
19. k'ı̨dáre	arrowhead	α CMa (Sirius)
20. sak'énaáʔa	the (star) that rises after the sun	α Aql (Altair) Name used during its morning appearance after the winter solstice
sak'éeda	it goes down after the sun	α Aql (Altair) Name used during its evening appearance in autumn when the "animals are fat"
21. bek'éahka	it makes light/whiteness after it	α Boo (Arcturus)
bek'énaehka	it makes light/whiteness again after it	(variation)

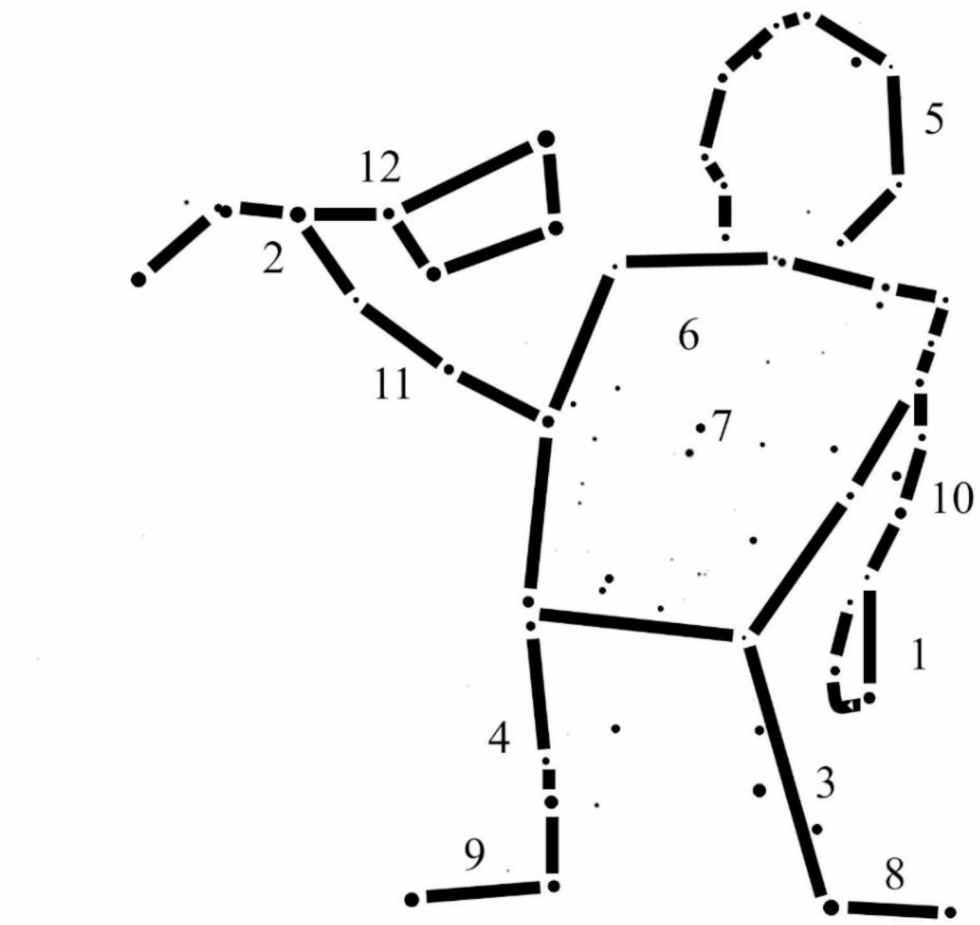

Figure 13. Star and stick diagram of the *Yámǫréya* constellation identified by Charlie Neyelle of Délı̨nę, N.W.T. Numbers (1-12) correspond to asterism names listed in Table 4.

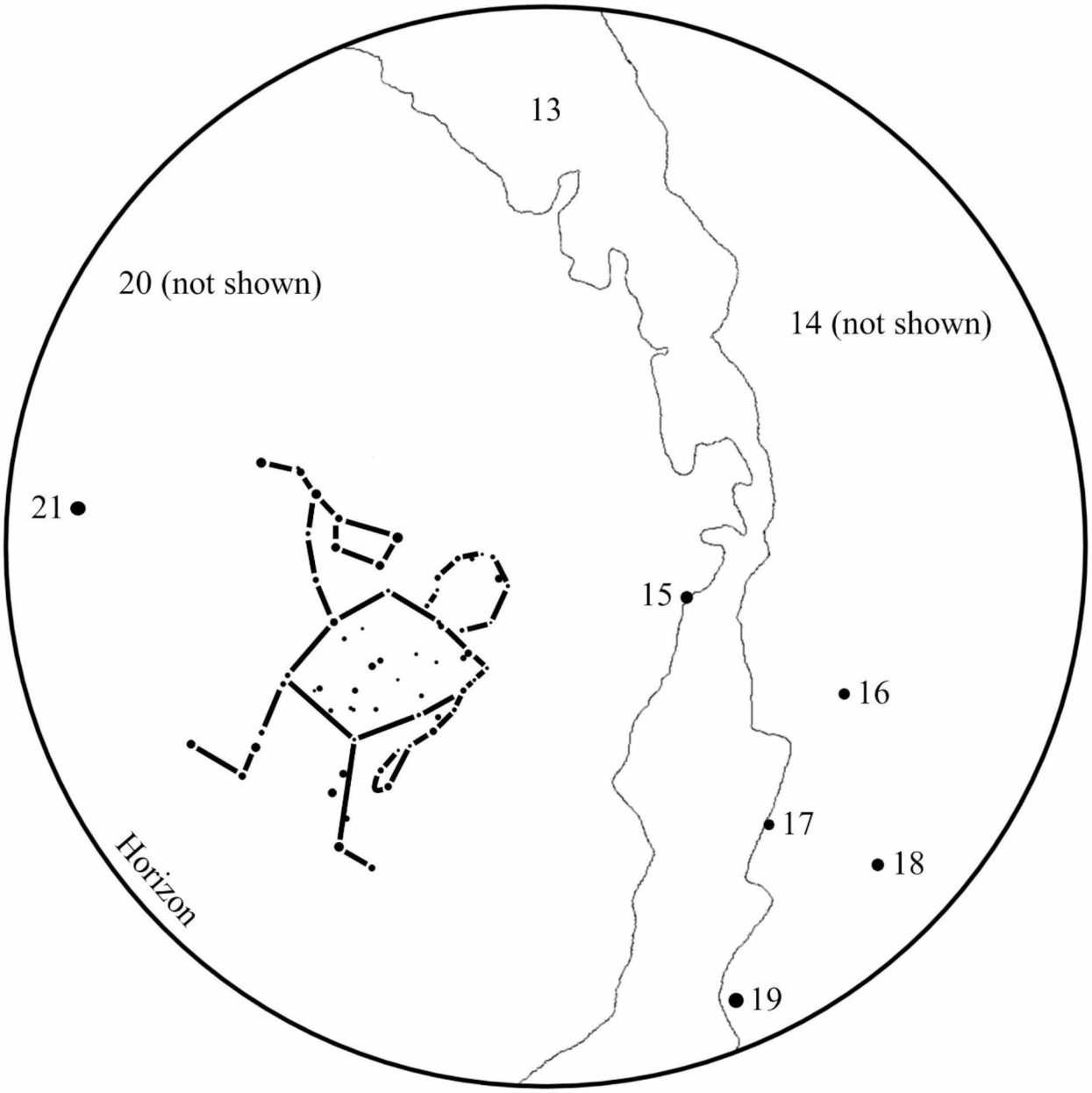

Figure 14. A whole-sky perspective of Sahtúot'ı̨nę stars and constellations as seen from Dél̨nę, N.W.T. on January 20, 2019 at 22:30 local time. Zenith lies at the center of the circle. Numbers (13-21) correspond to star and constellation names in Table 4.

When we came back inside after our break Charlie began sketching *Yámǫ́réya*'s humanlike image in the stars holding the Big Dipper, or *Yíhda*. He completed the sketch by drawing a braided pattern above the Big Dipper, where each of the three strands corresponds to the collective flora and fauna of the water, land, and sky that *Yámǫ́réya* "settled" while

transforming the world.[42] The spirits or souls of these beings reside in a celestial realm with *Yámǫréya* known as *yakachı̨né* and are signified by the vast assemblage of unnamed stars (dots on the braided strands), all flowing into the Big Dipper which also contains the element of fire (Figure 15).[43] *Yámǫréya* distributes these flora and fauna to those who live according to Dene ways of knowing and being (*Dene ts'ı̨lı̨*) and honor the laws, teachings, protocols, and ancient contracts that he made with each of his transformed subjects. *Yámǫréya* is conceptualized as standing in his house or leant-to (*ts'umǫ́hkǫ́*), which is the universe itself.

[42] The late Dane-zaa "dreamer," Charlie Yahey, similarly identified the Big Dipper as a large "kettle" made by "Sky Keeper" (Ridington and Ridington 2013, 13-19). Notably, Yahey stated: "If the big kettle goes wrong, it is going to be the end of the world . . . He [Sky Keeper] made the big kettle. He made how it goes around in the sky (ibid., 18)."

[43] Tatti (2015, 39-43) provides a detailed description of *Yakachı̨né* independent of *Yámǫréya* and the stars. In particular, she (ibid., 39) states, "We have discussed how *hı̨də nę́nę́*, the upper world, and *edırı nę́nę́*, the now world, exist as two dimensions connected to each other. What separates a person in *edırı nę́nę́* [the now world] from *hı̨də nę́nę́* [the upper world] is '*henęrı̨dí*,' a deeper level of awareness that enables a person to see and hear the living beings of *hı̨də nę́nę́*. . . My father said that *Yakachı̨né* is a world belonging exclusively to the animals. It is said by the elders that one day all the animals in *edırı nę́nę́* will return to their world. It is said that the animals who give themselves freely to us for our survival are always watching us to observe how they are treated. If they are unhappy and dissatisfied with the way we treat them, they can return to *Yakachı̨né* from where they will never return to *edırı nę́nę́* and we will never see them again." In addition, she states, ". . . medicine power people were the last of our people who had the knowledge and ability to go to the animal world of *Yakachı̨né,* the *hı̨də nę́nę́*, reserved exclusively for the *bets'ı̨né*, the spirit of living beings of the animals. This other aspect of *hı̨də nę́nę́*, the animal world of *Yakachı̨né,* reserved only for the *bets'ı̨né* of the animals, is one more source of Sahtúgot'ı̨nę spirituality. The fact that the animals could leave us, leave *edırı nę́nę́*, forever, reminds us of how dependent we are on the animals and how we must respect their *bets'ı̨né*, obey our laws and be effective stewards of the land in order for us to retain the essence of being Sahtúgot'ı̨nę. Our worldview, our culture, our spirituality, even the richness of our language are tied directly to our traditional lands and the animals. We are the weak people in *edırı nę́nę́*, dependent on the land and animals who committed themselves so long ago to helping us to survive. When my father spoke of the land, the animals, *hı̨də nę́nę́* and *Yakachı̨né,* he spoke with much humility. Our Elders tell us that we must never forget our place in this world and we must never abandon humility (ibid., 42-43)."

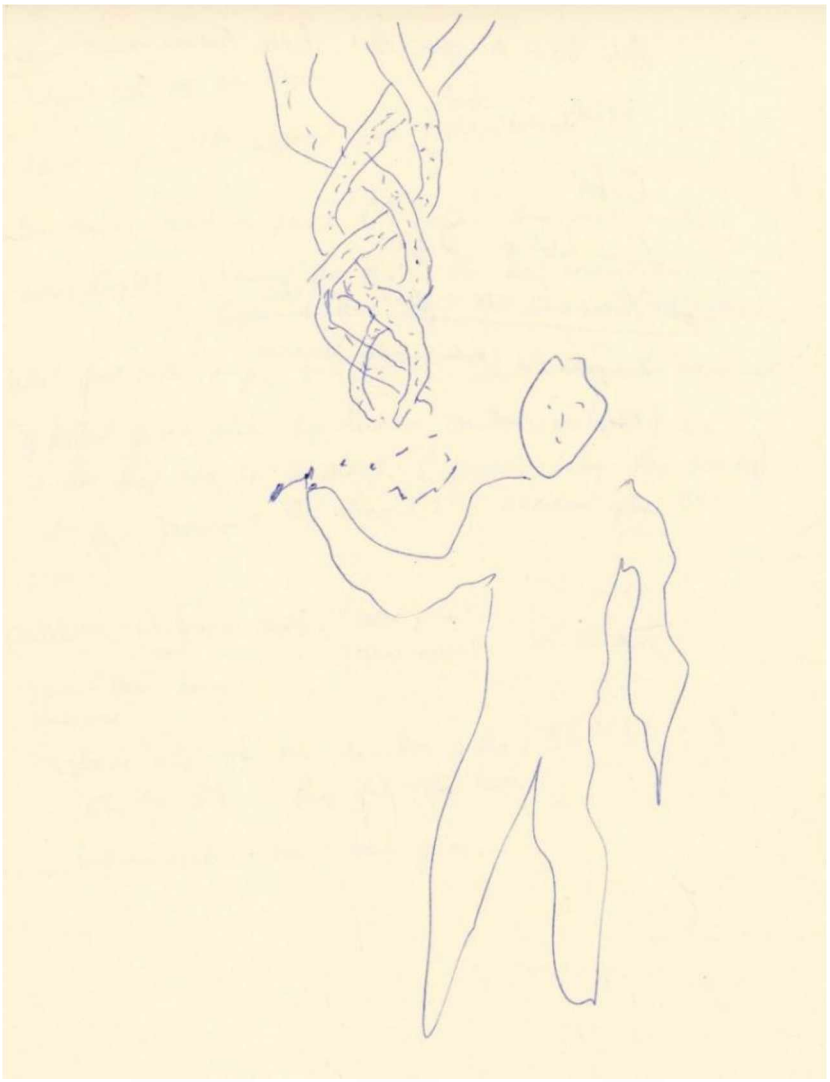

Figure 15. A sketch of the *Yámǫréya* constellation made by Charlie Neyelle. The collective flora and fauna of the water, land, and sky are depicted by each of the three strands flowing into *Yámǫréya's* cooking vessel or container (Big Dipper). These flora and fauna are conceptualized as the vast assemblage of unnamed stars.

As with the Gwich'in and Ahtna constellations, the Traveler's role as a gamekeeper and provider is equally pronounced in the Sahtúot'ı̨nę system. Charlie explained:

> He fix everything. And it's all being recorded. There's all that star up there. It's there. And Dippers. This Dipper, sometime there's no food all over the world; famine. This will [happen] once in awhile; goes on and off, on and off. So for that reason, he set up the Dipper up there. So whenever he (people) had no food, he

pay a respect; they pay a respect cause there's no food. But he ask him to give you some food and then he will give you [some]. So, this Dipper was sitting up there. . . *Yámǫréya*, he said, 'In the future you will see my Dipper. You will see my *Yíhda*.' He said, 'I will be there holding it.' When anybody ask him about anything and then the Dippers, they come down [to give animals/food to people].

Yámǫréya's role as a gamekeeper is further elucidated in a story where he gives the animals all their fat at *Tugǫ́ Tué* (Keller Lake) after he had incarnated in the stars.[44] In addition, the exclamation, *Yíhda ʔajá* ('*Yíhda* happened'), is used to express a premonition of hunting or fishing luck, such as when a stone is found in the stomach of a lake trout or when a snowshoe hare is snared by a hind leg.

Although I did not explore the spirituality of *Yámǫréya* in depth until I my second trip to Délı̨nę in November 2019, Charlie had subtly mentioned that it is our own heart that few people are lucky enough to search for and discover among the stars. He stated, "It's pretty hard to see it, but it's there." I did not quite understand what he meant by discovering one's own heart and continued thinking about it during the intervening year while working in other Dene communities in Alaska. When I returned to Délı̨nę the following year, I deliberately approached the visit without an agenda or plan to allow for emergent experiences and relationships to guide our work. As we continued our discussions, Charlie and Mandy recognizing that I could not fully appreciate or understand the meaning of Dene astronomical knowledge without feeling and experiencing spirituality in everyday life. They both confronted me to look within myself to understand and search for a deeper meaning without settling for a passive learning approach. Mandy encouraged me to engage with spiritual places that she showed me in and around the

[44] See Fletcher and Neyelle (2019, 9-11) for a variation of the story that I heard from Charlie.

community while Charlie deconstructed the Sahtúot'ı̨nę concepts, *dene goyá* ('wisdom'), *dene dzə́* ('heart'), and *dene dayíné* ('spirit/soul'). He said that we cannot understand what is in the stars until these things come together in a meaningful way within ourselves.

Charlie explained that the world works on us "from the outside in" but to know ourselves we must work "from the inside out." As explained in the Ahtna section, the internal balance of one's thoughts, emotions, experiences, knowledge, and well-being manifest outwardly, thereby affecting one's relationship with world and others around them. Charlie continued by diagraming seven parts of the human spirit and explained that wisdom, heart, and spirit unite as the "heart" or "soul". He clarified that this is not an anatomical heart. Rather, it is a non-physical entity that sits inside each person just above his or her belly button. The heart or soul "belongs to the Creator" and transcends from one life to the next without dying with the physical body. It is a "gift for us to use" and contains everything an individual has ever known, felt, and experienced in his or her present and past lives.

In the Sahtúot'ı̨nę system, *Yámǫréya*'s heart is explicitly referred to in the indefinite form, *ʔedzə́* ('something's heart'), as it is the embodiment of the world's collective soul. *Yámǫréya* worked with all things and therefore embodied the knowledge, experiences, emotions, and spiritual essence (heart/soul) of all things, which he projects or animates back to the universe. Those who discover *ʔedzə́* have also discovered themselves as an ancient and connected part of the world while also finding a life teacher, guardian, ally, and provider who will guide them in their human journey along the trail that he blazed that leads their spirit home. To paraphrase, Mandy explained, "All people have a spirit that's old and ancient and when you start waking up your own spirit you begin to see and experience this ancient connection to the world that your spirit has always known." She added:

> . . . you'll start seeing that these things are there and that's it's easy for you. You connect. You have that ability to transform and become yourselves. That's what's really powerful about this story about *Yámǫréya*, he was a transformer. He transformed things. But he's also telling you that as Dene people you have the power to transform. He's telling you. He's giving you the instructions of how to do that.

Mandy succinctly summarized this deep spiritual connection to all things by stating that, "The world is us, just as we are the world. We reincarnate until we are whole." Another Sahtúot'ı̨nę̨ speaker explained that if one is not in touch with their own soul as an ancient and connected part of the world then they will "never feel compassion." These concepts are underscored by *Yámǫréya*'s embodiment of all things during his ancient journey around the world, which is often interpreted as an archetype of the vision quest and model for seeking, gaining, and using knowledge and power. The vision quest is a rite of passage that prepares a young man for adulthood and his spiritual journey by rooting him as a person.[45] The essential part is to become oneself more completely by recapturing and embodying all the objects, beings, and forces of one's past incarnations. Although rites of passage are not typically discussed, Arsenne Betsidea, described some of his experiences of the vision quest for the benefit of others to learn. He explained:

> It's (vision quest) everything in one; all rolled into one. It's basically your hunting skills, having the courage, having the trait. Basically, being brave, spiritually and physically and that you gotta find that and sense that you're with nature. You've

[45] A woman's rite of passage similarly roots her as a person and prepares her for her role in Dene society. However, women are considered to have more inherent power than men as producers or givers of life and do not have to seek it during their rite of passage. Nonetheless, women also grow into and recognize their spiritual gifts and helpers over time.

gotta absorb everything that it throws at you or she throws at you . . . Prior to this (Catholicism) people believed in reincarnation. *Naídzedlı* ('s/he comes back again in his/her heart'), that's what they call it.[46] And you're not only reincarnated from one person to the next, but from any one of the forces of nature; a bug, a bird, or any kind of animal. You're them first. You're that first. You're a wind, you're maybe a little piece of grass, or a little grasshopper; whatever the case may be. The final thing to do before you ascend to the heavens is that you gotta absorb all this back as a human. So, you get to dream about that as you're finding your vision quest. So, back in the day maybe I was a little dragonfly, so I absorb the power of the dragon fly as I go through my vision quest. Once I got it, now I got it back. Now, it's time for the next one. Then you kind of learn this as you go along. Try to get all the spiritual connection, all the creatures or the forces of life that you were before. You're getting that all back. That's what builds you up.

Because the way I was taught [was] that only humans can ascend to the heavens.[47] But these spiritual parts of you also get to ascend. So, if you were a ladybug back then, you take the ladybug spirit with you. You take all the food that you ate with you. All the water that you drank with you. All your feelings go with you up into the heavens. That's why they teach us that. That's why you go for your vision quest. It's to get back what you were before. Without that, then it's hard for us to ascend . . . it's all your memories. That's all you. That's how we respect nature. There's so much, cause we gain it back. We get it back. Because we're not always going to be human. We are eventually going to reach our

[46] Perhaps more commonly known as *nadlı* ('to be again'), a cognate to Gwich'in *nehdlįį*.
[47] Heaven is referred to as *Yak'ə* and is distinctly different than *Yakachįnę́*, the realm of animal souls.

> ancestors, but we take everything that we ever done in our life with us. That's why our ancestors were very strict of us having too much clothes on or having too much worldly belongings. Try and go with less. That way you don't have to worry so much about whatever you're going to leave behind . . . They don't want you to pack a heavy backpack when you go.[48] So, that's another reason when we do ascend, and we do the fire feeding. So, that gives a sense that we respected our elders . . . We respected their teaching and everything they ever gave us, and we give back to them by feeding the fire.[49]

These perspectives not only underscore basic tenets of Dene worldview, but they also share a deeper understanding of Dene concepts of "individual," "self," and "personhood" entrenched in an ancient relationship with the universe and an ancient connection to the Traveler. *Yámǫréya*'s enduring presence on the land and in the sky relates to many different aspects of knowing and being Dene while simultaneously representing everything at once, all connected through the ages of time. The Traveler is a holistic framework of knowledge, beliefs, and practices that encompasses cosmology, society and culture, worldview, self, and spirituality. Immersion into these systems of astronomical knowledge is based on a heuristic learning process where meanings and connections unfold gradually and deepen with time. It is this seemingly infinite capacity to continue teaching, edifying, and reflecting on self, society, and universe that is the driving power behind the Dene Traveler on the land and in the sky.

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[48] "Go with a light backpack" is a Sahtúot'ı̨nę adage, also mentioned in the Gwich'in section, that reminds people that too many material possessions will keep their soul tied to earth. A goal in life is leave with an empty backpack.
[49] "Feeding the fire" is a ritual known as *kǫ́ ghąts'erı̨dı̨* where food (sometimes accompanied with tobacco and prayers written on paper) is placed in a fire as an offering to ancestors and late family members. One community member explained that this ritual grew from the simpler and more widespread practice of offering food to the fire at camps when it made a distinctive hissing or popping sound described by the onomatopoeic word, *tl'ıı*.

Like *Yámǫréya*'s heart, his Milky Way trail is also referred to in the indefinite (*ɔetene*) or unpossessed (*télu/tǫlú*) forms, given that it is the people's path (*dene tǫlú*) to follow. *Dene tǫlú* is also a metaphor for living in accordance with the Dene laws, teachings, and protocols that keep the world balanced. While oral stories about the Traveler's land-based journey provide tangible social and cosmological teachings that frame this learning process, it is through finding oneself and relating to the universe as an ancient part of it that one discovers the immutable presence of the Traveler in the sky and a greater cosmology. As such, the Traveler's transformation from the land to the sky completes an epistemology for knowing, being and relating to the universe and its inhabitants in all modes and transformations of life and spirit.

At the end of my second trip to Délı̨né I asked Charlie how he felt about sharing this huge system of knowledge. He replied that there are no secrets in this world and that all truths are out there already. With respect to *Yámǫréya*'s teachings he said, "There is a universal law that they [humanity] need to follow. So, the universal law is all right there, we see it [on the land and in the sky]." Before I left Délı̨né I was gifted a caribou hide drum (*əghəle*) wrapped in a canvas bush bag to help me connect and write my dissertation from the heart with vision (see Appendix A). In addition, my teachers in Délı̨nę criticized that because researchers are so conditioned to think that they can know and rationalize the world through their minds that they forget, or more tragically, never learn to know and understand the world through their own ancient heart and emotions. In part, this criticism is levied at those who do not allow themselves to share in the humanity and vulnerability of research. To a certain degree, this requires letting down one's guard and ethnocentric comfort to permit oneself to be authentically open to the experiences and realities of one's hosts and teachers (cf. Goulet and Miller 2007).

Together with my Gwich'in, Ahtna, and Sahtúot'ı̨nę mentors, we invested in creating the long-term contexts and experiences necessary to learn from one another in an advanced, open, and meaningful way that was built on relationships that transcended the field site. As such, I interpret my immersion into these knowledge systems as a joint venture in search of knowledge and a shared part of the human experience; a deeper understanding of self, others, the spiritual journey, and a more meaningful relationship with the world.

Although I did not expect to return to Délı̨nę so soon, I was invited to attend an in-house workshop in March 2020 that explored *Yámǫ́rérya* as a holistic framework for knowing and being Dene (*dene ts'ı̨lı̨*). The four-day workshop focused on healing, wellness, and *ʔedenats'erı̨dí* ('to come into spiritual awareness of oneself') by reconnecting with the natural world. Through our collective experiences, our small group composed of elders, facilitators, and young adults explored who *Yámǫ́rérya* is and how he integrates with the teachings of the Délı̨nę prophets and Catholicism as overlapping and supporting parts of Sahtúot'ı̨nę religion and spirituality. On the significance of *Yámǫ́réya* as a model to transform oneself and relate to the world as an ancient and connected part of it, Mandy simply said: "The balance of the world depends on it."

Other Examples from this Study

Variations of the astronomical knowledge so far presented are found throughout the Northern Dene region. Although completely different conceptualizations localized to places not yet investigated are plausible, these results suggest a larger pattern, both in terms of stellar nomenclature based on the body part metaphor and on the association of this knowledge with the Dene Traveler and the events of Distant Time. While this research is admittedly skewed towards Alaska and the Northwest Territories, we (Dene culture bearers and research partners) have

confirmed humanoid or therianthrope constellations of varying size in 11 of the 12 Northern Dene groups investigated to date; all of which were previously glossed in linguistic sources as just the Big Dipper or Ursa Major. In the following sections I provide abbreviated descriptions of humanoid constellations in eight other Dene ethnolinguistic groups beginning with Lower Tanana.

The Lower Tanana Constellation, *Nogheyoli*

David Engles, who learned about the stars from his grandfather, Neal Charlie Sr., of Minto Alaska, identified *Nogheyoli* ('the one who continuously walks') as a whole-sky constellation associated with the Traveler, *Ch'etitadhkanenh* ('the one who started paddling among things'), or the giant figure, *Yochwx* ('big sky').[50] In either case, both figures overlap as analogous, and sometimes interchangeable, transformers of the world.[51] Although David grew up with the stories and teachings of *Ch'etitadhkanenh* and *Yochwx*, a close relationship to his grandfather during his late teenage years led to his immersion in Lower Tanana astronomical knowledge. David said:

> Towards the end of high school in 1999 my grandfather and I had a very close relationship. This was my father's father [Neal Charlie Sr.], and he saw something in me. And he recognized that I had a genuine interest and love of our language. And at that time, I felt like I was ready to take my awareness and knowledge to the next level. So, I had asked him about constellations in the stars.

[50] David's contributions are significant given that he was 38 years-old at the time of our work, by far the youngest person I met who learned details of the Traveler constellation, demonstrating that this knowledge has been passed on to a younger generation.

[51] The word, *Nogheyoli*, is first attested in Wickersham (1903), glossed simply as Polaris, whereas he glossed *Ten-nā-gā-chet-tsun* [*denak'e ch'esen'*] ('star that is upon us') as the Big Dipper. When using English, David's grandfather referred to the Traveler as Noah given its prominence in an ancient flood story that the Dene often relate to the Biblical story of Noah. Similar references to the Dene Traveler as "Noah" are found in Anna Birgitta Rooth's (1971) collection of stories and transcripts from Alaska.

Like my own experience learning Gwich'in stellar knowledge from Paul Herbert, David's education about the night sky with his grandfather was contingent on locating an unidentified dim red star. David explained:

> Before I could go on with what my grandfather was teaching, he took me out that night and told me, 'There's a little red one (star) up there. If you find that little red one, then I'll tell you more. Although, you're not going to be able to see it.' And he was right at first. It took me a little while. It took me a couple weeks. Because I was adamant about finding it . . . Like many other people my age, I grew up underneath the dark winter sky. I know where the stars are. I've seen them my whole life. And to not notice something that's kind of little and red and faint for eighteen years above you is – that's why it only took me a couple weeks. Because I had been staring at those stars for my whole life; and for him just to say it the way he did. He did give me a hint. That was the only thing. He told me to look above the Big Dipper. Because he's my grandpa, he probably had some compassion and he probably didn't want me to struggle and so he gave me an extra clue.

As David discovered, the "little red one" is *Nogheyoli*'s heart or *bedraya'* (21 Lyn), the embodiment of all things that the Traveler worked with while transforming the world.[52] The constellation itself closely corresponds to the Gwich'in and Ahtna whole-sky conceptualizations as a person transforming into a man-animal figure. David emphasized, ". . . these stars [are] somebody who is alive. Not an inanimate object. Not an animal. These are referred to as a live

[52] Again, the description of the Traveler's heart (21 Lyn) as a "red star" is metaphorical as this is a 4.6 magnitude star (color index: B-V:0.00). In comparison, the heart of the Gwich'in and Ahtna Traveler (27 Lyn) is a 4.8 magnitude star (color index: B-V = .04) located about seven degrees from 21 Lyn.

person." *Nogheyoli* spans approximately 117 degrees and is composed of at least 25 groups of stars, of which 22 are named using body-part terminology. *Nogheyoli* also wears a backpack (*beghala'*) and clenches a spear/walking stick/medicine staff (*bedechena'*) in his left hand. The Milky Way is *betena,* his trail. *Nogheyoli* is also remarkable for its finer details, such as the five dim stars that outline his hair (*begho'*) and the subdivision of his right hand into smaller groups of stars that delineate his palm (*belok'a*), fingers (*belots'ula'*), and thumb (*belocheth*). Likewise, his left foot is composed to two smaller groups that distinguish his toes (*bekalats'ula'*) and heel (*bekatwtl*) (Table 5; Figure 16).

Table 5. Identification of asterisms in the Lower Tanana whole-sky constellation, *Nogheyoli*. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.

Asterism	Translation	Stars
1. becha'	his tail	Big Dipper (in Ursa Major)
2. tl'egheyh ts'ena' belo'	his left hand	δ Hya (Minizal I), η Hya (Minizal II), ε Hya (Minizal III), ρ Hya (Minizal IV), ζ Hya (Minizal V), σ Hya (Minchir)
3. xwzrunh ts'ena' belo'	his right hand	The combined stars in his palm, fingers, and thumb (see below)
4. belok'a	his palm	γ Cas (Navi)
5. belots'ula'	his fingers	β Cas (Caph) [little finger], α Cas (Shedar) [ring finger], η Cas (Achird), ζ Cas (Fulu) [middle finger], θ Cas (Marfak) [index finger]
6. belochetth	his thumb	δ Cas (Ruchbah)
7. tl'egheyh ts'ena' beka'	his left foot	The combined stars in his toes and heel (see below)
8. bekalats'ula'	his toes (of left foot)	δ Leo (Zosma) [big toe], θ Leo (Chertan) [middle toe], ι Leo [little toe]
9. bekatwtl	his heel (of left foot)	β Leo (Denebola)
10. xwzrunh ts'ena' beka'	his right foot	β Dra (Rastaban), γ Dra (Eltanin)
11. bezrek	his body/torso	ι UMa (Talitha), κ UMa (Alkaphrah), θ UMa (Alhaud V), h UMa (Alhaud IV), o UMa (Muscida)
12. bedraya'	his heart	21 Lyn
13. beghala'	his pack	α Gem (Castor), β Gem (Pollux), ι Cnc (Zubanah), α Lyn, 38 Lyn, 10 UMa, 31 Lyn (Alsciaukat)
14. bedechena'	his staff	The stars in a line between λ Gem, β Cnc (Al Tarf), and α Hya (Alphard)
15. tl'egheyh ts'ena' bedroda'	his left leg	ψ UMa, ν UMa (Alula Borealis), ξ UMa (Alula Australis)
16. xwzrunh ts'ena' bedroda'	his right leg	λ Dra (Giausar), κ Dra, β UMi (Kochab), γ UMi (Pherkad), ζ Dra (Aldhibah)
17. begwt	his knee (of right leg)	β UMi (Kochab), γ UMi (Pherkad)
18. tl'egheyh ts'ena' bego	his left arm	β Gem (Pollux), γ Cnc (Asellus Borealis), δ Cnc (Asellus Australis)
19. xwzrunh ts'ena' bego	his right arm	δ Aur, β Cam, HIP17884, ε Cas (Segin)
20. bets'es	his (right) elbow	HIP17884
21. bentsiyh	his nose	Messier Object 45 (Pleiades)
22. benagha'	his eyes	ι Aur (Hassaleh), β Tau (Elnath)
23. tl'egheyh ts'ena' bedzegha'	his left ear	η Gem (Propus), μ Gem (Tejat), ν Gem (Nucatai)

Table 5. Continued

24. xwzrunh ts'ena' bedzegha'	his right ear	ζ Tau (Tianguan)
25. begho'	his hair	ψ2 Aur (Dolones III), ψ7 Aur (Dolones VII), ψ10 Aur (Dolones X), ψ4 Aur (Dolones IV), ψ5 Aur (Dolones V)
26. betena	his trail	Milky Way Galaxy

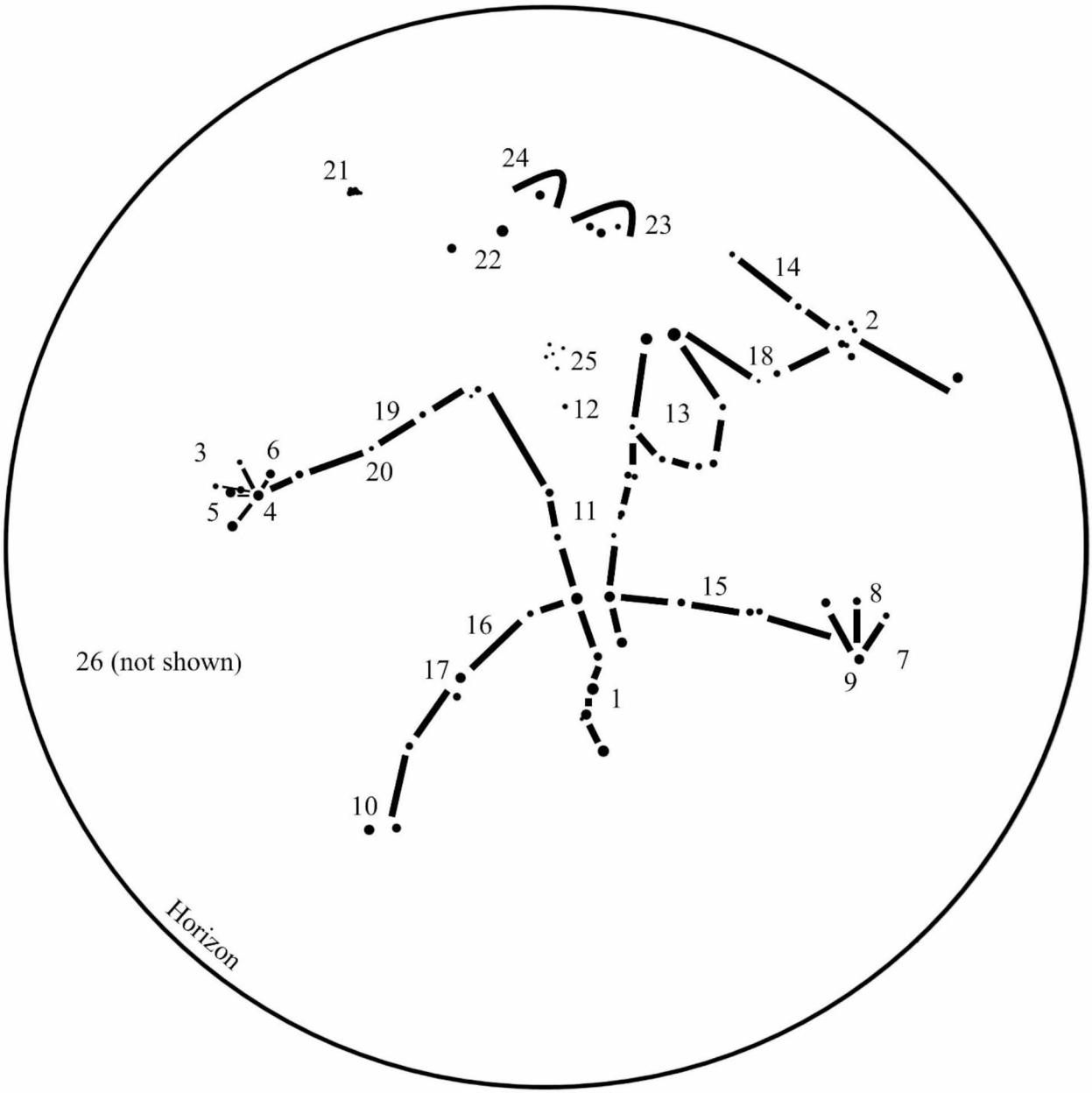

Figure 16. Identification of asterisms in the Lower Tanana whole-sky constellation, *Nogheyoli*, as seen from Minto, Alaska on March 20, 2019 at 10:00 pm local time. Zenith lies in the center of the circle. Numbers correspond to those on Table 5.

Nogheyoli is in a defensive posture overhead. His right arm and hand are extended to stave off a malevolent being (unidentified constellation) that escaped transformation while his left leg and foot are braced for better purchase. The toes and heel of his left foot are splayed out like a raptor's open talons, while his right leg and foot are conceptualized as that of a human.

Nogheyoli's left hand is clenched around his spear/walking stick/medicine staff raised in a striking position with his thumb, fingers, and wrist clearly distinguishable in the stars. *Nogheyoli*'s ears are standing upright like that of an alert animal and the Big Dipper is his tail (*becha'*). Although David only referred to the malevolent being as the "the unnamed bad one" he explained that the Traveler/Giant rolled it into the stars to keep it away from people. The sky was the only place large enough for them to continue pursuing one another as seen by the perpetual rotation of stars. David explained:

> In the old-time way we are to follow laws, the laws of the land that were laid down by our Creator. And when the learning period was over for the Creator there remained one who escaped the reform. And the one who escaped that reform is the one who got into it with *Ch'etitadhkanenh* or *Yochwx*, whichever one you want to call him. And what had happened was that evil didn't change like everything else. And that was a remnant from the old times before things were straightened out and before things were thought to be right. That one escaped. And that one ended up fighting with him. And *Ch'etitadhkanenh*, what he did was he went all across the world. *Ch'etitadhkanenh* explored the world and he had taken feathers from everywhere he had gone throughout this world. And he put every single one of those onto *bedechena'* ('his spear/walking stick/medicine staff'). And you could see it right there . . . The feathers. Each star is [a] representation of each feather.
>
> Even these little light ones that you can barely see. And they're all grouped around. That's why his hand looks like it's in a fist, because he's holding that stick. That stick and all those feathers, and all that power were the only thing

> powerful enough to fight with this old demon from previous times. And they got into a fight with one another, *Ch'etitadhkanenh*, *Yochwx*, with that nameless bad one. And what had happened was to keep us people safe and to keep everything that he worked so hard to produce intact, without having to face destruction of the world just by fighting with this demon, *Ch'etitadhkanenh* rolled this demon over into the stars into a safe spot. And from there on out these two have been at each other; or *Ch'etitadhkanenh* or *Yochwx*, however you want to call him, has been defending us from that ever since. And the reason why that constellation is in the stars was to keep us people safe . . . And then the Milky Way is his track, or the tracks from this continual circling protection of us.

Notably, everything that the Traveler worked with while transforming the world is conceptualized as a separate feather attached to his spear/walking stick/medicine staff. In this respect, it is not only his heart that incrementally embodied the spiritual essence and power of all things, but also his weapon.

The group of five dim stars that depict the Traveler's long hair is also significant in that hair and fingernails are considered a living extension of one's soul, knowledge, power, and connection to the land. Trimble Gilbert, a Gwich'in elder from Arctic Village, emphasized this connection by explaining that the *Neets'ąįį* Gwich'in traditionally danced by arching their torsos backwards so that their hair made physical contact with the ground. Gwich'in elders also conceptualize the Gwich'in Traveler constellation, *Yahdii*, as having long hair equated with his power. The Northern Dene in general took great care to burn fallen or trimmed hair and fingernail parings so that they could not be manipulated by another person. A person's spiritual essence is similarly attached or infused in his or her clothing and personal items, which relate to

certain protocols and prohibitions associated with sharing clothing, mixing laundry, stepping over one's shoes or hunting gear, and proper disposal of a deceased person's belongings. In Délı̨nę, one speaker explained that hair cutting was traditionally done only when transitioning between one of four main stages of life or when mourning, which signified new beginnings. Afterwards, people prayed that their hair would grow strong again. Touching someone else's hair without permission is also poor etiquette. Hair must be properly kept and cared for as observed by the scarf hair coverings often worn by elderly Dene women. Elders in the Northwest Territories and parts of Alaska also regularly shared that the spirit of a deceased person must collect its fallen and unburned hair and fingernail parings prior to ascending to heaven. Uncollected hair and fingernail parings may keep one's soul anchored to earth in the same way that excessive crying or mourning for a past loved one may keep his or her spirit from ascending. Concepts related to breath, sneezing, and one's whorl of hair are likewise crucial to understanding Dene concepts of the spirit or soul. These comparative comments are not only intended to emphasize why long hair is salient to the Traveler as a person of power, but also to further deconstruct Northern Dene concepts of spirit, self, and personhood.[53]

As mentioned in previous sections, the Traveler's journey is also imprinted on the land in ways that impart greater legibility to Northern Dene landscapes through culturally constructed meanings and significances.[54] One of the more important and recurring places associated with the Northern Dene Traveler are his places of rest, sometimes referred to as chairs, hunting platforms, or camps.[55] In the Lower Tanana region the Traveler's chair or seat is associated with a rocky outcropping called *Tr'edhdode* ('someone is sitting'). As David learned from his

[53] See Schwartz (1997) for comparative Navajo concepts about the body and personhood.
[54] Cf. Golledge (2003).
[55] Giant beaver dams are other major recurring places tied to the ancient Traveler in both Northern Dene and Algonquian cultures (Cf. Beck 1972).

grandfather, the Traveler rested here while transforming the world.[56] The elevated sides or "armrests" of the outcropping where he sat are two people who were turned to stone for failing to observe traditional laws and protocols. An unidentified lake in the Minto Flats is one of the Traveler's footprints leading to his chair. David explained:

> . . . there is a rock formation that is sitting on the side of the hill. . . if you're a big creator of the world you're going to want to sit down somewhere. And if you're all the way over here in Minto, Alaska – if you just came from Canada you're going to want to sit down. So, to take a break, that's why that's [there] . . . And those two people did something pretty bad to have to be armrests. So, in a way it's to remind us to hold on to the truth and to hold on to the way of life (Figure 17).

[56] Lower Tanana elder, Robert Charlie, referred to this place as *Tr'edhdode* ('someone is sitting') and explained that it marks the pass along a major trail between the Chatanika drainage and Beaver Creek. Although Robert did not mention the Traveler when we visited this place together in September 2016, he said that these rocks are two stone people who are having a conversation and added, "There's always stories behind landmarks like that."

Figure 17. A rock outcropping north of Fairbanks called *Tr'edhdode* ('someone is sitting') identified as the chair of the Lower Tanana Traveler *Ch'etitadhkanenh* or the giant, *Yochwx*.

In comparison, a mountain in the Alaskan Gwich'in region called *Vak'at Daraadii* ('we sit on top of it') is located along a chain of six major lakes, also described as the footprints of the Gwich'in Traveler or Giant figure.[57] Listed successively from south to north across a span of 110 miles (approximately 177 km), these lakes are: *Ohhdik* ('lake on top'), *Dee'inkwal* ('he swallows it whole'), *Ch'ihilii* ('something starts swimming'), *Vandik* ('lake on top'), *Veełuk Jiintsii* ('it has big fish'), and *Van Choo* ('big lake').[58] The Sahtúot'ı̨nę̀ similarly identify *Behdoweǫ́* (Clark Mountain) and *Ts'alehʔéhtę* (Gibson Ridge) as *Yámǫ̀réya*'s seats or places of rest. Yellowknives Dene elders in Dettah and Ndilǫ also described several of the Traveler's seats or "hunting

[57] Cf. Heine et al. (2007, 17).
[58] These lakes correspond to Otig Lake, Tiinkdhul Lake, Chahalie Lake, Vundlik Lake, Big Fish Lake, and Old John Lake, as listed by the U.S. Board on Geographic Names.

platforms" around Great Slave Lake and Artillery Lake that were important places to send young men to have their vision quest.

In addition to certain landscape features, David explained that "goose grass" serves as an important reminder during the summer to follow the laws, teachings, and protocols established by the Traveler:

> Those first people lived any old way they wanted to, and they were just bad. The Creator (i.e., Traveler), recognizing that the morals and ethics that he desired for his people were not being executed. So, what he ended up doing was making the decision to change each and every person from that time. And from there on out anytime you see goose grass, that's a result of people who did not pay attention to the laws.[59] That's a daily reminder in the summertime for us to remember this is what will happen to us if we don't follow what our rules [are]. And the reason why it's goose grass in the summer is because you cannot see the constellations very well in our summertime. And so to serve as a reminder for each and every one of us to uphold and guard the rules that we were given we get to see goose grass in the summer.

Although a relationship between the Lower Tanana Traveler constellation and the morning star could not be confirmed, David described it as a source of luck and strength that children were taught to locate and run towards each morning. David did not learn the name of the morning star or its Western counterpart, but commented:[60]

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[59] Presumably, *Equisetum palustre*, referred to as *xwx guddha'* ('goose's celery') (Kari 2020, 177).
[60] James Kari (2020, 124, 156, 250, 330) provides the following names in Lower Tanana for an unidentified morning star: *Bek'wghw Yiłkoyi* ('according to it, it gets light'), *Sen' Dołt'oli* ('star that carries a flame/light'), *Tsaghał K'adelłt'e'e* ('one that keeps it dark'). Kari (ibid., 162) elicited *Bek'eghw Ełghal* ('the one tracking darkness') as the name of an unidentified evening star.

> All I remember him (David's grandfather) saying was you have to get up and run in the morning. And you have to run that way (towards the morning star) and he pointed towards it. Although, he said there are things that you have to do in addition to it. You do not run downriver. And you don't run, I think it was downhill. And you don't run away from it. That's what he said at the end. Don't run away from it because if you run away from it, you're not going to feel right. So, you have to remember it. You have to look at it every morning when you get up and when you run. And if you feel like in the morning you just can't do it and you just feel lazy, just look at it and you'll get that extra umff that you need . . . Doing the work will get you where you want to go. If you take the shortcut it's not going to be easy getting back. Cause if you go downhill, you've got to come back up.[61]

Again, it is the heuristic process of putting the pieces together for oneself that is central to discovering the Traveler and its relationship to the individual, the society, and the universe, all connected through time. Near the end of our recorded sessions David stated: "I have not spoken about this in about twenty years. I've kept this to myself and I'm just grateful for the opportunity to put back what my grandfather gave me."

The Tanacross Constellation, *Neek'e'elteen*

At ninety-nine years old, the late Tanacross elder, Emma Northway, identified *Neek'e'lteen* ('that which moves following us') as an undelimited humanoid constellation described as a "long man" or giant (presumably *Yaa Chox*) who pushed up the sky in ancient time after crawling beneath it on his worn-out hands and knees. Emma explained:

[61] The morning star is a metaphor and model for proper behaviors and actions.

> Long time ago that man, like this. This ground [and sky], and they were close together. And they said man; I don't know what kind of man is that. Man, he got long arms. He got long, long man. He crawl around under that sky. He crawl around. All this one is all [worn] out, all this thing (the giant's hands and knees). . . . He get mad and he just get up and go all the way up, that thing (sky) where he stop. That's where *Neek'e'elteen* . . . He's the one make that sky go all the way up.

Emma emphasized that although stories about *Neek'e'elteen* are from ancient time or *yaniidą'ą* their similarity to stories and teachings from the Bible make it difficult to separate the indigenous and Biblical elements. Regarding this syncretism Emma said:

> *Neek'e'elteen*, right now it's *Wut'axdįht'eey* (the Christian God). You know, Tanacross? Tanacross people, they say *Wut'axdįht'eey*. *Neek'e'elteen* [is] *Wut'axdįht'eey*. It's not only one village, everybody, they know. They pray for that thing. Not only Tanacross, the other people, they use their own language and they call different, that *Neek'e'elteen*. I don't know. It's, you know, that big guy too, right there and [he] crawl; and some other people too beside and they all mixed up and I don't know . . . *Dendeh shuh*, that's old people. It's not like right now. Right now is different. *Dendeh shuh* [is] long, way back. They don't mix up with white man. They don't mix up with white man. *Dendeh shuh*, that's Indian; old Indian. Right now, white man and Indian, they all mixed up.

In addition, Emma explained that the sky does not look the same as it once did, implying that these changes are the result of human actions and behaviors: "It don't look like long time

ago, how it was [that the] sky used to be. It used to be real nice. Right now, all spoiled up. And we don't know what is up there" (Figure 18).

Figure 18. Emma Northway speaks about the constellation, *Neek'e'elteen*, in July 2014 while sitting beside her daughter, Charlene Cleary.

Although Emma described *Neek'e'elteen* as the well-known giant figure, its broader association with God or Jesus is evocative of the Tanacross Traveler known as *Yaamaagh Telch'eegh* ('the one who went angrily around the edge of the sky') and variants thereof. A second elder from Tanacross verified this connection by stating that the spirit of the Traveler, *Tuumaagh Telch'eegh* ('the one who went angrily around the edge of the water/ocean'), incarnated in the stars after completing his journey around the world as the first *deshen* ('medicine man') and the first person to go on a vision quest. This elder, who wished to remain anonymous, explained that she learned about the Traveler constellation only on the periphery by

spending a lot of time around her grandfather when she young. Although she never learned the names or groups of stars that compose the Traveler constellation, she explained that his heart was something that people formerly strived to discover in the sky. With respect to reading signs about the future from the Big Dipper this elder said: "And there's a meaning, the way it tilts, and the way it sits. There's stories and prediction on if it's tilting too far. Like if it's emptying out, that's not lucky time."

In the final months before completing my dissertation I met with Emma Northway's son, Larry Jonathan, who also described a large constellation of a man that is located somewhere between the Big Dipper and the Pleaides. Although Larry is very familiar with stories about the Traveler, *Yaamaagh Telch'eegh* ('the one who went angrily around the edge of the sky/world'), he described this constellation by telling a morality story about a young man named *Nesdzeek* ('noun-roundish is illuminated'), who is associated with the Boy in the Moon in other Dene languages (see Chapter 6).[62] In any case, the story ends when *Nesdzeek*'s grandmother reaches for him and tears some of the fringe off his clothing while he ascends towards the stars. Crucially, Larry explained that only those who are destined to become leaders will discover his image in the stars. In the final segment of the story, Larry said:

> He (*Nesdzeek*) start going off the ground, up. They see him go up, going up. And they said fringes, like this on his clothing. And he go up and his grandma said, 'Wait!' like that. She tore some of that fringe [off his clothing]. Yeah, and he went up. You see way up, and he end up between Big Dipper and Little Dipper (i.e., Pleiades).[63] And you can see him. He got his arrow, bow and arrow, and that sheath (quiver for arrows). He got that. I don't know where you'll find among the

[62] See, for example, the Upper Tanana story about *Nedzeegn* (David and Lovick 2017).
[63] Speakers of Northern Dene languages regularly use the English phrase "Little Dipper" to refer to the Pleaides.

stars, but just up there. Only thing I heard about that part is only the ones that are going to be a leader will view it, will see it. Yeah, that's how the story go.

The man in the stars holds his bow and arrow in each hand and wears a quiver for arrows over one shoulder. The man's bow, arrow, and quiver are each unidentified star groups called, *dzeht'įį'* ('bow'), *k'á'* ('arrow'), and *k'aath* ('quiver'). Larry referred to the Big Dipper as *K'eltaa* ('elongated object following after').[64]

The Upper Tanana Constellation, *Yihdaa*, *Neek'e'eltiin*, or *Che' T'iin*

Upper Tanana is a transitional zone for nomenclature associated with Dene humanoid constellations. Terms cognate to Gwich'in, *Yahdii,* and Ahtna, *Nek'eltaeni*, are both used by speakers in Tetlin and Northway, Alaska. Although the stars that compose this constellation are nearly identical to the Ahtna, Gwich'in, and Lower Tanana whole-sky configurations a significant variation is that this being is one of the notorious *Che' T'iin* ('tailed people') that the Traveler, *Yambaa Teeshyaay* ('the one who went around the edge of the sky'), eradicated during his journey around the world.[65] For this reason, Roy David of Tetlin, strongly rejected the beneficent interpretation of this constellation and referred to it as a *gǫǫ*.[66] He explained that the *Che' T'iin* descended from the sky without knowing the proper way to behave and added, "I don't know how it begin bad [but] always that happen." To eradicate them, *Yambaa Teeshyaay* waited for a heavy rainstorm and then burned them alive by placing ignited grass in their dens where they had retreated. Roy said:

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[64] With the exception of *K'eltaa* or *K'eltah* (Arnold, Thoman, and Holton 2009, 58) I am not aware of any other Tanacross names for constellations that appear in published or archival sources.

[65] In Tetlin and Northway, the Traveler is also known as *Yamaagn Teeshyaay* ('the one who goes around the edge of the sky'), whereas in the Scottie Creek dialect he is referred to as *Tsa' Ushyąą* ('Smart Beaver') (Lovick 2020, 38-39).

[66] The term *gǫǫ/gųų* constitutes a unique category of nouns that also refers to insects, worms, bears, outsiders, enemies, and the widespread Northern Dene brushman or bushman (cf. Lovick 2020, 39, 68).

Che' T'iin, that's the one. That's the one [over the] world. *Neets'ịịxqą*, he killing people, like human being. Like you and me. He kill the people. And he's from sky. He don't know. He don't know [morality/proper behavior]. That's why *Yambaa Teeshyaay* came down; to tell him what he doing . . . *Yambaa Teeshyaay*, that time it rain. Big rain and they [*Che' T'iin*] all go underground just like fox house, you know. He put all grass; dry grass in there before that. You know, after that, he just burn. Kill them with [dry ignited grass], all of them.

Roy described the *Che' T'iin* as mandrill-like beings that have long tails, pointed ears, sharp teeth, and wrinkled faces:

Che' T'iin keey that mean ['Tailed People's village']. I do not understand what *Che' T'iin* mean but to me they got long tail. And they got little sharp ear, you know, like sharp ear. And they got big sharp teeth. And round eye. And they got big nose, you know. I think it could be mandrill, the way it sometime [looks]. Wrinkled face, you know; they talk about . . . they got wrinkled face, you know, kind of like growl. You know, that's the kind. That's the kind of people are they. And they got some kind, like they make sound. They telling each other, you know. They got [language]. That's the one.

A connection between the Traveler and a constellation identified as the leader of the *Che' T'iin* is corroborated by an unpublished story that James Kari recorded in 1994 with the late Upper Tanana elder, Mary Tyone (Tyone and Kari 1994). Although this story was told in the Scottie Creek dialect, Olga Lovick (pers. comm. June 20, 2013) and James Kari (pers comm. May 16, 2020) provided a co-edited transcript of the relevant segment. In this episode the Traveler, *Tsa' Ushyąą* ('Smart Beaver'), kills the leader of the *Che' T'iin* after it had killed his

wife. However, the ghost of the *Che' T'iin* returns in the evening to steal snowshoe hares from people's snares. After waiting in ambush, the Traveler finally succeeds in killing the ghost of the *Che' T'iin* by shooting a "water arrow" into its tail, which makes it "curled" like the handle of the Big Dipper. The Traveler subsequently places the ghost or spirit of the *Che' T'iin* in the sky as a stellar clock known as *Yihdaa* and then continues on his journey to transform the world. The relevant segment is provided below:

Tsa' Ushyąą (ANLC0848), Side A
Told by Mary Tyone on November 11, 1994
Recorded by James Kari
Transcribed and Translated by James Kari and Olga Lovick
with annotations by Chris Cannon

[5:27 – 7:31]

Ay t'axoh gąął gah kee gąął dahitl'u' tädn tah.
And finally snares, they were setting snares for rabbits at night.

K'ahmän' eh gąął tah nahtetdeek tah gah all ts'ą́ łahtthegn ts'ą́ gah hugąąl' tah gah däl' hi'i'aak.
In the morning, they went to check their snares and snowshoe hare, there was snowshoe hare blood all over their snares.

Ay eh nts'ą́ ch'ahut-tthay Tsa' Ushyąą niithän ts'ą́
And then somehow a spirit appears, "What's going on?" thought Smart Beaver and

tädn hǫłiin eh hii'i chi xu' gąął tah chinel'įį.
at night, again, then he hid among the snares.

A gąął nǫ́ǫ́ ts'ą́ tät delch'iadn dìitth'ik.
Upland at the snares there is the sound of a cane cracking.

Ay eh chinel'įį hą' huhdá' tl'üh atkak.
And he was hiding, downstream a shadow was moving.

Ay Che' T'iin ǫǫkįą ch'at-tthay.
That is the ghost of the Tailed Man being revealed.

Ay eh yiitehday k'a' tu dachin k'a' eh
And he's getting ready to shoot a water arrow, a type of arrow and

yiitehday eh, "Ishyit chih la shtodhįįdah?"
he's getting ready to shoot him with bow and arrow. "There again, are you there waiting for me?"

"*Nii shchéé' chįį shįhddhay*," *eh*.
"Back at the tip of my tail is where you hit me" [*Che' T'iin* says].

Ichéé chįį yih tu k'a' eh yihday eh.
He hit him with a water arrow at the tip of his tail.

Chech'iilts'iił.
It (tail) became curled.

"*Adígn' yaa k'it ninįįhaayh, nąą' k'i łach'ihtįįł*," *Tsa' Ushyąą yehnih*.
"You go up there in the sky, on earth time will rotate," Smart Beaver told him.

Aych'a yaadígn' nts'ą' hiiyuusi' Yihdaa hiiyehnay eh.
And way up there, this is how they named him *Yihdaa* ('he is staying seated'), they say.

Ay ch'a Che' T'iin ǫǫk'įą ch'ahdegn Yihdaa.
And so Tailed Man's ghost is up [there], *Yihdaa*.

Uche' son' eh uche' ch'ilts'iił nłiin.
And his tail, among the stars are the ones that are curled (i.e., Big Dipper).

Ay ch'ale' Yihdaa hiiyehnay, ay ch'a Che' T'iin Tsa' Ushyaa idhexįį.
That's how they call *Yihdaa*, since when Smart Beaver killed the Tailed Person.

Mǫǫsi' chih hǫǫlįį, Yihdaa.
Its name is also, *Yihdaa* ('he is staying seated').[67]

The whole-sky constellation that Roy David and Oscar Jimmie variously referred to as *Yihdaa, Che' T'iin,* and *Neek'e'eltiin* ('that which moves over us') spans approximately 131 degrees and is composed of at least 20 groups of stars named using body part terminology. A

[67] James Kari (1989, 1) elicited the following terms and phrases from Mary Tyone for individual stars in *Yihdaa*, glossed as the Big Dipper: *umbaagh iitįį* ('sun comes up at daylight'), *xał uudenaaxaał* ('darkness disappears'), *chech'ilts'ik* ('it [tail] became curled'), *łeek'ąy delyaa* ('pelvis'), and *nił na 'eł nes* ('put hands one on another'). This list of star names no doubt refers to a larger constellation than the Big Dipper, in which the first two names suggest a function in time-reckoning. See Kari and Tuttle (2018, 59-81) for an Ahtna story about the Traveler's eradication of the *cet'aenn* ('tailed ones').

dim star (27 Lyn) identified as its heart (*udzeey*) is noteworthy given that this body part is usually associated with the Traveler's spirit as the embodiment of the world. Nonetheless, the heart is still a named star despite this role reversal in Upper Tanana where the humanoid constellation is a malevolent being that the Traveler killed as opposed to the Traveler himself. The only comment made about this star was that the *Che' T'iin* should have emulated *Yambaa Teeshyaay* and that the tailed-man constellation points its hand up (*diła' ịị'ah*) to the realm where the Traveler resides as a reminder for people to live by his example (Table 6; Figures 19 and 20).

Table 6. Identification of asterisms in the Upper Tanana whole-sky constellation, *Yihdaa*, *Neek'e'eltiin*, or *Che' T'iin*. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.

Asterism	**Translation**	**Stars**
1. uche'	his tail	Big Dipper (in Ursa Major)
2. tł'ahts'ąy uła'	his left hand	o Leo (Subra), α Leo (Regulus)
3. hǫǫsǫǫ ts'ąy uła'	his right hand	α Cas (Shedar), β Cas (Caph)
4. tł'ahts'ąy uxol'	his left leg	a general region of stars
5. hǫǫsǫǫ ts'ąy uxol'	his right leg	a general region of stars
6. tł'ahts'ąy udzagn'	his left ear	β Gem (Pollux)
7. tł'ahts'ąy udziit	his left inner ear/hearing	α Gem (Castor)
8. hǫǫsǫǫ ts'ąy udzagn'	his right ear	α Aur (Capella)
9. hǫǫsǫǫ ts'ąy udziit	his right inner ear/hearing	β Aur (Menkalinan)
10. mįįtsįį	his nose	Messier object 45 (Pleiades)
11. unaagn'	his eyes	β Tau (Elnath), ι Aur (Hassaleh)
12. utthi'	his head	all the stars comprising the eyes, ears, and nose
13. uk'oh	his neck	the area bounded by the stars 31 Lyn, 15 Lyn, α Gem (Castor), β Aur (Menkalinan)
14. usak	his torso	15 Lyn, o UMa (Muscida), h UMa (Alhaud IV), 36 UMa, θ UMa (Alhaud V), ι UMa (Talitha), κ UMa, (Alkaphrah), 31 Lyn (Alsciaukat)
15. tł'ahts'ąy uke'	his left foot	α Boo (Arcturus), η Boo (Murphrid), or the variation: δ Leo (Zosma), β Leo (Denebola)
16. hǫǫsǫǫ ts'ąy uke'	his right foot	γ Dra (Eltanin), β Dra (Rastaban)
17. tł'ahts'ąy ugaan'	his left arm	a general region of stars
18. hǫǫsǫǫ ts'ąy ugaan'	his right arm	a general region of stars
19. udzeey	his heart	27 Lyn
20. ugot	his knee	a single unidentified star
21. san' tąy	star trail	Milky Way Galaxy

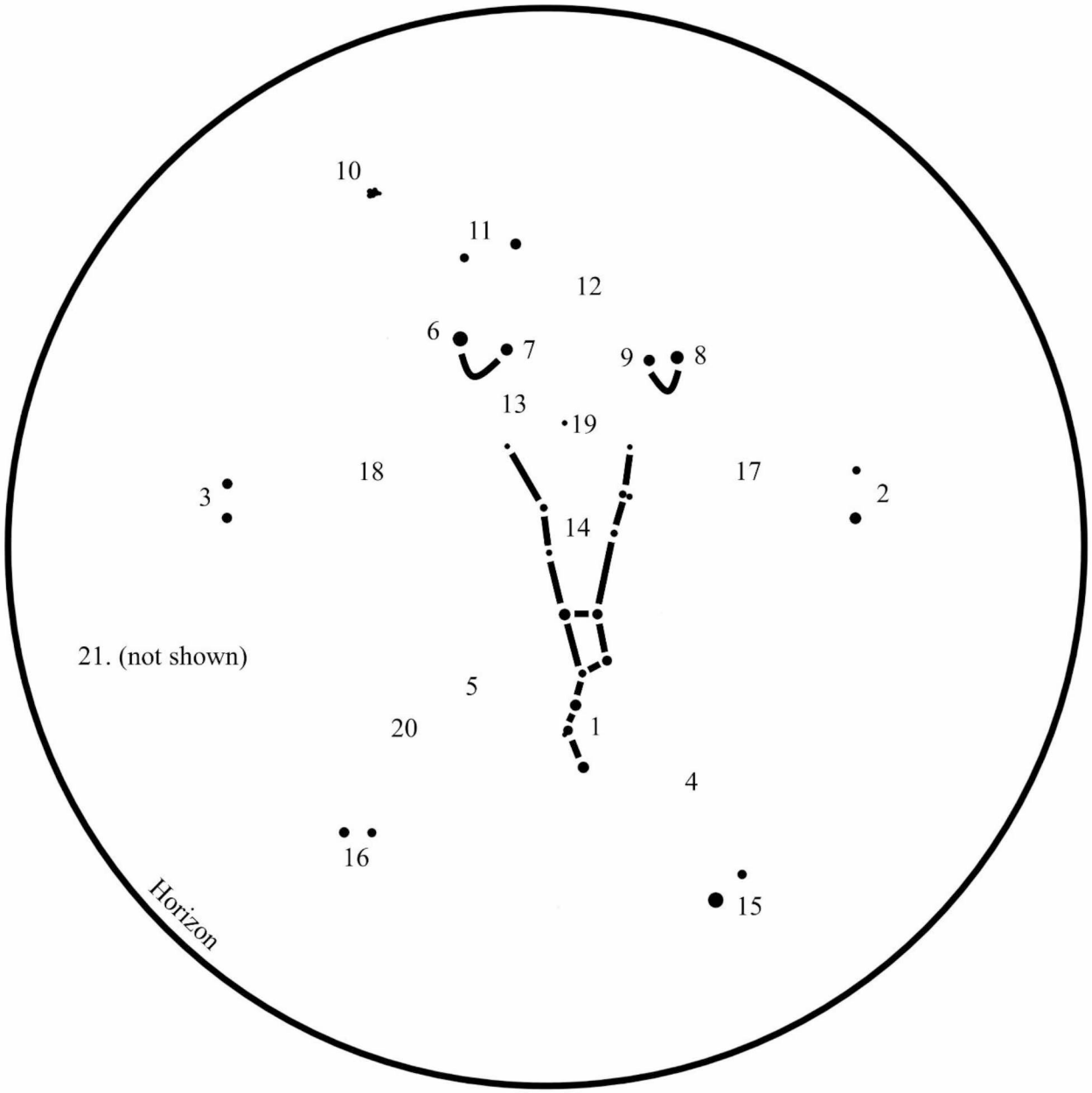

Figure 19. Identification of asterisms in the Upper Tanana whole-sky constellation, *Yihdaa*, *Neek'e'eltiin*, or *Che' T'iin* as seen from Tetlin, Alaska on March 25, 2018 at 23:30 local time. Zenith lies in the center of the circle. Numbers correspond to asterisms listed in Table 6.

Figure 20. A sketch of the *Che' T'iin* constellation made by Roy David of Tetlin, Alaska in March 2018.

In addition to the 20 body parts identified in the stars, the Milky Way is called *san' tąy* or 'star trail.' Like the other systems previously described, the Milky Way is the Traveler's trail and a conceptual model for behaviors and actions. Although the Traveler is not identified as a constellation in the Upper Tanana region, Roy described him as "great sky man," *k'oh dindeh* ('cloud man'), and *yaak'oh* ('sky neck') who's spirit resides in an unseen realm above the stars while also enveloping the world like the atmosphere.[68] The Traveler occasionally incarnates on earth as one of the chickadee species known as *Ts'igąąk*, which is regarded as a blessing. The incarnation of *Yambaa Teeshyaay* as chickadee who points to the path of proper living is alluded

[68] The late Koyukon elder, Johnson Moses, referred to the Milky Way as *yokk'uł* ('sky neck') which he described as both a trail and the "neck for all the stars."

to in a classic Upper Tanana story about morality (see Brucks and Lovick 2019) where two sisters follow a butterfly to a spiritual realm in the sky.[69] The sisters eventually arrive at a junction which branches into a narrow and wide trail. The rough and narrow trail (*tąy ts'eegn*) is one of hard work, discipline, humility, morality, safety, and the proper way to live and be in the world while the smooth wide trail (*tąy teel*) is one of laziness, danger, and the antithesis of Dene socialization. Although not explicitly stated in the story, Roy David explained that this trail is the Milky Way (*san' tąy*), which connects the lived world on earth to the afterworld in the sky.[70] The sisters meet a chickadee (the incarnation of *Yamaagn Teeshyaay*) at this junction of trails who advises them to follow the rough and narrow path that aligns with morality and the proper way to live and be. Roy said, "*Yamaagn Teeshyaay* use Chickadee, you know; bird [he incarnates as a chickadee]. Precious bird, you know. That's the one. He point [to] the near trail. Near trail for people [in] the [Butterfly] story."

The older sister, however, ignores the chickadee's advice and leads them down the dangerous wide trail. After a while, the sisters arrive at the home of an "Old Man" (*ch'itay*) or "Devil" known as either *ts'ant'ay*, *yaambal*, or *teedzaan*. This man has dog carcasses scattered around outside his house and later offers the sisters a meal of dog-eyed soup, which suggests that they have arrived at the home of a dangerous and unsocialized person (cf. Brucks and Lovick 2019, 97). During the night the Old Man rapes and kills the older sister who lacked the awareness to recognize the warning signs and dangers around her. In contrast, the younger sister who was compelled to follow the narrow trail of proper living remains vigilant and uses her wits

[69] The "Butterfly" or "Grandmother Spider" story appears in McKennan (1959, 199-203), Rooth (1971, 328-339), Adam and Milanowski (1975), Tyone and Kari (1996, 23-34), David and Lovick (2017, 145-159), David et al. (2018), Brucks and Lovick (2019), and Sam, Demit-Barnes, and Northway (2021, 3-25).
[70] Roy David's late wife, Cora David, explained that this story occurred as a time "when the [sky] world was close to us."

to escapes from the Old Man who continues chasing her. During their pursuit the younger sister is assisted by a fox (*noogąąy* or *naagädn*) who helps her cross a river on his tail. She is then guided by a rainbow to the home of *Stsǫǫ Kelahdzeey* ('my grandmother spider') who destroys the Old Man and lowers the girl back to earth on her web or rope of braided babiche.[71] After the girl reaches the ground near her village it begins to rain or snow indicating that *Stsǫǫ Kelahdzeey* has been killed by her son who wanted to keep the girl for his wife. For this reason, Roy's late wife, Cora David, explained, "And so today when old people die, there's hailstorm," which alludes to the sacrifice that elders make for others.[72] It is also appropriate to note here that in many Northern Dene languages terms for "rainbow" are based on a rope or snaring theme conceptually related to Grandmother Spider. For example, the appearance of a rainbow is a sign that a storm has been snared and that there will be no more rain (see Chapter 7). Elders in Tetlin and Northway variously refer to rainbows as *Stsǫǫ Kelahdzeey gąął* ('my grandmother spider's snare'), *Stsǫǫ Kelahdzeey daach'eetl'uu* ('my grandmother spider set a snare'), *Stsǫǫ Kelahdzeey tąy* ('my grandmother spider's trail'), *nanelt'oon* ('the thing that is tied'), *tl'uuł naałeeł* ('rope is lying there'), and *saamįįl'* ('sun snare').

In addition, Roy David and the late Northway elder, Oscar Jimmie, independently explained that the "Old Man" or "Devil" in this story is an alternative interpretation of the tailed-man constellation. Roy learned about the stars in this context from both his father, Titus David, and his great grandfather, Chief Luke. Oscar Jimmie, originally from Nabesna, learned traditional stellar knowledge from his grandmother, simply known as Lucy. Like the Gwich'in

[71] Brucks and Lovick (2019, 97) note that the Grandmother Spider is sometimes referred to as *Saa Wunąą* ('mother of the sun') who destroys the Old Man by "melting his flesh with her gaze."
[72] David and Lovick (2017, xi) state that the Grandmother Spider story ". . . explains, among other things, why killing a spider causes rain."

phrase, *Yahdii ahaa* ('*Yahdii* is walking'), Oscar described the apparent motion of the tailed-man constellation as *yaa nalts'aa aahaał* ('it is walking around the sky').

Taken together, the "Butterfly" or "Grandmother Spider" story is a moral-based narrative and tour through the afterworld designed to edify and incite introspection about the proper way to live and be. Although not overtly stated, the story describes elements of a greater cosmology centered on the Milky Way trail that connects the earth and sky as overlapping cosmic zones. As I have described in previous sections, the Milky Way is both the Traveler's trail and the path that souls follow in their spiritual cycle of reincarnation. As such, the story of the girl's journey to the sky may also be interpreted as a preview of the soul's voyage that is influenced and directed by one's choices, actions, and life path. Like Markle Pete's comment in the Ahtna section, Roy David similarly explained that his great grandfather incited curiosity in others to discover what is in the sky by stating that the stars point the way to wealth and riches. Again, this statement or riddle refers to the reward of a full life through spiritual awareness and the discovery of a model and path to live by.

The morning star or *ikaay k'adeht'ąą'a* (Altair) is likewise a spiritual guide that reminds people how to live. During a conversation in May 2013, Roy said: "Morning star point for you. Yes, up trail [the Milky Way], but in this world it lead you to truth." To emphasize this conceptual model to live by, he said: "You're the morning star. . .You follow the star. It lead you to good path like wise man on this world." During another visit in February 2015, Roy used the phrase *k'ahmann' san' k'ohtiin* ('morning star people') to refer to those who embody the teachings of the morning star by walking the narrow trail through life. He added:

> People [are] the one who's in morning star. What morning star mean?
>
> *Hu'ich'aknayh* ('third person indef. knows'), that mean they [have] knowledge

with truth, always true. And from there it point. Moon and sun, world. Star is world too. They forgot. You see, we all forgot. But the star, we [have a] choice. From there, wide trail and narrow trail, that's about it. It true story. Hang on [to it].

The morning star is also significant to the Upper Tanana as a time-referent used to determine the timing of hunting activities at dawn. In this respect Roy said:

. . .right now, you see dawn. Sun's rising. You see star, big one. It come up here, but about a couple hour [later] you see little star from there, it's beginning to daylight, just like this, daylight, daylight . . . one star there and the morning is coming. You see now it's getting brighter, getting brighter, getting brighter. Pretty soon that's when we're ready to hunt. We could see gunsight. *K'a' chinh*, they call. *K'a' chinh*.

As with other Northern Dene cultures the celestial sphere is part of a larger cosmology and dichotomy between proper and improper behaviors and actions. Despite the role reversal in Upper Tanana where the humanoid constellation is a malevolent being ("Tailed Person" or "Old Man"), it is similarly grounded in the lessons and teachings of the Traveler who worked to establish a socialized and balanced world. The "Butterfly" or "Grandmother Spider" story emphasizes that choosing the correct but more difficult path through life is a personal choice. However, those who are aware and pay attention will discover that the rough and narrow trail is ultimately the path of least resistance and greatest rewards. It is the path that guides the soul and unites the universe. It is the path that *Yambaa Teeshyaay* blazed for humanity as revealed in stories, the landscape, personal experiences, and the sky.[73] With respect to the Traveler's Milky

[73] Anna Birgitta Rooth (1971, 319) published a transcript of the late elder, Frank Sam of Northway, who explained that people once prayed to the stars. He said: "They say, stars, you see star up there how many, seven star, all our

Way trail as both a physical and metaphorical path to live by, Roy asked, "*Doo iin tsı̨ı̨ san*"? That mean who make the star, *san*"? With our language we say *Yambaa Teeshyaay*."

The Yellowknives Dene Constellation, *Yèhdaa*, *Yìda*, or *Yehdaa*

Yellowknives Dene elders in Dettah and Ndilǫ, Northwest Territories identified a human-like constellation composed of 11 groups of named stars that span 76 degrees across the sky. Alfred Baillargeon, who speaks both the Tetsǫ́t'ıne dialect of Dëne Sųłıné and the Wıìlıìdeh dialect of Tłı̨chǫ, shared a story about the constellation *Yèhdaa*, *Yìda*, or *Yehdaa* while I met with him in Dettah with Alex Jaker and Dennis Drygeese in November 2015. Alfred's story, given in free translation below, approximately corresponds to Mary Tyone's Upper Tanana story about the tailed person who was shot by an arrow after stealing snowshoe hares from people's snares.[74]

Yèhdaa
Told by Alfred Baillargeon in Wıìlıìdeh Yatıì on November 11, 2015
Recorded by Chris Cannon, Alex Jaker, and the Goyatikǫ Language Centre
Transcribed and Translated by Alex Jaker

Eyı Yèhdaa,
That *Yèhdaa,*

ındì whaà,
a long time ago,

ı̨ndaà,
far away,

Yèhdaa ts'edı sìı,
what they say about *Yèhdaa*,

native[?] we know every star. (Frank Sam stated that all natives know the stars and have named every one). I don't know how he know to say that. I think it was long time ago, pray like that to God. Maybe God may let him know, so he know that way. One time I hear that seven star, he got man, he tried, you know some people, maybe someone he don't want me, he try out – die - something like that happen. He call to seven star like that. - Just like that."

[74] Alfred told two versions of the *Yèhdaa* story on November 11, 2015. The first version was told in the Tetsǫ́t'ıne dialect of Dëne Sųłıné followed by a slightly longer version in the Wıìlıìdeh dialect of Tłı̨chǫ. Alfred told the Wıìlıìdeh version transcribed above during a Goyatikǫ Language Centre board meeting in Dettah where I shared the preliminary results of my doctoral research with a group of local elders. Alfred summarized the story again in October 2018 while I met with him and Fred Sangris at the *Det'on Cho* building in Ndilǫ.

ɻndì sìı,
a long time ago,

dıı yadaa whetǫ sìı daɻwà-le ne ts'edı ne,
what was sitting up in the sky was not far up, they say (the sky was closer to the earth),

ɻndà eyı done ɻlè sèe,
and so that one person way out there,

xòo daɻtl'ɻ,
he was setting snares,

hanì weghǫ gah net'ɻ weghǫ gah net'ɻ.
but somebody kept on stealing snowshoe hares from him.

T'aat'ɻ sìı yık'èezhǫ-le,
He didn't know who was doing it,

nǫdeèt'a,
but later on,

"*dàanıt'à at'ɻ*?" *nɻwǫ ne*.
he thought, "why is this happening?"

Done sɻ,
This person,

gah ɻhlì ne, *gah, gah ìhchı*.
he snared a snowshoe hare, and the snowshoe hare, he took it.

Dàanıt'à?
How come?

Eyı eyı t'aat'ɻ nǫǫ̀, *gah net'ɻ nɻwǫ ne*.
He, it was he that was doing it, he thought he was the one stealing the snowshoe hares.

Eyıt'à t'a,
Because of it,

ekò k'ɻ k'eele na, k'ɻ t'à,
as he was carrying arrows, with an arrow,

yıįhtà, wenǫkw'ǫǫ̀ whehtà.
he shot him, he shot him in the back.

Hòt'a hoozea t'à.
And suddenly he screamed.

Yèhdaa at'ı nǫǫ̀.
It was *Yèhdaa*.

Hajà.
It happened.

Eyıt'à dıı Yèhdaa dawhetǫ sìı ıdòo herèhchì.
And so here where *Yèhdaa* is sitting, he was taken up there.

Įdòo ts'erèhchì t'à, yeè ıdòo hanìt'à dawheda.
He was taken up there, and that is how he is sitting up there.

Eyıt'à wenǫǫ̀, eyı t'a ehtà sìı,
And so on his back, in the place where he got shot,

whǫ̀ nechà-lea, wek'e whezǫ nı.
a small star (Alcor) sits on top of him.

K'ı̨ hǫt'e gedı.
They say it is an arrow.

Įndaà ıdòo yak'e, akǫǫ̀ nıyıihchì t'à.
Far away up in the sky, that is where he was taken.

Eyıt'à,
And so,

Yèhdaa ts'edı sìı gah nezı̨.
Yèhdaa was stealing snowshoe hares, they say.

Eyıt'à eyı done haıdà.
That's how he made a living.

Eyıt'à akǫǫ̀ dawheda.
That's why he is sitting up there.

Eyıt'à wenǫǫ̀ tàa t'à dıı hajà.
And so he was hit in the side, and that is what happened.

Yàgoìta t'à, wekè xèehdı.
Because he was kicking in the air, it (the sky) touched his feet.

Eyıt'à ɨk'ǫ̀ą, ɨk'ǫ̀ wets'ǫ̀lɨ, ɨk'ǫ̀.
and so he also had a little medicine power.

Ndè nawhìdle dè, kǫ̀t'a k'ɨ̀ xǫtɨ̀ nadlɨ́ą, k'achɨ gah jǫ nageèhchıa.
At the end of the world, the arrow will be pulled out again, and they will also bring the snowshoe hares back here again.

Although the story does not portray *Yèhdaa* as a benevolent person or being, other details present a mixed picture regarding the identity of this constellation. For example, Alfred mentioned that his grandfather prayed to *Yèhdaa*, *Yìda*, or *Yehdaa* every night around 10:00 and then again in the early morning. The Milky Way is also a trail or *whǫ̀ tılı ılɨla* ('star trail altogether') and the six brightest stars in Cassiopeia are referred to as *Yìda wets'ekeè* ('*Yìda*'s wife') which is an important part of Northern Dene Traveler stories, including those told by the Yellowknives Dene.[75] Although I did not learn any additional details about *Yìda wets'ekeè*, recall that Ahtna speakers refer to the early dawn light as the Traveler's wife (*U'aa Uk'etayaal*) following on his Milky Way trail.

Yellowknives Dene conceptualizations and practices relating to the sky and stars share other notable traits with the Northern Dene groups previously discussed. For example, protocols such as not pointing at stars or casually talking about them are likewise observed by the

[75] Fred Sangris told me the following story about the Traveler's wife in October 2018 as part of a larger summary of *Yamoòzha*'s journey around the world: *"Yamoòzha* went further north and set up his home camp. Somewhere around the Arctic Ocean north of here, Lac de Gras; he mentions MacKay Lake, *Nǫdìkatì* . . . they told me this is where he sits. That's his platform. He mentions that again. And *Nǫdìkatì* [is] where *Yamoòzha*'s camping is. So *Yamoòzha* came back and sat on that platform and he was camping there and along came a dog. And that dog came and said, 'I'm going to come and stay with you. I'm going to live with you like a person.' But *Yamoòzha* [said], 'You know, you're a dog. You can't live with me. You're an animal. You're a dog. So, the only way he can spend time with me and travel with me is when you're a real human being, a person. Then you can come stay with me. But as an animal, you know, as a dog you can't come and live with me.' So, the dog wander off into the little distance here and eventually he came back as a beautiful woman. And when a beautiful woman comes around your camp, you know this is a trickster, eh. You have to be real cautious. So, something was about (awry). He knew about it and it involved the beautiful woman who was the dog at one time; now [it] is a human being. He said, 'Now I'm a person, I can come and live with you and follow you.' And so that happened. And she became the wife of *Yamoòzha*." Fred explained that the Traveler's wife eventually became a large island.

Yellowknives Dene and at least a couple elders associate stellar knowledge with *ɻk'ǫ̀* ('medicine power'). Alfred described some of these protocols while Fred Sangris served as an interpreter. He said: "You don't point your finger at them (stars) or else you get a cripple in your finger if you point.[76] So, you don't point at 'em and you don't talk about 'em unless, you know, in a very private conversation or something, you know." The morning star, identified as either *bek'a yéhká xáɻǫ́ą* ('heavy object came out') or *wezhìı nàgede* ('they go inside,' α Boo and/or α Aql), is also a spirit or spiritual entity that morning prayers are directed towards while also serving as an important referent used to determine the departure time for traveling and hunting at dawn (see Chapter 5).

With respect to a stellar eschatology, Alfred's story explains that the arrow in *Yèhdaa*'s back will be pulled out at the end of the world. This statement touches on the Dene concept that the world's transformation is a repeated or cyclical process dependent on human behaviors and actions. If people stray from the teachings, social norms, and protocols established by the Traveler, then the world will revert to the way it was in ancient time when humans struggled. This concept is emphasized by other Yellowknives Dene eschatologies such as a worldwide flood or the return of dangerous giant beings from ancient time. It is worth noting here that an ancient lion called *gǫ́dzíı* is also a part of Yellowknives Dene oral history. Although not identified as a constellation, this ancient lion or "beast" was released when construction crews cut the Ingraham Trail Road through the sacred rocky hill where it was contained near the turnoff to Dettah. This being (*gǫ́dzíı*) is analogous to the ancient lion that Charlie Neyelle identified as the constellation, *ɾemǫ́ǫhdzíı*, whose spirit is also embodied in *Saoyúe* mountain at Great Bear

[76] Regarding the Cheyenne (Algonquian), Grinnell (1962, 125) states: "To point at the sun, moon, or any particular star, will result, it is believed, in causing a felon on the pointing finger, and the loss of at least a part of the finger."

Lake. Again, an ancient malevolent constellation described as a tiger-like being is also known by the Gwich'in and Ahtna.

Regardless of these similarities, the elders who I learned from did not make an explicit connection between the stars and the Traveler, *Yamoòzha* or *Yamǫǫ̀ya* ('the one who departed to go around the world'), or his wife despite their prominent and enduring legacies among contemporary Yellowknives Dene. When I asked Alfred if the Traveler is the one who shot *Yèhdaa* he replied that it was just an "ordinary person." He also explained that the impact of the arrow broke *Yèhdaa*'s back, which is why he has his hands thrown above his head with splayed out fingers. He then kicked his legs and feet into the air, which pushed the sky up to its present level. Alfred noted that *Yèhdaa* came from the sky at a time when it was much closer to earth. Through an interpreter, he explained: "Because of that [a lower sky], *Yehdaa* was stealing rabbits. He was too close. The sky was too close to the ground and so they put it up a notch."

A list of Yellowknives Dene star names is shown in Table 7 accompanied by a detailed view of the *Yèhdaa*, *Yìda*, or *Yehdaa* constellation (Figure 21) and a whole-sky perspective of the stars identified by elders in Dettah and Ndilǫ (Figure 22). The numbers on both figures correspond to the star names listed in Table 7.

Table 7. Identification of Yellowknives Dene stars and constellations. The table reflects a multilingual community with star names given in a mixture of the Tetsǫ̀t'ıné and Wıìlıìdeh dialects. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.

Asterism	**Translation**	**Stars**
1. betthí	his head	υ UMa (Alhaud VI)
2. begáné	his arms	His right arm: α UMa (Dubhe), η UMa (Alhaud IV), τ UMa (Alhaud II). His left arm: β UMa (Merak), θ UMa (Alhaud V)
3. belá	his hands	His right hand: ο UMa (Muscida). His left hand: ι UMa (Talitha), κ UMa (Alkaphrah)
4. bezíé	his torso	α UMa (Dubhe), β UMa (Merak), γ UMa (Phecda), δ UMa (Megrez)
5. bet'ás, benéné	his back	δ UMa (Megrez), ε UMa (Alioth), ζ UMa (Mizar), γ UMa (Phecda)
6. bek'arełka	place where he was hit with arrow	HIP 65477 (Alcor)
7. k'á nałchéth	quiver (for arrows)	θ Boo (Asellus Primus)
8. betł'á	his buttocks	η UMa (Alkaid)
9. beké	his feet	His right foot: α CrB (Alphecca) or β Boo (Nekkar). His left foot: ε Boo (Izar) or γ Boo (Seginus)
10. whǫ̀ tı̨lı ıłı̨la	star trail altogether	Milky Way Galaxy
11. Yìda wets'ekeè	*Yìda*'s wife	β Cas (Caph), α Cas (Shedar), η Cas (Achird), γ Cas (Navi), δ Cas (Ruchbah), ε Cas (Segin)
12. ı̨łǫ wheʔǫ	the one that stands still	α UMi (Polaris)
13. Yìda tsòa	little *Yìda*	α Aur (Capella)
14. wendaà at'ı̨	it blinks its eyes	β Orı (Rigel)
15. wetseè dzà	its tail measurer	Messier Object 45 (Pleaides)
łą wedzà, ełexè whela	they sit together	(variation)
kwǫ̀ tsòa	small group of stars together	(variation)
16. bek'a yéhká xáı̨ʔą	heavy object came out?	α Boo (Arcturus)
wezhìı nàgede	they go inside	(variation)

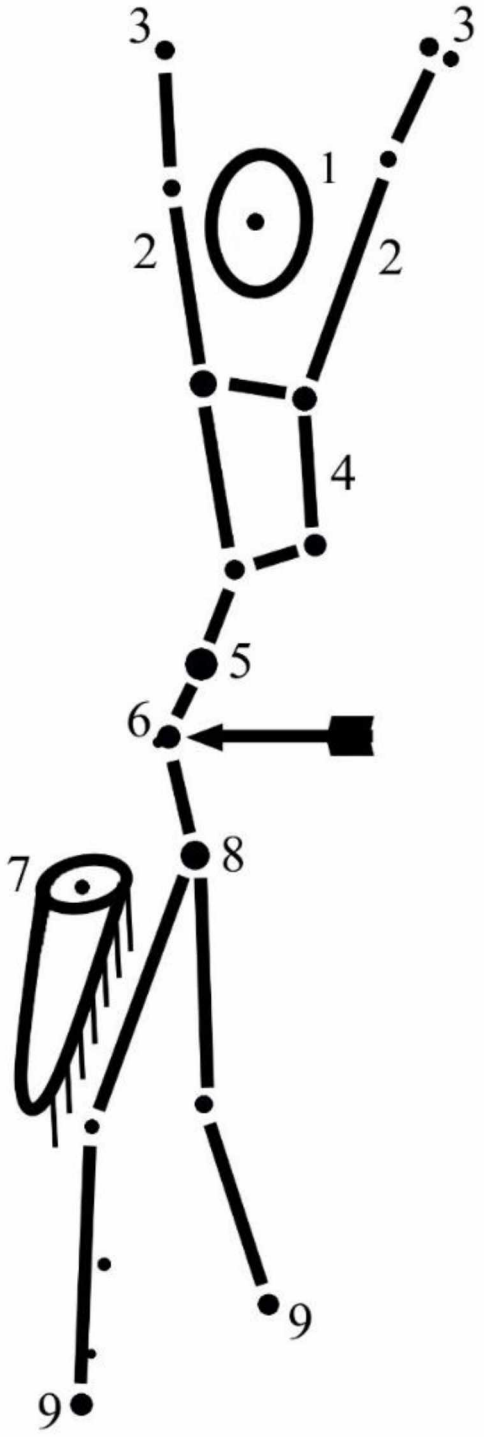

Figure 21. Star and stick diagram of the Yellowknives Dene constellation, *Yèhdaa*, *Yìda* (Wıìlıìdeh dialect of Tłicho), or *Yehdaa* (Tetsǫ̀t'ıné dialect of Dëne Sųłıné). Numbers (1-9) correspond to asterism names listed in Table 7.

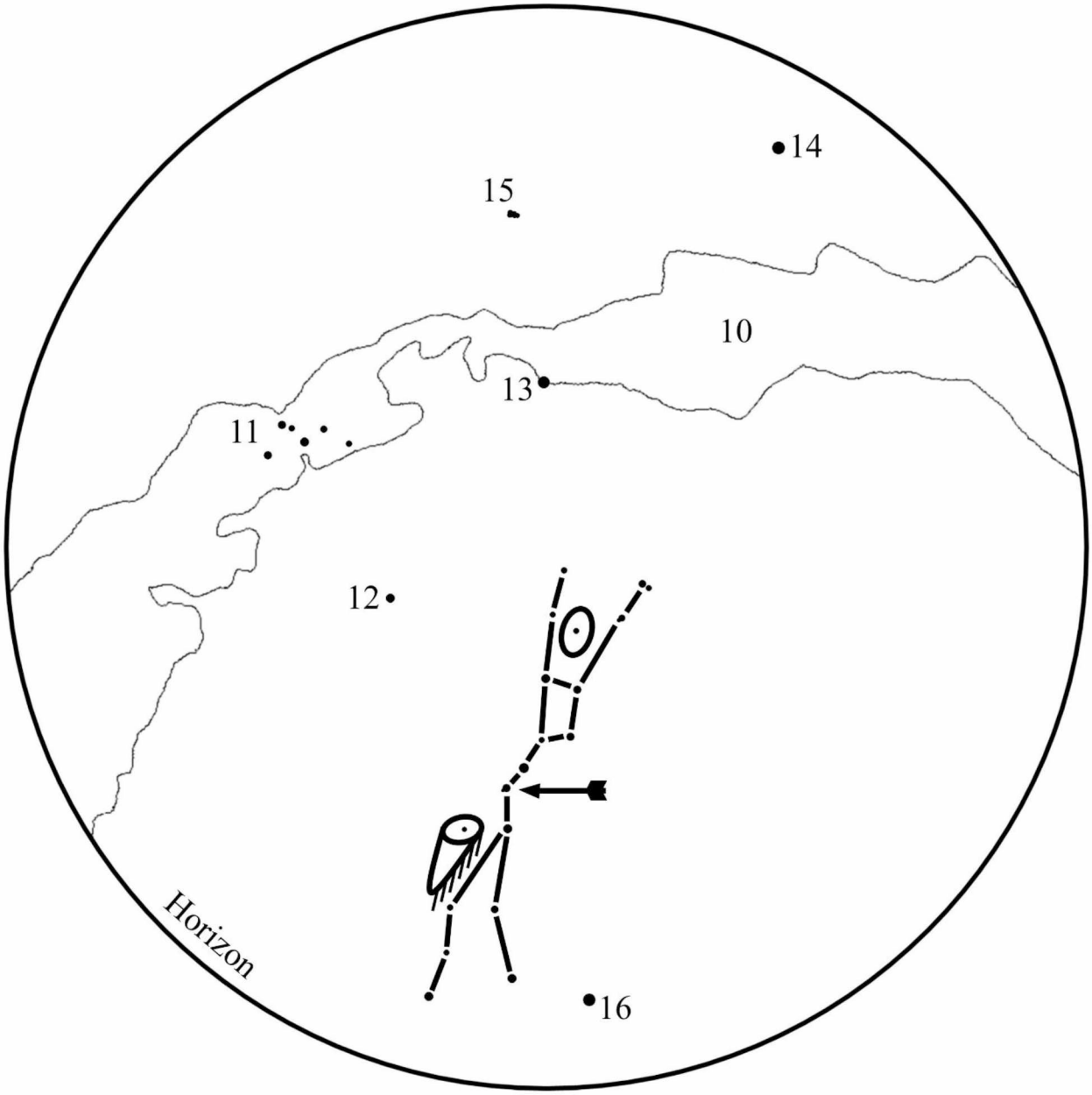

Figure 22. Whole-sky perspective of Yellowknives Dene stars and constellations as seen from Dettah, N.W.T. on January 20, 2019 at 22:30 local time. Numbers (10-16) correspond to names listed in Table 7. Zenith lies at the center of the circle.

Jonas Noel, a Yellowknives Dene elder from Ndilǫ, identified a variation of the constellation, *Yìda*, composed of several groups of stars named using body part terminology. In this conceptualization the handle of the Big Dipper is *Yìda*'s right arm whereas the four stars in the Dipper's cup delineate his upper torso. Jonas described *Yìda* as a big headless man or *Yìda dǫ*

cho wekwì while, but commented that he does not know much else about the constellation (Table 8; Figure 23).[77]

Table 8. Identification of the Yellowknives Dene constellation, *Yìda* as identified by Jonas Noel. Stars names given in the Wıìlıìdeh dialect of Tłı̨chǫ. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.

Asterism	**Translation**	**Stars**
1. wegǫ̀ǫ̀	his arms	His right arm (the handle of the Big Dipper): η UMa (Alkaid), ζ UMa (Mizar), ε UMa (Alitioth), δ UMa (Megrez). His left arm: α UMa (Dubhe), h UMa (Alhaud IV), o UMa (Muscida)
2. wedzìwì	his body	δ UMa (Megrez), γ UMa (Phecda), χ UMa (Taiyangshou), ψ Uma, β UMa (Merak), α UMa (Dubhe)
3. wekw'ǫ̀	his legs	His right leg: ν UMa (Alula Borealis), ξ UMa (Alula Australis), 72 Leo (Zubrah), δ Leo (Zosma), θ Leo (Chertan), ι Leo. His left leg: 46 LMi (Praecipua), ζ Leo (Adhafera), γ1 Leo (Alieba), η Leo (Al Jabhah), α Leo (Regulus)

[77] Jonas Noel also provided several of the star names listed in Table 7 that are not conceptually linked to *Yèhdaa*, *Yìda*, or *Yehdaa*.

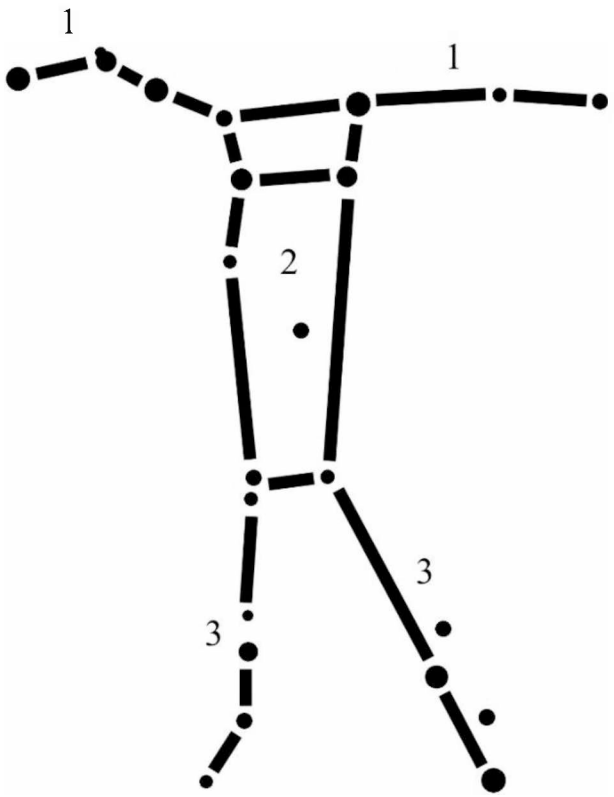

Figure 23. Star and stick diagram of a variation of the Yellowknives Dene constellation, *Yìda,* identified as a headless man. Numbers correspond to asterisms listed in Table 8.

Alfred's story about *Yèhdaa* is similar to a Dene Tha' (Slavey) story that June Helm (2000, 282-283) published, except that her version explains that it was the Traveler, *Yampa Deja,* who shot an arrow at the being who stole from people's snares. As with the Upper Tanana variant told by Mary Tyone, the Traveler's arrow hit the being in the tail which threw it out of balance as it spiraled up to the stars. In a letter written to Helm in 1956 the trapper-trader, Angus Sherwood of Norman Wells (originally from northern British Columbia), wrote:

> On a clear night Gath-lia [a Slavey medicine person] pointed to the Big Dipper and showed us one of the stars in the Dipper's handle that has a small star showing to one side. He said that the Indians had long lines of caribou snares, set in gaps of a brush fence like the Slave Indians do for rabbits. An evil spirit in the

form of a big raven robbed the snares and the people were starving. 'Always Walking' [i.e., *Yampa Deja*] heard of their troubles and came to help. He dressed in caribou skins and waited in a snare. The raven flew over low to look at the caribou and 'Always Walking' shot an arrow into his tail. This threw the raven out of balance and he could only fly in an upward spiral. The raven reached the Big Dipper and that is the double star we see today.

Gath-lia said that is why Indian children catch bulldog flies alive each summer and push straw into their tails and release them. They always spiral upwards and go to the stars as did the raven (Helm 2000, 282-283).

The double star (Alcor and Mizar) where the Traveler shot the raven spirit with an arrow is the same star that Alfred Baillargeon identified as *bek'arełka* ('place where he was shot with an arrow'). Catharine McClellan also recorded a version of this story from the Tutchone elder, Frank Smith, in August 1948 (see McClellan, Cruikshank, and Kernan 2007, 77-80). In their summary of Smith's story, McClellan et al. (ibid., 77) state: "The seven stars in question in this tale form the constellation Euroamericans know as the Big Dipper or Ursa Major, and the arrow of the story is the faint star by Epsilon in the Dipper handle." McClellan (1975, 78) refers to this constellation as *yI'da'* and writes:

The Southern Tutchone explain that the Big Dipper (*yI'da'*) is a bigheaded [owl] man who used to be able to take rabbits from snares by his magic powers whenever he said 'Hu. Hu'. Finally an Indian shot him in the backbone. The big-headed man then told the Indian to look for him that night in the northern sky, where he may still be seen today with the fatal arrow showing as a tiny star beside

the second big one in the handle. The Tutchone also include a ninth star in the constellation by adding one at the front of the dipper's bowl.[78]

Taken together, the constellation described above is connected to the Traveler in two of the four Northern Dene languages (Upper Tanana and Slavey) where variations of this story have been recorded (see Tyone and Kari 1994, Helm 2000, 282-283). Although there is more to learn about Yellowknives Dene conceptualizations and relationships to the stars, their astronomical knowledge is nonetheless maintained in remarkable detail as I further describe in subsequent chapters. Despite some uncertainty regarding a potential relationship between the Yellowknives Dene Traveler and the stars, *Yamoòzha*/*Yamǫǫ̀ya* occupies a central place in the traditional and contemporary lives of the Yellowknives Dene. The Traveler is both a historic figure and a conceptual model for behavior and actions that informs overarching relationships between self, society, and universe, all connected through time.

The Koyukon Constellation, *Ghededzuyhdle* or *Naagheltaale*

The late elder, Johnson Moses of Allakaket, described a large man-animal constellation called *Ghededzuyhdle* ('those multiple objects which are moving along') that is composed of multiple groups of stars named using body part terminology.[79] Although this constellation is also known as *Naagheltaale* ('that which is revolving') and variants thereof, Johnson said, "Me, I call it *Ghededzuyhdle*. That, my old grandpa, give me that name about him, *Ghededzuyhdle*. Yeah, my grandpa was good schoolteacher about what is all around." Born in 1924, Johnson learned about the stars from his adopted grandfather, Big William, who raised him in the bush on the

[78] McClellan (1975, 78) also states: "According to some Southern Tutchone, the Milky Way marks the flight of the loon who once cured a blind man, while the Inland Tlingit usually describe it as the snowshoe trail of the rascally *ɬqayakʷ* who went up into the sky after his brothers and sisters had turned to stone on the Stikine River."
[79] Jetté and Jones (2000, 178, 500, 733) gloss *Ghededzuyhdle* ('those multiple objects which are moving along') as the Pleiades and refer to the Big Dipper or Ursa Major as a man-like figure variously known as *Naagheltaale* ('that which is revolving'), *Nosekgheltaale* ('that which revolves its body'), or simply *Sekgheltaale*.

South Fork River near Allakaket. While Johnson was clearly an expert on traditional stellar knowledge, I was only able to meet with him on one occasion in March 2016 before his health declined. Nonetheless, Johnson's contributions are significant. When I first asked him if he knew about a man in the stars, he said:

> Yeah. I might give you something that you like to know about, you know. Because old man raised me up, you know, and he tell me all about that. He was my schoolteacher like, you know. I never go to school or nothing and I grow up out in the camp.

With respect to learning about the stars from his grandfather, a medicine man who passed away when Johnson was about 19 years old, he explained:

> If you stay outdoors, you would learn more. That's what I did with my grandpa, you know. In evening he go out [and then] come back in. He tell me what I want to see. 'Come out,' he said, 'I'll tell you.' So, I go out with him [in the] dark. Pretty soon there's stars up there, those star dipper and bunch of stars together, *Ghededzuyhdle*. All those stars, what it doing for you, he tell me. 'Don't point your hand up there,' he said. Keep your hands down and talk about him.

Although I had not yet worked out the relationship between the Traveler and these large Northern Dene constellations, Johnson explained that *Ghededzuyhdle* is a helper that people used to pray to or ask for help:

> He help you up there, you know. If you need help down here and he'll help you the way you want it. If it get dark and wind blowing real hard and he talk with that star, you know. You [say you] need help in your language. I guess white

people's language is a little different, but if you talk with him, he'll hear you and he'll give you better light.

Like the Sahtúot'ı̨nę conceptualization, most of the stars that compose *Ghededzuyhdle* are extremely dim, which supports Johnson's association of this constellation with medicine people's knowledge and the ability to see and know it through humility and a proper relationship with the world and its inhabitants. Although Johnson did not mention belief as a requisite for seeing or discovering *Ghededzuyhdle,* he stressed the importance of behavior and actions and cautioned against pointing at animals, the stars, or anything else in the sky. As a point of emphasis, he reiterated this admonition some twenty times during the first hour of our conversation and explained:

> My grandpa who raised me up, put me to school like this one, you know, the star dipper that I'm not going to point at it or keep my hands in my pocket. That's what my pocket is for, he said. [He] let me understand that you're not supposed to point at them. The moon, the sunshine, you don't point at them, or whatever is in the sky. What you see, you don't point at them. So, you don't point at animals too. Lot of things that you don't point at, everywhere, you know. You should have hand in your pocket. That's what your pocket is for.

As mentioned in previous sections, pointing at the stars or casually talking about them can erode or betray one's relationship with them and cause them to completely fade from view. Johnson said:

> Yeah, you could see it [*Ghededzuyhdle*] when star is bright. If you don't spoil it before then, you could see it. [If] you don't point at it before, and [then] you could see it. But if you point at it before, then you can't see it.

Johnson made a sketch of *Ghededzuyhdle* and then used the butt end of a pen to identify each of its body parts on a digital star chart specific to Allakaket. As he traced the outline of the constellation he said, "There's man in there. That's what the stars follow, they say; follow your body." Although Johnson initially described *Ghededzuyhdle* as a whole-sky constellation, the stars that he drew and identified on the computer correspond to a much smaller figure centered on the Big Dipper as either the man's right leg (*nelneyhts'ene' betl'ene'*) or his tail (*bekaa*). In total, Johnson delineated 15 groups of stars in *Ghededzuyhdle* that span approximately 66 degrees at its greatest width between its left and right hands (Table 9, Figures 24 and 25).

Table 9. Identification of asterisms in the Koyukon constellation, *Ghededzuyhdle*, and the morning stars. Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.

Asterism	**Translation**	**Stars**
1. tl'eghests'ene' belo'	his left hand	γ Leo (Algieba) or α Leo (Regulus)
2. nełneyhts'ene' belo'	his right hand	α UMi (Polaris)
3. tl'eghests'ene' betl'ene'	his left leg	Alkaphrah (χ UMa), Chara (β CVn), Co Caroli (α CVn)
4. nełneyhts'ene' betl'ene'	his right leg	handle of the Big Dipper (in Ursa Major)
bekaa	his tail	(variation)
5. betlee'	his head	31 Lyn (Alsciaukat)
6. bedoghone'	his torso	region bounded by the stars α UMa (Dubhe), o UMa (Muscida), α Lyn, ψ UMa
7. betsokk'e	his belly	region bounded by the stars δ UMa (Megrez), α UMa (Dubhe), ψ UMa, χ UMa (Taiyangshou)
8. tl'eghests'ene' bekaa'	his left foot	α CVn (Cor Caroli)
9. nełneyhts'ene' bekaa'	his right foot	η UMa (Alkaid), θ Boo (Asellus Primus)
10. tl'eghests'ene' betl'eele'	his left arm	α Lyn, ε Leo (Algenubi), γ Leo (Algieba)
11. nełneyhts'ene' betl'eele'	his right arm	o Uma (Muscida), HIP 47193, α UMi (Polairs)
12. betleel	his forearms	Left forearm: γ Leo (Algieba) and ε Leo (Algenubi). Right forearm: α UMi (Polaris) and HIP47193
13. bebet	his buttocks	stars not yet identified
14. benene'	his backbone	stars not yet identified
15. belots'eele'	his fingers	star(s) not yet identified
16. yokk'uł	sky neck	Milky Way Galaxy
17. yokkolaaye	it leads light into day	α Aql (Altair) and γ Aql (Tarazed)
kk'odehun' h~~uk~~'etlun'	morning stars	(variation)

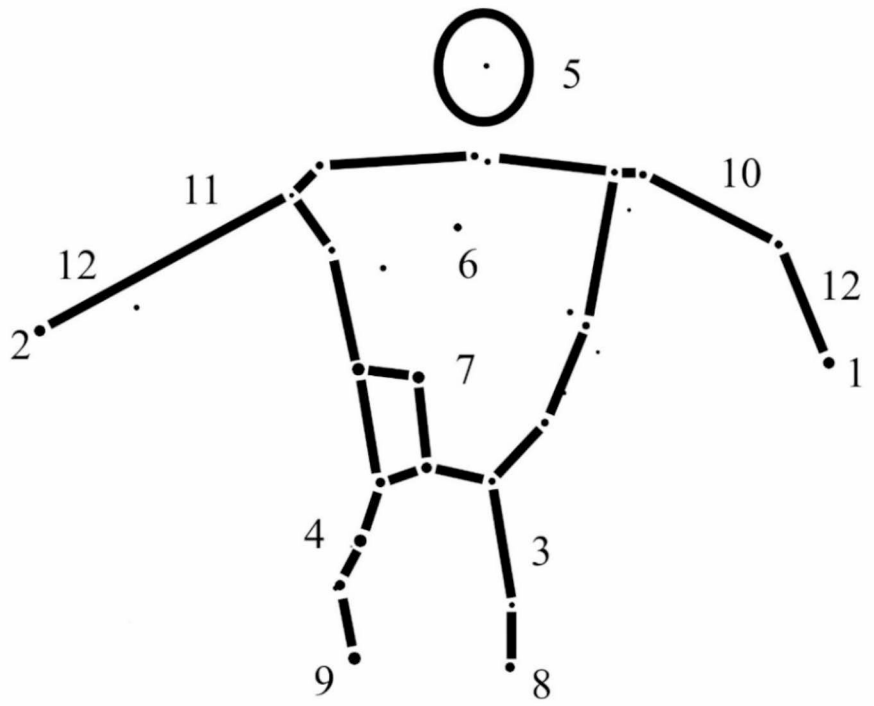

Figure 24. The Koyukon constellation, *Ghededzuyhdle*, as identified by Johnson Moses of Allakaket. Numbers (1-12) correspond to asterisms listed in Table 9.

Figure 25. A sketch of the Koyukon constellation, *Ghededzuyhdle*, made by Johnson Moses of Allakaket on March 20, 2016.

Johnson referred to the Milky Way as *yokk'ul* ('sky neck'), which he described as "the neck for all the stars." This is cognate to the Upper Tanana term, *yaak'oh*, that Roy David used to refer to the Traveler, *Yamaagn Teeshyaay*, who's spirit envelopes the earth like the atmosphere. When I asked Johnson if the Milky Way is a trail, he replied, "Yeah, that's the one help you, help them to give us light, you know." Johnson's description seems to refer to the Milky Way as the origin or "neck" from which all stars (spirits or souls) reach their place in the sky and perhaps guide people in their way through life. I assume this is the trail of the Koyukon Traveler, *K'etetaalkkaanee* ('the one who paddled among things'), but it could also be the Raven's trail made while restoring daylight to the world. Evidence for the latter interpretation is supported by Jetté and Jones (2000, 637) who identify the Milky Way as *y~~u~~htseeyh yo teł oyh hu* ('where your grandfather [Raven] snowshoed over the sky').[80] However, when I asked Johnson if *Ghededzuyhdle* is the Raven, he simply said that it has always been there. As with speakers of other Northern Dene languages, Johnson conceptually related *Ghededzuyhdle* to a constellation of two morning stars called *yokkolaaye* ('it leads the light into day,' α Aql and γ Aql) and said: "Morning stars is [part of] *Ghededzuyhdle*. That's the whole thing, you know."[81]

My conversation with Johnson helped to narrow my focus and attention on the significance of faint stars and how they might relate to spiritual awareness and a specialized way of knowing. When describing *Ghededzuyhdle*'s head Johnson said: "You can't see the head, but when it's really dark then you could see it little bit. Little writing like, you know, small." Notably, the dim star (31 Lyn) that composes the head of *Ghededzuyhdle* is located near the heart of the Gwich'in, Ahtna, Upper Tanana, and Lower Tanana whole-sky constellations, which further illustrates the entrenchment of this region of faint stars in Alaskan Dene astronomical

[80] Recall that the Milky Way is also the snow-packed trail of the Gwich'in Traveler, *Ch'iteehàakwaii*.
[81] Cf. Jetté and Jones (2000, 696). Johnson also referred to these stars as *kk'odehun' h~~u~~k'etlun'* (lit. 'morning stars').

knowledge systems. Regarding *Ghededzuyhdle*'s overall appearance and its extreme dimness, Johnson said:

> If it really dark, really dark, then you'll see the leg and you see the footprint. It's not really big dot. It's small. Hard to see, you know. Right now, I can't see it no more because bum eye. But I bet you could see it if no wind and if it's bright you could see it. But if little bit wind, then you can't see it. It take lots to see that star. Yeah, it have to be certain kind of weather. You'll find out when you start to look at it, you know. You wait for the kind of weather you could see it and that's when you have your good chance to see it.

Johnson's statement about the wind is significant given that he also explained that the ideal time to teach or talk about *Ghededzuyhdle* as an ally or helper is during the wind when the stars are intermittently visible through scattered or broken clouds. He said, "If it's wind blowing out there and kind of cloudy a little bit, and you see the star now and then, that's when it's a really good time to tell you what it could do, you know." Johnson's comment suggests that the wind and clouds, which obscure or reduce the clarity of stars (atmospheric seeing), also provides a type of social and physical cover between the observer and *Ghededzuyhdle*, thereby helping to reduce or mitigate against any potential consequences that may result from talking about the stars.

Johnson obligingly offered to share this stellar knowledge given his advanced age, which provides valuable additional context regarding the dissemination of these knowledge systems. However, he explained that talking about the stars would "bother" him if he were still an active hunter. He said:

You see, I told you that I don't talk about stars but that's first time in long, long time I talk about it a little bit. It's going to bother me if I start to go out hunting or something. Stars give you light and when you go out if you talk about them, bum. Then you'll find out that it never help you; it give light towards you.

Although I lacked the insight at the time to ask Johnson if *Ghededzuyhdle* is the incarnated spirit of the Koyukon Traveler figure, *K'etetaalkkaanee,* his description of the stars and his humility and behavior towards them strongly corresponds to a broader pattern of knowledge and practices surrounding Northern Dene Traveler constellations. Johnson also encouraged me to write about this knowledge and seemed invested in accurately describing it so that others could learn.[82] Near the end of our conversation about *Ghededzuyhdle* he said: "You know I never tell my kids that kind of story, but I give it to you. Maybe you write it down and they'll read it sometime."[83]

Johnson's knowledge about the man-animal constellation is perhaps more characteristic of the Upper Koyukon region, given that an alternative conceptualization is present in the central and southwest portions of the language area between Kokrines and Nulato. This variation is known through the Raven cycle and approximately corresponds to the Yellowknives Dene, Upper Tanana, and Northern Tutchone stories that describe the constellation as a malevolent figure who was shot in the back with an arrow. The Koyukon story is sometimes told in two parts, the first of which popularly recounts Raven's ploy to restore daylight to the world after a malevolent medicine man, usually a bear, stole the sun and moon (See Attla 1983, 87-106). The

[82] Eliza Jones (Jones and Moses 1989) recorded an interview with Johnson Moses about traditional astronomical knowledge in March, 1989. Although Johnson referred *Ghededzuyhdle* as a time referent, he did not refer to it as a man or man-animal figure composed of body part star groups who helps people. He described the morning stars (*yokkolaaye*) as a time-referent and referred to an unidentified star called *heldlekeł* ('he's wearing a belt').
[83] Johnson's son, Rudy Moses, facilitated our work together.

second part, which describes the constellation's appearance in the sky, is a continuation of Raven's medicine fight with the malevolent shaman in the afterworld.

James Johnson Jr., an elder originally from Ruby, told me an abbreviated version of this story in April 2017. Other variations were recorded by Edward Nelson (1880, 80-84, Nelson and Vanstone 1978, 56-58), Jules Jetté (1898-1906), and the late Nulato elder, Charlie Brush (1985). Jetté (1900-1920, Jetté and Jones 2000, 500) wrote the following summary of a version that he recorded from Jane Rałoyaratatłno of Kokrines in February and March 1909:

> To the Ten'a the *naagheltaale* is a man, from whom the legendary Raven recovered by stealth the sun and the moon. As Raven was taking his flight with these the injured possessor stabbed him, and though able to reach his home, he died immediately after. He then returned to the *naagheltaale* and killed him, whereupon they made friends and journeyed together to the *naaghedeneeł ne te* (among the dead). There they parted, the one to become the measurer of time, the other to be a Raven again. As the *naagheltaale* was ascending to his position in the sky, Raven speared him between the shoulders, where his back is now humped. The star η [Alkaid] is the head of *naagheltaale*, and ζ [Mizar] is the place where he was hit by the Raven's spear; α [Dubhe] and β [Merak] are the buttocks: the legs are formed by the minor stars in front of the Pointers [of the Big Dipper]. But scant attention is given to these by the majority of the Ten'a who practically know only the seven bright stars of the Dipper. In January and February, the 'head' of the *naagheltaale* points to the east, some time before sunrise, hence to say 'it is morning', 'it is time to rise', the Ten'a will say *naagheltaale yekkoyh aatleeneetleyh*, 'the *naagheltaale* turned its head to the

light', has ['touched the light with its head',] or merely: *yekkoyh aatleek'eneetleyh* 'it has turned its head to the light'. . . ['it has touched light with its head'].[84]

Although Jetté made several sketches of *Naagheltaale* (1898-1906, 1900-1920, 1905a, 1905b, Jetté and Jones 2000, 500) that simply correspond to the Big Dipper, his comment that "the legs are formed by the minor stars in front of the pointers [of the Big Dipper]" suggests a larger representation than shown by his drawings. Jetté's (1898-1906, 1905a, 1905b) manuscripts also include body part names for several star groups that compose *Naagheltaal*e in additional to a name for the star (ζ Uma) where the Raven speared him between the shoulders (Table 10).

Table 10. Identification of star names in the Koyukon constellation, *Naagheltaale* as identified by Jules Jetté (1898-1906, 1905a, 1905b). Stars identified by Bayer or else Flamsteed designations, when necessary, followed by common name in parenthesis.[85]

Asterism	**Translation**	**Stars**
metlee	his head	η UMa (Alkaid)
metl'o'	his buttocks	α UMa (Dubhe), β UMa (Merak)
melo'	his hand	α UMi (Polaris)
meggontekk'et	between his shoulders	ζ UMa (Mizar)
k'eh~~u~~detlgets	crooked/humped	(variation)

In the stories recorded by Nelson and Brush, the Raven is asked to avenge a malevolent medicine person who attacked the people with a great sickness as opposed to a bear who stole daylight. Nelson (1880, 84, Nelson and Vanstone 1978, 58) refers to the malevolent medicine man as an "Ermine Shaman" who was speared in the back by the Great Raven after they had

[84] In a footnote, Jetté (1898-1906) states: "Another version, from Yevana, describes the fight, but my narrator insists that the details given by him belong to another story."

[85] Jetté also recorded the phrase, *Detsey Kk'aatl'o Neenaa'edoye* ('the one that comes back in his grandfather's place'), which refers to *Naagheltaale* and Cassiopeia as a group of two constellations that continually exchange places in the sky. This is conceptually similar to the Ahtna phrase, *Ku'el Nekehwtngelnes* ('they are going around each other'), which Charlie Hubbard uses to describe the continuous circling of *Nek'eltaeni* and the malevolent being in the stars known as *Nec'aadze' Teltaen* ('he leans away from us').

already killed one another in a medicine fight. While traveling up the Yukon River together on their way to the afterworld, Nelson (1880, 84, Nelson and Vanstone 1978, 58) writes:

> The next morning they arose and Raven placed together the charred ends of the logs from their fire saying, 'Our friends in coming after us to the land of the dead will see our fireplace here and will always, hereafter make this their first stopping place.'
>
> Then he turned to the Ermine shaman and cried, 'Well! Which way are you going to take now?' The latter answered by pointing in the direction of the North Star and said, 'I am going there.' 'Where are you going?' he asked; and Raven pointed over the eastern horizon. 'Very well, I am going,' said the Ermine shaman and he began floating slowly up toward the sky.
>
> He had gone but a little way from the ground when Raven raised his bear spear and cast it at him with so true an aim that it pierced the shaman in the small of the back where it stuck fast. When the spear struck him the Ermine shaman cried out in pain, bent his body forwards, and threw back both hands, and, in this position he floated up and became the constellation of the Great Bear. And ever since he has turned around in the sky with the spear [Polaris] fast in his back as anyone can see. The Raven walked far off into the dawn and has ever since been seen as the morning star in winter.[86]

[86] Nelson's (1880, 85) fieldnotes include a sketch of this constellation that resembles the outline of a being traced around the Big Dipper. His drawing includes Polaris (the spear) and the double star in the Big Dipper where the Raven hit the Ermine Shaman with his spear. The latter star, however, is in a location where no double star exists and the Big Dipper is drawn backwards, suggesting that Nelson did not base his drawing on actual observations of the stars.

Like the Upper Tanana, the Koyukon have two different conceptualizations of the man-animal constellation known as either *Ghededzuyhdle* or *Naagheltaale* (and variations thereof). Although the Raven is a trickster, he is a similar transformer figure of the world that readily maps onto a broader Northern Dene astronomical knowledge system centered on the Traveler. Regarding the similarity between these figures, James Johnson Jr., who grew up hearing an extensive repertoire of stories in both the *K'etetaalkaanee* and *Dotson' Sekk* ('Great Raven') cycles said, "You know, to me the Raven and this guy, *K'etetaalkkaanee*, was pretty close together (i.e., similar)." It is also crucial to note that these large Northern Dene constellations are only described in stories when it is a malevolent being that the Traveler or other ancient figure eradicated. Conversely, when the constellation is known as the spirit of the Traveler himself, there are no stories that explicitly describe his transformation to the stars given that it is a heuristic process of personal discovery that elucidates sacred meaning and instills a relationship with the Traveler as the embodiment of the world.[87]

The Upper Kuskokwim Constellation, *Noghiltale*

Apparently, little is still known about an Upper Kuskokwim constellation called *Noghiltale* ('that which moves back and forth'), usually identified as the seven stars in the Big Dipper used for time-reckoning. The late elder, Bobby Esai, of Nikolai vaguely associated this constellation with a *nwho'an*, an unsocialized and feared "Brush Man" widely known across Northern Dene cultures. However, Bobby emphasized that discovering *Noghiltale*'s identity was also one of his outstanding questions.

Bobby referred to the Pleiades as a group of caribou called *Midzish* ('caribou') that are pursued by two unidentified stars who are brothers (see Chapter 4). He described the Milky Way

[87] A rare exception is Charlie Neyelle's story about *Yámǫréya*'s transformation to the stars after ascending a cliff near Fort Good Hope.

as a "big road" whereas Miska Deaphon (1977) referred to it as *Tetin* ('trail network'). Collins and Petruska (1979, 98) elicited the term, *Mihoyołkole*, as the name of an unidentified morning star.

The Dëne Sųłiné Constellation, *Yéhda* or *Yeda*

In May 2018, Melissa Daniels of the Smith's Landing First Nation invited me to attend and help coordinate an inhouse workshop on Dëne Sųłiné astronomical knowledge. Nine Dene speakers from four Canadian provinces participated in this weeklong workshop in northern Alberta. Daniel Alphonse, an elder originally from Black Lake Saskatchewan, associated *Yéhda/Yeda* (Big Dipper) with the giant Traveler, *Hocho/Hochok* ('the big one'), who lived after the "great thaw" when ice covered the earth. Like other Dene Traveler figures, *Hocho* transformed dangerous animals into their present forms and shaped the landscape by dragging his axe to create the rivers that drain the major lakes in the Northwest Territories, Alberta, and Saskatchewan. Although Daniel did not identify any body part star groups that compose *Yeda*, he emphasized that learning about this constellation is part of a heuristic process that embodies a Dene philosophy:

> It's present in the sky, eh. *Yeda*, a being in the sky, a translation of *Yeda*. Yeah, present. Something in the sky. *Yeda*, sitting there somewhere. And so, there's a piece of it. But what is it? OK, it could be anything. [Use] your imagination, eh. So, trying to find the answer is what it really is. . . It's a Dene philosophy. That's something that you don't have the answer to everything, eh. That's how stories

were told in the days. So, it keeps you going and what it is, you try to figure out. It's a philosophy, I think.[88]

On learning from elders' words and stories Daniel said: "We just learn and then we live our lives like that in those ways. We don't look for answer right away. These stories are told for us to learn to live our lives accordingly." Dennis Drygeese commented:

> You know when the elders tell their stories, we don't ask them for details or specifics, you know. It's just what they say. *Hedı*, *ʔadı* ('they say, s/he says') and we don't go beyond that. We just listen and accept their stories. . .We don't say, 'Why is this like that? Why? Why?' We don't say those words. 'That's how it is,' they'll say to us. 'That's how its been told.'

Elders identified the Milky Way as a trail known by the unpossessed forms *tu̧lu*/*tu̧lu* or alternatively, *tthe̋n lu* ('frozen stars'). One Dëne Su̧łiné speaker described *tu̧lu* as a trail that spirits, or souls follow on their way to the afterworld and said: "You see that Milky Way at nighttime? My elders, they say it's calling for somebody [whenever it is clearly visible]. And a couple days later someone will pass away."[89] The Dëne Su̧łiné also traditionally woke up early in the morning and addressed their prayers towards an unidentified morning star called *tthe̋n xáu̧ʔą* ('star which has come up') or *yełká tthe̋n* ('dawn star'), which pulls or "brings the sun up" at dawn. One speaker added: "And the morning, you get up in the morning, respect me (i.e., morning star) in the morning, you know, how you gotta say - pray, thank you." Participants at the workshop also emphasized respecting the world and taking care of it. In this respect, one

[88] One Dëne Su̧łiné speaker identified the Big Dipper as *łáu̧sdu̧ghu̧ chëlekuı* ('seven brothers') who "left because of their medicine power." This conceptualization is perhaps influenced by the Algonquian and Siouan families (see, for example, Wissler 1936, 8-10, Stands in Timber, Liberty, and Utley 1998, 16-19, McCleary 2012, 69-77).

[89] For the Karuk (Hokan language family), Driver (1939, 402) similarly reports: "When [the] Milky Way [is] plainly visible it means someone has died and the road is being kept open for him."

elder explained that the world will end in heat and drought. However, those who are respectful and "take care of everything around them" will "make it through and then start again" when the world is remade.

A more concerted effort to learn from elders throughout the Dëne Sųłiné region will likely confirm a larger Traveler constellation composed of multiple stars groups named using body part terminology. For instance, one elder from Wollaston Lake who was unable to attend the workshop due to an illness reputedly knows of a giant in the sky that is "made of lots of stars." Another participant who did not want to provide misinformation simply explained that there is a lot of knowledge about stars in the Dëne Sųłiné region and recommended reaching out to elders in other communities. He said: "There's lots of stories on it. That's why I tell you gotta go to more [in the] Dëne Sųłiné area. You'll get a lot of information there. Dëne Sųłiné, they got lots of stories."

The Dena'ina Constellation, *Yuq'eltani* or *Naq'eltaeni*

In September 2019, the Kenaitze Indian Tribe sponsored an inhouse Dena'ina language and astronomical knowledge workshop that I attended with James Kari in partnership with the organizers, Joel Isaak and Jenifer Williams. During the workshop Steve and Pauline Hobson from Nondalton, identified the Milky Way as the Traveler's trail known as *K'uzhaghałen tinitun* ('trail of the one who is packing his niece'). As with other Dene languages, the name of the Traveler varies across the Dena'ina dialects. It is known as *K'uzhaghałen* in the Inland dialect and *Yubugh Tayqan* ('the one who paddled around the edge of the sky/world') or *Kił Qeyu* ('Smart Boy') in the Upper Cook Inlet dialect (Osgood 1937, 173, Kari 2007, 309-310). Whether the Traveler is present in the Outer Cook Inlet and Illiamna dialects is not clear.[90]

[90] Osgood (1937, 173) refers to *Kił Qeyu* as a "teacher" and states: "Before there were any men, the earth was inhabited by black flies; then came the animals, including man. Into this fanciful cosmos was introduced the teacher

Steve and Pauline summarized the Traveler cycle from their area which begins in autumn when *K'uzhaghałen* is in a steambath engaged in sewing, knitting, and beading as if isolated during a female's menstrual cycle. Pauline noted that it was the men who originally menstruated rather than the women. During his seclusion, *K'uzhaghałen*'s sister felt sorry for him and offered to take his place so that he could go hunting and fishing like everybody else. When they traded places, thereby swapping men's and women's biology, gendered divisions of labor, rites of passage, and social protocols, *K'uzhaghałen* warned his sister (or niece) against looking at the geese as they flew south. However, when *K'uzhaghałen* returned to check on his sister, he found that she was missing and knew that she had broken protocol by looking at the migrating birds.

K'uzhaghałen announced that he would leave to search for his sister which begins the cycle of stories that describe how he went on the first vision quest and shaped the landscape, invented indigenous technology, and transformed all the animals and other beings for the benefit of humanity.[91] Shortly after his departure, *K'uzhaghałen* invented the canoe by modeling the bow and ribs after the breastbone of spruce grouse. Pauline said:

> And then he saw that bone, the breastbone and it had a good shape, you know, for traveling in the water. So, he copied that to make his canoe. Just like the breastbone on a spruce hen, he made a canoe.

---

kiƛgiyo [*Kił Qeyu*], who went from one country to another teaching. *Kiƛgiyo* had two wives and knew everything. He made the land otter, the weasel, beaver, and many other animals. Before he came, there was only rain water to drink, but *kiƛgiyo* made water run from a horse-cabbage. He cut open the mouths of animals so they could talk. Then he taught people how to make dry fish and to bring children into the world (they were formerly born only after some caesarian-like operation)."

[91] Walter Johnson (2004, 49-54) describes a large rock called *K'ghuzhaghałen Qanłik'a* ('*K'ghuzhaghałen*'s Rock') located at "the summit of Illiamna Portage." *K'ghuzhaghałen* pushed up this rock when going through this pass in search of his "younger sister". The Dena'ina formerly placed votive offerings in a crack in this rock when they passed by on the trail. The rock was "demolished during roadwork in the 1950's."

In no particular order, Steve and Pauline summarized *K'uzhaghałen*'s encounters with the snowshoe hare, spruce grouse, otter, mosquito people, and the woodpecker. With respect to transforming all the animals Pauline explained:

> Every animal that we have, that's who he stayed with. They were all people. But when he woke up in the morning, he checked their food. You know, they had lots of food. He just had a feast with every one of them. And he save food. He'd put it under his pillow. Wake up in the morning and whatever they were eating, you know. Like with the spruce hen it was pine needles was under his pillow. And with the rabbit it was willows. There were just willows under his pillow and whatever the animals ate. . . That's why they [animals] are the way they are today. Because *K'uzhaghałen* either corrected them if they were trying to hurt people [or] he fixed it so they wouldn't hurt people.

In one of the longer and more popular episodes *K'uzhaghałen* was taken by a giant who placed him in his shirt pocket while they traveled (cf. Tenenbaum 2006, 54-71). The giant caught "rabbits" for *K'uzhaghałen*, which were in fact, whole caribou. At another point, the giant fought with another giant, which formed the rugged mountains between the head of Lake Clark and Lake Illiamna.[92] At the end of the episode, *K'uzhaghałen* sensed that the giant was going to eat him and devised a plan to kill the giant by shooting arrows into his back while he slept beside their campfire. When the giant became agitated, *K'uzhaghałen* explained that the tiny arrows were simply errant sparks from their fire. The giant eventually stood up after sensing that

[92] The story of the battle between two giants is widespread throughout the Alaskan Dene languages. Trimble Gilbert, a Gwich'in elder from Arctic Village, told me a version of this story in June 2017 where the giant, *Zhee Choo,* wrestles with his brother, *Zhee Khwòch'ii*, on a frozen fishing lake. The Traveler, *Chiteehàakwaii*, helps topple the opposing giant by chopping his Achilles tendons.

something was terribly wrong and staggered to his death while *K'uzhaghałen* watched from the brush.

The story cycle continues until *K'uzhaghałen* finally locates his sister living among numerous people who were geese. He is apparently an old man at this point who had traversed the world in search of his sister with whom he carried back home along his Milky Way trail. Steve explained: "When he was going around, he was walking on earth making all these things [Dena'ina technology]. And then when he found his sister they didn't walk. They came back on the Milky Way." Like other Traveler cycles, the fate and whereabouts of *K'uzhaghałen* is left unresolved and open-ended. Pauline explained: "He came back up [along the Milky Way] and he landed somewhere back up here. Back [in] Alaska, but they claim he's living. Still living today." Steve added: "Somewhere, but no one ever see him."

Although the elders at the workshop did not describe a Traveler constellation apart from the Milky Way, his transformation to the stars clearly extends to Dena'ina.[93] This evidence is found in the "Dena'ina Topical Dictionary," where the name of the Traveler in the Upper Cook Inlet dialect, *Yubugh Tayqan* ('one who paddled around the edge of the sky/world'), is glossed as an unidentified constellation in tandem with several other unidentified star groups that incorporate body part terms (Kari 2007, 148). However, the more common name for this constellation in the Upper Cook Inlet is *Yuq'eltaeni* ('the one over the sky') (Kari 2007, ibid.). In other words, the Traveler, *Yubugh Tayqan,* presumably became the constellation *Yuq'eltani* just as the Gwich'in Traveler, *Ch'iteehàakwaii*, became the constellation *Yahdii*, for example.

Shem Pete, who grew up at Red Shirt Lake in the Upper Cook Inlet (Kari, Fall, and Pete 2003, 1), discussed *Yuq'eltaeni* at a language workshop in Tyonek that James Kari organized in

[93] Helen Dick and Steve Hobson identified the Big Dipper as *Naq'ech' Niqahdghuqesi* ('one that turns over us'). Steve also referred to an unidentified evening star called *Hełch'teh Qe'uhi* ('the one moving in the evening').

1981. The late elders, Pete Bobby, Peter Kalifornsky, Antone Evan, and Max Chickalusion also attended. Kari's unpublished cassette tape recording (Pete et al. 1981) from the workshop contains the most detailed Dena'ina stellar knowledge recorded to date and is the source for most of the star names that appear in his "Dena'ina Topical Dictionary" (Kari 2007). Kari generously transcribed and translated the 20-minute audio segment about stars in October 2019. After exchanging several drafts, we completed a near polished transcript in July 2020.

The excerpts provided below show a strong correspondence with Gwich'in, Upper Koyukon, Ahtna, Lower Tanana, and Sahtúot'ı̨nę stellar knowledge, particularly with respect to the association of *Yuq'eltaeni* with medicine people and the prophetic knowledge that can be read from stars. Pete Bobby begins by stating that all the stories about stars are interrelated. Shem Pete steers the conversation by describing how a dreamer or medicine person at Kroto Village predicted a catastrophe for the Susitna people after observing the position of *Yuq'eltani*.[94] Shem mentions that certain clairvoyant people can read the stars "just like you can read the book." Notably, he states that *Yuq'eltani* is "curving away from us" when things are not going well on earth. This language is strikingly similar to the Ahtna phrase, *Nec'aadze' Teltaen* ('he leans away from us') that Charlie Hubbard uses to refer to the malevolent being in the stars.[95] Shem describes *Yuq'eltani* as an old man while referring to an unidentified star group called *naq' bekenyah* ('the first platform over us'). He clarifies, however, that *Yuq'eltani* appears in animal form to those who can read the stars. Shem subtly mentions several additional star groups while explaining that *Yuq'eltani* is also packing his child (*begguya*) and drawing a heavily loaded sled:

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[94] This prediction is similar to the Susitna prophecy described by Shem Pete in "*Susitnu Htsukdu'a*: Susitna Story" (Pete 1975).

[95] Charlie Hubbard knew Shem Pete and noted that he could speak multiple dialects of Ahtna and Dena'ina. Kari and Fall (2003, xiii) refer to Shem Pete (1896-1989) as the "foremost Dena'ina cultural broker of his time."

Tyonek Language Workshop: Stars (ANLC3813), Side A
Shem Pete, Pete Bobby, Peter Kalifornsky, Antone Evan, and Max Chickalusion
Recorded by James Kari in Tyonek on February 11, 1981
Transcribed and Translated by James Kari in July 2020
with annotations by Chris Cannon

[5:30 – 8:06]

[P.B.]
Sukdu k'a dnaghelt'ayi shugu,
There were many stories for it (stars),

ts'ilghu hnintnalchinch', vestory'a qilan.
they were made all together, the stories of the stars [are interrelated].

[S.P.]
Ighi kisht'a qeyghudghiłt'a shi sen ghini.
They really used those stars.

Ighi Yuq'eltani ghini nghił'ani ghuna, just like you can read the book.
That *Yuq'eltani* ('the one over the sky'), the ones who looked at it, just like you can read the book.

Yeh qebeł yighit'a.
To them, they were into it.

Na'eł nuk'dułah dghu, Dashq'e ghu nutsislahen ghidu, Chijuk, I seen 'em.
What would come to happen for us, at *Dashq'e* (Kroto Village), one who can dream stayed there, Curly Hair, I seen 'em.

Yen ghunen ya nayna ch'u ndatna ełni.
That guy, he told us about it and a number of people.

"*Yuq'eltani gini nak'uch' k'ighelch'itl'.*
"*Yuq'eltani* is curving away from/against us.

Dach'u nak'uch' gheli k'ighelch'itl', ch'u nak'u'ilghel.
That way it is really curving against us, and it has moved away from us.

Ch'adach' q'u ghit'iy yada nulyuq qubeł nunhdełanh ch'u ch'uhdghilt'a."
Whatever that might be, some sign has occurred for their times, events, and it could be tragic."

That's true *hyunulyuq.*
That's true, an omen happened to them.

Qut'ana ghuna qilan ghu Susitnu łu qeyanihnidulnish.
Those people who are at Susitna died suddenly.

Qit'a nił'an nak'uch' k'ighelch'itl' yighi'an.
He is seeing something like that, that it was curved against us, he had seen that.

Naq' Bekenyah eł dghini en'ushen nlan.
Naq' Bekenyah ('the first platform over us'), he said is an old man.

Ch'a ch'u qit'aduna eł hnighidełqet, "*ya shidełqeť*".
Those who were aware were asking him, "You can ask me about it (he said)."

Nch'uk'a neł'ani shidi. Yuq'eltani ghe deshni.
I do not see this (in the sky). I speak about *Yuq'eltani*.

Yen k'i ninł'an, nch'uk'a neł'ani shidi.
You too can look at him, but I don't look at him.

Ninya nlani shi.
It is actually an animal.[96]

Animal, *begguya k'a k'ilan.*
Animal, he has a child.

Begguya k'a yughał.
He is carrying the child in a pack.

Hye'ih dghu hitnalya ka'a gheli ughe dehetlyilis.
As they see it, a really large load he is dragging on a sled.

Yuq' q'u ugguya qubenik'elgheł hye'ih dghu,
In the sky his child is laying down for them, they see him,

yi k'u nanegheł q'u nghił'an.
but he saw that in our presence.

Ch'u dach' nilyan ch'u nak'uch' k'ighelchitl', ch'ach'u qit'aduna elni.
It had grown that way and it arced away from us, he told about that some people who could comprehend (clairvoyant people, dreamers, or experts).

They find out *yeh nunulyuq* - month *k'a shi qidlanh hnuq'u łuq'u*, everybody die.
They find out, an omen occurred, in about a month everyone, everybody die.

First week we lose 36.

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[96] Ahtna elder, Charlie Hubbard, used the phrase, *nunyae nlaen yaat'aay* ('the animal is in the sky'), when describing the shapeshifting abilities of the whole-sky constellation, *Nek'eltaeni*.

Q'uda quht'ana qeyenghił'ani shi.
The people had looked at it (him).

Nayi q'ah qut'ana ina ghuna di qyenghił'an, Yuq'eltani ghuna.
We, our peoples followed it by watching *Yuq'eltani*, those people.

Ninya nlan q'u qeynghił'an
It was an animal they were looking at

ch'u htunił ghu k'a nul'ish.
and what would happen would be presaged.

[P.B.]
Ezhi htułał ghu.
If it was going to get cold.

[S.P.]
Edli htułah yi k'a ghu k'a nul'ish.
It would presage the cold too.

Nuhtidulteł ghu k'a nul'ish.
It would presage turbulent weather.

Qa'it'utsi t'et'an nul'ish.
If a spinning (wind/storm) occurs, it would presage.

Qey'uqa qiltash, qil jetshla k'a hnul'ish.
If they are pursuing something (game) and if it is just little bit unfortunate, it would presage that also.

Qeshqa ina qeyldunah ghu t'ent'ah hnul'ish.
The chiefs, some of them could foretell such things.

Q'edghu utsesa ghu galeq ghu ch'hnił'an dghu t'ehyiighisen.
In addition, it is his clock and a calendar, like we see, they can use it like that.

[P.B.]
Nt'iyna shughu denhyuqel'ana heł qetni.
There were such brilliant people, they would say to us.

[S.P.]
Shunkda Naq'a Kala tult'eh ghu ineł'ani daghiset t'an.
My mother would watch how *Naq'a Kala* ('our cavity tail,' Big Dipper) will move in the distance doing things.

Unaqa'idełjehch' ugguna qistlagh
As those stars move in an arc, its arms disappear.

gun ła nidighiltan.
as that one lays at that point.

Shem continues in the following excerpt by noting that *Yuq'eltaeni* is disappearing, which implies the erosion of traditional laws and protocols and a fading relationship with *Yuq'eltaeni*. He mentions that most people only see stars when they look at the sky as opposed to *Yuq'eltaeni* and all the wisdom and knowledge that it embodies. Crucially, Shem states that through *Yuq'eltaeni* the people were "aware of everything."

[8:36 – 9:20]

Ghinihdi hech'enił'ih di sen yan q'u ch'enił'ih.
As we look at that one, and we see only the stars.

Animal *t'entach' qesigh,*
The animal doing that is disappearing,

di yenił'ani ghuna hdi ninya nlan.
but to those who look at it, it is an animal.

Begguya ghin k'a yughal.
His child, he is packing his child.

Ch'u ghini hitnalya ka'a hehyilis, qeshqa nuqebeyił'ish.
A large sled load he is dragging, the chief can foretell things about them.

Ch'u galeq, galeq idiłti galeq heynił'an yeqech' gheli t'ehyighisin.
And they looked at it like the way they look at and use books, that is how they used them (stars).

Ch'adach' ch'adach' ye quł'uł yet ch'ideh q'udi ch'adach' t'ehtunił łuq'u,
So, how things are happening, what we experience there, what will occur,

qeynił'an yi dughi łuq'u q'u qit'anaghiyen.
as they look at everything, and they were aware of everything.

Naynehdi bech' yihghisen yan, bech' ch'nił'ih.
But to us, toward it, there is nothing inside it, as we look at it.

In the final excerpt below, Shem reiterates that only those who saw *Yuq'eltani* as an animal could understand and interpret it. Notably, he mentions that elders who knew about *Yuq'eltani* could speak to others about it in its presence.

[12:39 – 14:16]

[S.P.]
Ighi en'ushna ghunen ełan dghu,
So, if I am one of the old guys,

Yuq'eltani Naqahdghuqesi qeyghudiłt'a.
they can use *Yuq'eltani* or *Naqahdghuqesi* ('the one that rotates over us,' the Big Dipper).

Ye ghini ghu ninya nlan, yeghi'ani qit'adudinesh da,
That one that is an animal, if he sees it, he can understand it,

benugheł qeynuqulnek da.
then they can tell about it in his presence.

Correct, *q'u la'a dghini*, correct.
That is correct, what they say [is] correct.

Q'uda n'ushen beq'e nuqelnegen ghun,
That old man who told about it,

galeq gheli q'u yighel'an.
it is just like reading an actual newspaper.

Yetu'uł ch'u yeqech' t'ehtunił tomorrow,
What will happen, how it will be tomorrow,

yeqech' t'ehtunił, yeqech' itutquł.
what will happen, how the dawning will be.

He know everything, just like read the newspaper.

On this trip *elugh k'a yighel'an ch'adaneł'ihi.*
On this trip [to Tyonek] nothing has happened that he has seen.

Just stars *hyeghi'an.*
They just see stars.

Ch'u elughk'a nhidel'ish, nothing.
I would not recognize it, nothing.

I couldn't recognize [it]. I couldn't make it out of nothing.

But that was an animal though, animal.

That star, one whole full big body animal.

But when we see the star, even Jim or anybody can see that is just a star.

But the guys [who] know that about it, he seen 'em.

Ninya nlan, you know.
It is an animal, you know.

Yuq'eltani naq'e naqanagheltali shi.
The one on the sky over us, he rotates.

Naynahdi ch'eł'ihi sen, that's all.
When we see it, it is just star, that's all.

(laughter)

No *nch'u ch'ił'an ki*.
No, we cannot do that any longer.

We can't make it out of nothing.

You know what I mean, we can't make it out, nothing.

The elders continue their conversation by comparing star gazing to reading tea leaves. Shem Pete also described the Milky Way as *ten nuqudes* ('trail is twisted') while Antone Evan of Nondalton referred to it as *K'uzhaghałen naq' tusghiyu* ('the one who is carrying his nephew walked over us').[97] Kari (2007, 148, 310) similarly lists *K'uzhaghałen ten* ('trail of the one who is packing his nephew'), *yuq' niyunen beq'* ('tracks of one that walked in the sky'), *na'ujegh ten ey'a* ('son of trail over us'), *chulyin veq'* ('raven's tracks'), and *chulyin tusghiyu* ('raven went

[97] Note that the one who *K'uzhaghałen* is packing varies with speakers as either his sister, nephew, or niece.

through pass') as unidentified constellations that are presumably names for the Milky Way.[98] Like Koyukon, the latter two names for the Milky Way that refer to the Raven's tracks suggests that the Traveler figure may be similarly transposed onto the Raven in some areas of the Dena'ina region.

Shem also mentions that *Yuq'eltani* has saliva in his palms and said: "*Ighi belaq'a du qeylnihi hyaq'a yethdi, q'it'a ideshni* ('So, it has palms, they say its saliva is there, I know that, in his palms'). Alan Boraas noted that the late elder, Peter Kalifornsky, spoke of saliva as a form of protection when rubbed on the soles of one's feet (pers com. Oct 7, 2019). James Kari and I have flagged the following names given by Shem Pete as presumptive star groups that either compose *Yuq'eltani* or are related to it (Table 11).

Table 11. Identification of presumptive asterisms in the Dena'ina constellation, *Yuq'eltani* (Pete et al. 1981, Kari 2007, 148).

Asterism	**Translation**	**Stars**
bekala	his tail	Big Dipper
naq'a kala	our cavity tail	Big Dipper (variation)
kala q'edi	the one on the tail	perhaps a single star in the handle of the Big Dipper
belaq'a	his palm	unidentified
belaq'a q'edi	the one on the palm	unidentified
hyaq'a	his saliva	unidentified
ugguna	his arm	unidentified
k'tsikiq'edi	the one on top of the head	unidentified
begguya	his child	unidentified
?	his sled	unidentified
?	his pack	unidentified
naq' bekenyah	the first platform over us	unidentified (or perhaps the celestial vault)
ten nuqudes	trail is twisted	Milky Way

Elders at the workshop in Tyonek referred to the morning star(s) as *beq'en nuyełqu'i* ('the ones on the dawning,' unidentified morning star/s'). Although I did not learn a name for the

[98] The phrase *K'uzhaghałen naq' tusghiyu* ('*K'uzhaghałen* passed over us') refers to "white strips of clouds to [the] north, with blue sky in cold weather" (Kari 2007, 151).

morning star from elders, Helen Dick, remembers that her father looked for it each morning and said: "He just look at it, you know, all the time in the morning and if he doesn't see it, he panic. So, he really want to see it [morning star]." Other star names recorded during Kari's workshop in Tyonek are *ninla'i* or *ninlayi* ('ropelike objects extend in a line,' Pleiades), *beghunutsik'elyashi* ('along it, it is regularly dreamt of,' Big Dipper), *naqahdghuqesi* ('the one that rotates over us,' Big Dipper), and *tsał q'elchini* ('greenwood box/coffin').[99] Shem Pete also described an unidentified constellation called *udunuyultali* ('the one he is carrying back in') as "Jesus' Ghost" (Kari 2007, 148), which may refer to either *Yuq'eltani* or his child (*begguya*) that he carries in a pack. In any case, this description seems to suggest that the spirit of the Traveler or his child incarnated in the stars.

The other Dena'ina dialects refer an analogous constellation called *Naq'eltaeni* ('the one above us'), or *Naq'deltani* ('the one that rotates over us'), which are now used to refer to God in a Christian context (see Radloff and Schiefner 1874, 11, Cook 1908, 277, Osgood 1937, 174, Kari 2007, 312). Although Radloff and Schiefner (1874, 11) gloss *Naktaltani* and variations thereof as both Ursa Major and the Christian God, Cornelius Osgood provides the most detailed description of this constellation. Osgood (1937, 174) states:

> This (*nákdéldáni*) is the common word in use for the Christian God introduced by the Russians. It seems also, however, to be an abbreviated form of the earlier *náq'óčkdéldáni*, a native deity. My Katchemak Bay informant, from whom the latter term was discovered after some weeks of inquiry, knew little about the matter but recalled his grandmothers telling him that once many years ago a man

[99] Pete Bobby described the latter constellation, *tsał q'elchini*, as a "kite" which may refer to the constellation Delphinus. This constellation has a distinctive kite shape and is sometimes referred to as "Job's Coffin." Kari noted that *tsał* is an archaic word for a box or coffin (pers com. July 23, 2020).

was out in a boat with his partner's son on a hunting expedition. Suddenly a severe storm developed which threatened their lives and they said 'Maybe *náq'óčkdélдáni* will help us.' Appealing to him they were saved.

Having since discovered the term, two other informants, one in Kenai and the other in Tyonek, recognized it as aboriginal. At Kenai, *náq'óčkdélдáni* is said to live in the north star and to travel around the sky all the time. He is never visible in the daytime and only few old people ever saw him at all. He is said to be responsible for the weather. People standing with legs outstretched appeal to him for aid, raising their right arms, and asking for what they want. Sometimes they say, 'I am hungry; give me food!' If those who ask are good men and sincere, their request will be rewarded, but it is useless for one who laughs and only pretends to believe.

At Tyonek, *náq'óčkdélдáni* is said to embody the whole constellation of the Little Bear. When people lie down and think of *náq'óčkdélдáni* what they dream they think is real. Men appeal to him by holding up a hand saying, *kóx̣t'anaɣéɣóni*' (you who made the people), and then they ask for what they wish.

Although some detailed Dena'ina stellar knowledge has been recorded, the collective information takes on new meaning and significance when viewed in light of other stellar knowledge described in this chapter. I now conclude with a final section that identifies fragments of published stellar knowledge from other Northern Dene groups that may similarly take on new meaning as part of a broader system of Dene astronomical knowledge when interpreted in a comparative context.

Supporting Evidence from the Literature

Fragments of Dakelh (Carrier) stellar knowledge appear in the works of the Oblate Missionary, Adrien Morice (1893, 79-80, 193-194, 207, 1898, 31-33, 1932b, a), and the Canadian anthropologist, Diamond Jenness (1934, 137, 141, 248-249). In his ethnography on the "Western Dénés," Morice (1893, 207) includes a sketch that depicts a panel of pictographs located on the northeast end of Stuart Lake near the present-day community of Fort Saint James, British Columbia. These pictographs are described as "personal totems" and contain an image thought to represent the constellation *Yihta*. Morice (ibid.) states: "The natives are not agreed as to the meaning of the large spider-like figure to the left, but the probability is that it is intended to represent *Yihta*, the Great Bear." He continues:

> There is no ensemble or unity in the whole. It is only an aggregate of pictures or signs painted in red ochre by different individuals and at different times. Most of them are very old. The various objects represented are personal totems, and the object in view in depicting them on rocks will be better understood by a reference to the locality of the inscription reproduced above. It is to be seen about half way between this place, Stuart's Lake or *Na'kraztli* [*Nak'azdli*] and *Pîntce*, the nearest village by water. By painting in such a conspicuous place the totem which had been the object of his dream, the *Pîntce* Indian meant to protect himself against any inhabitant of *Na'kraztli*, as the intimate connection between himself and his totem could not fail, he believed, to reveal by an infallible presentiment the coming of any person who had passed along the rock adorned with the image of his totem. Thus it will be seen that clairvoyance had adepts even in such an out of the way place as Stuart's Lake (Figures 26 and 27).

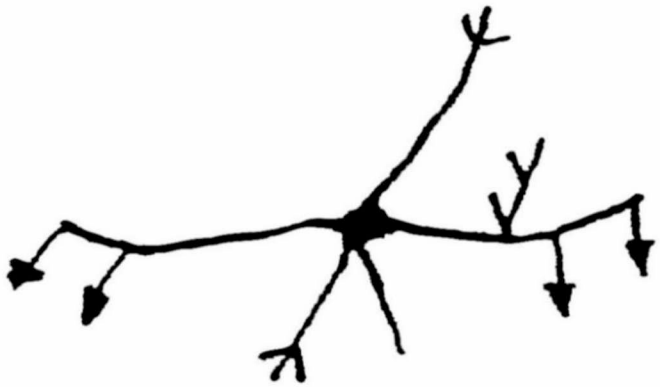

Figure 26. A pictograph at Stuart Lake, British Columbia thought to represent the Dakelh constellation, *Yihta*. Image adapted from Morice (1893, 207).

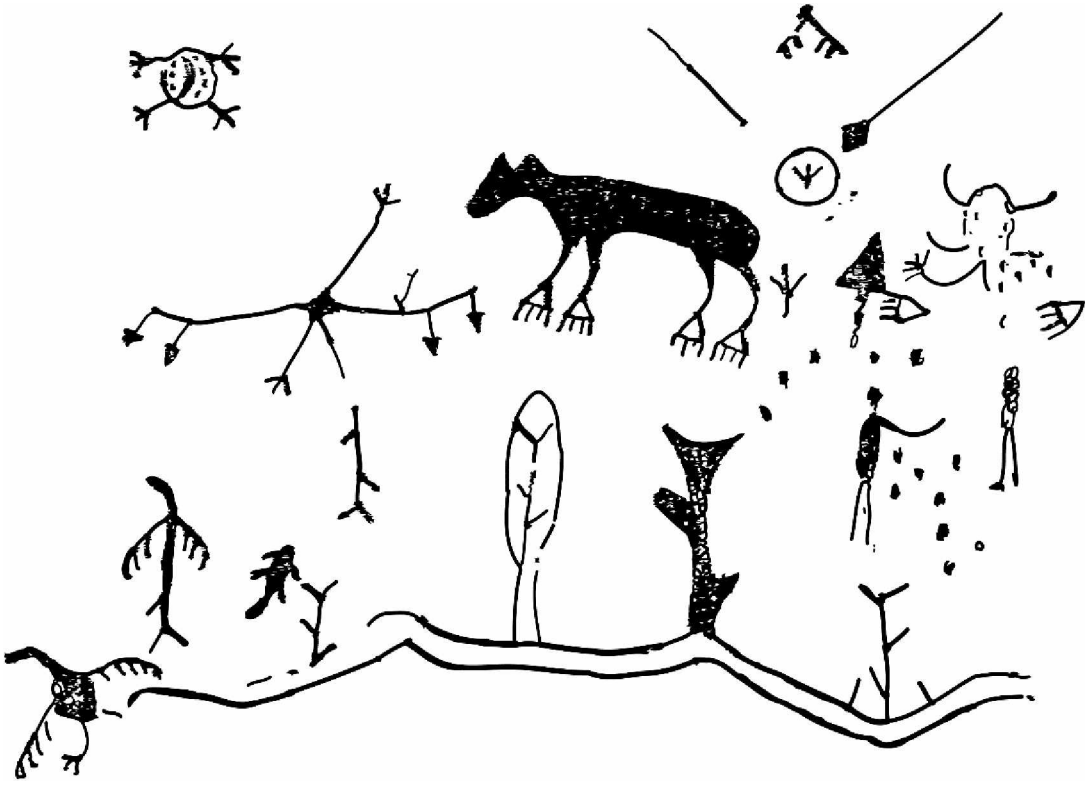

Figure 27. A panel of pictographs at Stuart Lake, British Columbia described as "personal totems" of the Dakelh, which includes a figure thought to represent the constellation, *Yihta* (center left). Image adapted from Morice (1893, 207).

The presumptive pictograph of *Yihta* seems to show its limbs outstretched over the world, much like the Gwich'in, Ahtna, Lower Tanana, and Upper Tanana whole-sky constellations. The figure also has a distinctive tail-like feature and two other appendages that extend on either side, possibly wings, all centered on a vertical line that presumably represents the celestial axis that it rotates about. The anthropomorphic figures located alongside a series of dots (center right) that appear to extend from the ground to the sky is also of interest as a potential representation of the Milky Way as a trail or path of spirits. The images above these figures that seem to resemble a bear and bear tracks are also intriguing as they may represent the bear's transformation into the constellation, *Yihta/Yaxte/Yitai,* which is described in both a Dakelh and Tsilhqot'in story about this constellation (see Farrand 1900, 30, Jenness 1934, 248-249). The animal figures below *Yihta* may also relate to the constellation's potential role as a gamekeeper as if they are cycling between earth and sky, possibly in the process of reincarnation. Although no one may ever know what these images were intended to represent, the Stuart Lake panel shown above is certainly intriguing as a potential depiction of Dakelh cosmology.

In addition to his commentary about the pictographs, Morice (ibid. 79-81, 193-194) published two stories that describe encounters with the constellation, *Yihta*, identified as an old man. The first story is about a person who sets out to die during the winter after losing his family and possessions in a traditional gambling game. Abandoned by his people, the man wanders through the forest without food or fire until he discovers the lodge of *Yihta.* Morice (ibid., 79-80) writes:

> After journeying some time, as he was half frozen and dying of hunger, he suddenly caught sight in the top of the tall spruces of a glimmer as that of a far-off fire. Groping his way thither, he soon perceived sparks flying out of two columns

of smoke, and cautiously approaching he came upon a large lodge covered with branches of conifers. He peeped through a chink and saw nobody but an old man sitting by one of two large fires burning in the lodge.

Immediately the old man cried out: 'Come in, my son-in-law!' The young man was much astonished, inasmuch as he could see nobody outside but himself. 'Come in, my son-in-law; what are you doing out in the cold?' came again from the lodge. Whereupon the gambler ascertained that it was himself who was thus addressed. Therefore he timidly entered, and, following his host's suggestion, he set to warm himself by one of the fires.

The old man was called *Nə-yeR-ɬwolluz* ['he carries (as with a sleigh) a house'] because, being no other than *Yihta*, he nightly carries his house about in the course of his travellings. 'You seem very miserable, my son-in-law; take this up,' he said to his guest while putting mantlewise on the young man's shoulders a robe of sewn marmot skins. He next handed him a pair of tanned skin moccasins and ornamented leggings of the same material. He then called out: 'My daughter, roast by the fireside something to eat for your husband - he must be hungry.' Hearing which, the gambler, who had thought himself alone with *Nə-yeR-ɬwolluz*, was much surprised to see a beautiful virgin [*sak-əsta* 'she sits apart'] emerge from one of the corner provision and goods stores and proceed to prepare a repast for him."

Yihta nourished the man with two full-sized bears that he pulled from the ashes of his fires, which suggests great import as a person of power, a provider, and possibly a gamekeeper. After eating, *Yihta* showed the gambler to his sleeping place and warned him not to leave the

lodge at night. The man noticed, however, that *Yihta* departed each evening, which alludes to his nightly journey through the sky as a constellation of stars. Morice (ibid., 80) states:

> After they had eaten *Nə-yeR-hwolluz* showed the gambler to his resting place and cautioned him not to go out during the night. As for himself, he was soon noticed to leave the lodge that and every other night; and, as he came back in the morning, he invariably seemed to be quite heated and looked as one who has travelled a very great distance.

After the man had lived with *Yihta* and his new wife for several months his passion for gambling returned. In recognition of this longing, *Yihta* dressed the man in fine clothing and sent him back to his people with a magic set of gambling sticks (*alté*) that enabled him to recover everything that he had previously lost. The story ends when the gambler no longer wishes to return to his wife and ignores *Yihta*'s final instructions to throw another type of gaming stick (*tətquh*) over the roof of a house after securing his winnings. As a result, the man was stripped of all that he owned and returned to his original state of desperation and poverty.

The story underscores relational aspects between *Yihta* and those in need as well as the importance of personal behavior and actions. Morice's description of *Yihta* as an old man who carries his house on a sleigh is notable for its correspondence to the Dena'ina constellation, *Yuq'eltani,* also identified as an old man (i.e., man-animal) who draws a heavily loaded sled.

In the introduction to the second story, which describes a hunter's encounter with *Yihta*, Morice (ibid., 193-194) states: "The Western Denes are familiar with a few constellations which are, as among us, called after mythic personages; but none is so widely known as *Yihta,* the Great Bear." Like the gambler in the first story, *Yihta* assists the hunter by giving him a walking stick, which leads the hunter to game animals and shows him his direction home. *Yihta* instructs the

hunter to hang the walking stick in a tree after completing his journey and to ensure that menstruating women do not catch sight of it. These details are salient given that *Yihta*'s walking stick is treated like hunting equipment and is an asterism in the Gwich'in, Ahtna, and Lower Tanana Traveler constellations.[100] At the conclusion of the story, Morice (ibid. 195) states:

> From this short Carrier myth, the sociologist will learn that: - Firstly, the observation of the Great Bear [*Yihta*, Ursa Major] as a means of reckoning time was a national custom among Carriers. Secondly, the heavenly bodies were regarded as quasi divine powers which it is wrong to speak lightly of, a deduction which might easily be proven to be legitimate by other points of Carrier psychology. . .[101]

Livingston Farand (1900, 30) published a similar story of a hunter's encounter with the Tsilhqot'in constellation, *Yitai*, that refers to both his trail in the sky and his transformation from a bear into a man. The description of *Yitai*'s "blanket made of many different kinds of skins" suggests his role as a gamekeeper and, perhaps, his embodiment of all animals. Farrand (ibid.) writes:

> Once a man went out with his two dogs to hunt. It was in the autumn, and there was little snow on the ground. At night he camped and waited impatiently for daylight; and when *Yitai* (Great Bear) appeared, he started, for he knew it was near morning. He had gone but a short distance, when the dogs started a bear, and as the bear ran they followed him. Soon they came to a man sitting on a log. (This

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[100] In the Gwich'in stories it is usually the giant, *Zhee Choo,* who gives the Traveler his magic walking stick, which points him in the correct direction to travel when dropped.

[101] Morice (1898, 1932b) provides the following additional names for Dakelh constellations: *Yą-ḳe-tṣîlkrai* ('one has run over the sky,' Milky Way), *Uḳwĕ-yelkhaih* ('on daylight it comes,' an unidentified morning star), *Sem-lîs·al* ('star that does not move,' Polaris), *Ênîteł* ('the pursuers,' Orion's Belt), and *Semilnu* ('star island,' Pleiades – a group of caribou).

man was the bear, and it was really *Yitai*). He wore a blanket made of many different kinds of skins. When the hunter came up, *Yitai* said to him, 'You thought last night I was very slow in coming, but you must remember that my trail in the sky is very rough and hard. The Sun has the same trouble. He comes up pretty fast at first, when the trail is smooth; but in the middle of the day the trail is rougher, and he goes more slowly. And then again at night the trail grows better, and he goes down faster.' Then *Yitai* told the man to pull out from the blanket the skins of whatever animals he wished to kill. So the man took the skins of the bear, marten, and fisher. And after that, whenever he went out to hunt, he would put a little piece of the skin of whichever animal he was hunting in his pocket, and he could always kill as many as he wished. And *Yitai* went back to the sky.

Other fragments of Northern Dene cosmology similarly refer to a benevolent being in the sky without explicitly referencing a constellation. In a collection of notes on *K'áshogot'ıę* (North Slavey) religion and culture, Hultkrantz (1973, 141) states:

> There is a Supreme Being (Little Fox uses the English term "Great Spirit"), *so^{n}tiä^{n}*, difficult to translate: something like "our brother", or rather "our watching brother". He has no definite appearance, he is "something", and he watches us from the sky. People do not pray or make sacrifices to him. Only the shamans come into contact with him. The old people talk about him as a very old Hare Indian belief. It does not seem probable that he was introduced as part of the Christian dogma.

Robin and Jillian Ridington (2013, 13-22) published two versions of a creation story told by the late Dane-zaa "dreamer," Charlie Yahey, that describe how *Yaak'ih Ṣadę* ('heaven he's

sitting') or "Sky Keeper," made the world and its inhabitants. The authors (ibid., 13) note that "*Yaak'ih Sadę* is "the keeper of the heavens" who is usually distinguished from *Ahtáá?* ('our father'), "a more Christianized term" for God. At the beginning of the narrative Yahey states:

These people, the white people, must have known

about how Sky Keeper created the world.

They knew it because they read it in a book.[102]

I myself am not old enough to remember what happened.

I don't know what was in their book. I don't remember that far back.

I only know with my dream.

With my dream, I know about everything that has gone before.

I drew a picture of the trail to heaven.

Yahey continues by explaining that the world was "created many times" and talks about a great primordial flood often recounted at the beginning of Dene Traveler stories. Yahey is clear, however, that the Traveler, *Tsááyaa* ('sun in the sky'), came to the world after a malevolent being attempted to imitate Sky Keeper, but instead created dangerous giant animals or *wǫlii nachii* ('something big').[103] Sky Keeper then relies on *Tsááyaa* to "make the world right for the Dane-zaa" and to rid the world of these dangerous beings (ibid., 25-29). Yahey also explains: "He [Sky Keeper] chose every one of us in this world. He gave us the ability to dream to heaven. That is the place where Dreamers talk to one another (ibid., 16)." Like humans, Yahey notes that animals also pray to Sky Keeper:

The animals remember that Sky Keeper provided for them.

When the winter is very hard, they start talking to him.

---

[102] The Bible.

[103] Ridington (1978, 8) notes that the Dane-zaa Traveler is also called *Yamadeya*, *Usakindli*, and *Tumaxale*.

They start praying. When they can't survive on their own,

they begin to talk and pray to him.

Sky Keeper hears their voices. He answers them

and makes warmer weather return.

People are not the only ones who call out to him.

All the animals do the same thing (ibid., 17).

Near the end of the narrative, Yahey explains that the end of the world can be predicted by observing the Big Dipper, which he describes as Sky Keeper's "kettle." This detail corresponds to Charlie Neyelle's description of the Big Dipper as *Yámǫréya*'s cooking vessel discussed in the Sahtúot'ı̨nę section. Yahey states:

Sky Keeper made himself.

He made everything else in the same way he made himself.

He made the water, everything.

He even made those big stars in the sky.

He made the big kettle [the Big Dipper] in the sky.

He made all the different stars. He made the moon

He thought, 'If there are no stars, no North Star,

when it's dark, it's going to be really dark.'

He made the stars and moon so that it will not get really dark at night.

He must have written everything down, how to make it.

If the big kettle goes wrong, it is going to be the end of the world.

Just watch the big kettle every night. It stays in the same place.

When it's coming toward daylight

It goes way up and turns right around.

When it turns around, that means that daylight is ready to return.

He made the big kettle. He made how it goes around in the sky (ibid., 18).

James Teit and Catharine McClellan learned of similar end-of-the-world prognostications among the Tahltan and Tagish, respectively. Teit (1919, 228-229) states:

> Once the Dipper called down to the people, saying 'My grandchildren, I will tell you something. Watch me, and as long as you see me going around, everything will be well with you, and you need not be afraid; but if I get lost, light will nevermore come to you, and all of you will die. It is nothing if the moon is lost, for it will not be for long; but if I am lost, I can nevermore come back.' For this reason the Indians watch the Dipper whenever there is an eclipse; and if they see him going on as usual, they say, 'Everything is well.'

McClellan (1975, 78) states: "The Tagish told no long stories about the Big Dipper [*Yax't'e*], but they say that it once declared, 'My grandchildren, when I stop going around and turn upside down, the last day has come.'"[104]

Additional evidence for a widespread humanoid constellation, particularly in the Yukon Territory, is supported by excerpts from the "Poole Field Letters." In a section on religion and cosmology, Pool and MacNeish (1957, 55) state:

> They [presumably the Kaska and Southern Tutchone] have a God who is supposed to be an Indian and lives in one of the stars who made everything on the earth. The animals were the first and the smartest of all the animals and the wisest were the wolves and the ravens, the next was the wolverine. All the animals could

[104] *Yaxhté* is the Tlingit form for Big Dipper borrowed from neighboring Dene languages and then, in this instance, borrowed back into Tagish (Cannon and Holton 2014, 4).

talk and understand each other and can yet. The wolves and ravens intermarried, and their children were Indians. They called the wolverine their brother-in-law and were very friendly with him.

The "Field Letters" continue by describing the development of matrilineal descent and social organization followed by a description of cosmology and the afterlife. The following excerpt is salient for its reference to a trail that leads to this "God" in the stars who either sends the deceased person back to earth in reincarnated form or else "gives him a hearty welcome and leads him to where the other Indians are stopping who have died before him. . ." Field and MacNeish (1957, 56-57) write:

> When an Indian dies his relatives dress him up in as good clothes as possible, also furnish him with a gun, if they have one, and a blanket. The men were supposed to follow him to the grave. On the way their chief or head man was supposed to walk ahead and call to their God that one of his children was coming to him, occasionally firing the gun belonging to the dead man. When they arrived at the grave and had lowered the body into it, they fired two more shots, then loaded the gun again and left it at full cock and placed it on top of the coffin pointing west. Then the head man spoke to the dead person calling him first by name two or three times, then telling him, 'You are leaving us now to go to our great Father. According to the life you have led here below, whether good or bad, /that/ is the reception he will give you. You see the trail ahead of you leading from here to his camp in the star that we on earth are not permitted to see. You must follow this trail, neither turning to the right or to the left on small hunting trails, but keep to the well beaten one. We will put food in the fire every time we cook for you to eat

on the way. Be brave and fear nothing that our Father may be proud of the people you came from.' /The head man calls/ '*culah*, *culah*' twice, meaning 'finish.' They then fill in the grave and return to camp, where the relatives make a feast for the opposite party from the deceased, whether Wolf or Raven, in honor of the dead and throw food into the fire for him to eat.

When the dead person arrives at the Star, if he is a good Indian he is met by the God, who gives him a hearty welcome and leads him to where the other Indians are stopping that have died before him, who also give him a hearty welcome and make a big feast for him. When they are through eating they dance and sing and gamble and have a general good time. If the dead Indian should not have been a good Indian on earth, the God is liable to turn him into a bear or a moose or any kind of animal and send him back to earth, and leave him there until such time as he thinks he has punished him enough, when he will take him back and he will be received with the same honor as a good Indian.

The dead person's goods, if he has any, are packed up by the head of the family. That of it that is of any value is cached; the rest is either thrown into the river or burned after a year or two. The valuable stuff is then divided amongst the relatives of the dead person, or in case he was rich part of it would be given to the ravens if the dead happened to be a wolf or vice versa (Field and MacNeish 1957, 56-57).

James Teit (1917, 441) provides supporting information by explaining that when the Kaska Traveler, "Smart Beaver," completed his journey around the world he returned to his home, adding a footnote that states, "some say in the sky." Other fragments of Dene stellar

knowledge and cosmology provide additional support for a widespread conceptualization of the Milky Way as a path that souls follow to a place of afterlife in the celestial sphere. In his notes on *K'áshogot'ıné* culture Hultkrantz (ibid., 149) states that the "Northern Tribes" commonly regard "the Milky Way as the path to the beyond." For the Tahltan, James Teit (1919, 229) writes:

> Many people were travelling towards the sky on snowshoes. They had nearly reached the sky. It is said that the people were on their way to the country of the dead in the sky. Some one transformed the people and their trail into stars, and this is now the Milky Way.

In other instances, a single word or phrase suggests a larger constellation or centralized being in the stars. For example, in his hand-written Deg Xinag-English dictionary, the missionary John Chapman (1911), glosses the Big Dipper or *voû-qáihlt'-ái* [*vighun' xidilt'ay*] as "the governor of the universe." Although this phrase may refer to the Big Dipper as a time-referent it may also allude to an important indigenous being in the stars. Evidence for a large humanoid constellation is also found in the "Slavey Topical Dictionary" where the Big Dipper is identified as both *Zhihda* and *Zhihdache* ('*Zhihda*'s tail') (Monus and Isaiah 1977, 78). It is reasonable to conclude that if *Zhihda* has a tail, then it might also have other body parts, suggesting a larger representation than simply the Big Dipper.

Dictionaries of other Northern Dene languages also occasionally contain isolated names for stars or star groups that incorporate body part terminology. For example, Émile Petitot (1876a, 260, 354) glosses the Dëne Sųłiné term *Yétaa-tché* ('*Yétaa*'s tail') as the three bright stars in Orion's Belt. Likewise, Le Goff (1916, 750) and Rice (1978) similarly identify the Dëne Sųłiné and North Slavey phrases, *Yehda-tchè* ('*Yehda*'s tail') and *Yíhda hinéw'éné'* ('*Yíhda*'s

backbone') as Ursa Major and the handle of the Big Dipper, respectively, without identifying any other star groups that might compose these constellations. Names for other unidentified star groups, such as the Kaska constellation, *ketá' sę́lé'* or "God's Hook" (Kaska Tribal Council 1997, 385), similarly beg further investigation. Isolate names for the Big Dipper, such as the Kaska name, *Ahdā Cho,* or 'big eagle' (Kaska Tribal Council 1997, 382) must be interpreted with caution. There is no way to know if these dictionary entries refer to a literal eagle, or something else that may require more careful problematization of social categories, such as a Traveler figure in the stars who can appear in any form as the embodiment of the world's collective soul.

Chapter Two Conclusion

In this chapter I have provided ethnographic sketches of a principal Northern Dene constellation based on more than a decade of fieldwork with traditional knowledge bearers from 12 Dene ethnolinguistic groups across 32 communities in Alaska and Canada. The primary aims of this chapter were to present comparative baseline data and situate it for the first time in meaningful ways of knowing. These knowledge systems show that the ancient Traveler provides an essential framework for understanding the celestial sphere, which integrates into a more holistic cosmology, worldview, and spirituality than previously described in Northern Dene studies. In addition, the body part stars groups that compose these large constellations account for the "missing" constellations that originally inspired me to go to the field to ask elders questions about the sky.

I began this chapter by describing my experiences and immersion into Gwich'in astronomical knowledge with my primary and long-term mentor, Paul Herbert. The Gwich'in material was a natural place to begin as it enabled me to walk through my own experiences and

process learning about this enigmatic knowledge system. My collective experiences with Gwich'in elders provided the cultural frame that enabled me to piece together the meaning and significance of the constellation, *Yahdii*. These experience not only taught me how to learn and ask questions in a Dene framework, but they also served as a bridge to learn about similar astronomical knowledge systems in other Northern Dene cultures.

Although most of the data in this chapter is based on my primary fieldwork, I drew from the most relevant comparative material to show how this knowledge gains new significance and meaning when interpreted in a comparative context. The comparative method is seldom implemented at this scale in Northern Dene ethnology, yet it has helped inform a historical perspective of the sky across the language family while also preserving important culture and language specific differences. I have listed a variety of themes below that appear throughout this chapter:

- The Traveler on the earth and in the sky are projections of Northern Dene cosmology, worldview, and spirituality that pair with the Milky Way and Morning Star(s) as metaphors and conceptual models for behaviors and actions in both the lived world and the afterworld. In total, the Traveler on earth and in the sky provides a holistic model for knowing, being, and relating to the universe and its inhabitants in all modes and transformations of life and spirit.
- Collectively, the Northern Dene have two separate conceptualizations of their principal constellation: one as the incarnation of the ancient Traveler or similar figure from ancient time (e.g., Raven or Giant), and one as a dangerous being that the Traveler killed.
- With few exceptions, stories about these humanoid constellations are only present when the constellation is conceptualized as a malevolent being that the Traveler transformed or

eradicated as opposed to the incarnated spirit of the Traveler himself. The Traveler constellation is not overtly described in stories because it is the process of self-discovery that elucidates sacred meaning and establishes a personal relationship to this world custodian par excellence as an ally, teacher, guardian, gamekeeper, and embodiment of the world.

- Dim stars are often considered more sacred than bright stars given that living out the conceptual model of the Traveler is required to see and know them.
- The sky was closer to earth in ancient time.
- Whole-sky constellations are present in at least four Alaskan Dene languages (Gwich'in, Ahtna, Lower Tanana, and Upper Tanana), but have not yet been documented in a Dene First Nations language in Canada.
- Stars are treated like other beings or persons of great respect and are not pointed at or openly spoken about. Pointing or casually talking about the Traveler constellation is akin to disrespecting a powerful medicine person and world custodian par excellence who embodies the world.
- The sky presents a celestial dichotomy between proper and improper living and between malevolence and benevolence, which also coexist as ongoing struggles for balance within each person.
- Human behaviors, thoughts, actions, and relationships determine future outcomes of the world. Following the laws, protocols, and social norms established by the ancient Traveler maintains the world as a safe, balanced, and useful place for humans to live. Ignoring or breaking these laws and protocols is to provoke the world to revert to the way it was in ancient time when humans struggled and were prey to giant animals.

- Stories and teachings from the Bible are often regarded by the Dene as supportive, complementary, and reaffirming of indigenous beliefs and values as opposed to a competing religious ideology where the Northern Dene Traveler is often interpreted or compared to Jesus, God, or Noah.

Collectively, this chapter presents the rudiments of Northern Dene stellar knowledge and major aspects of cosmology that I will continue to build on and integrate with other aspects of the sky in the remaining chapters. I now turn to a more detailed interpretation and analysis of the Northern Dene Traveler constellations presented in this chapter while also positioning them in the broader anthropological literature.

Chapter 3: Interpretation of Northern Dene Traveler Constellations

The higher the power, the more schooling you've had . . . Yahdii is like the highest power. By the time you know about Yahdii, you know a lot.

- anonymous Gwich'in elder

The objective of this chapter is to provide an interpretation and analysis of Northern Dene Traveler constellations and to situate the epistemologies that they embody in a wider corpus of anthropological literature. I begin with an overview of Northern Dene Traveler figures in mythology and then narrow on the Traveler and his journey as a shamanic model initially developed by Ridington (1978) with subsequent variations described by Thompson (1990a) and Guédon (2005). Crucially, I interpret the Traveler's journey and his subsequent transformation to the sky as a meaningful extension of this model that completes the archetype of a Dene medicine person and the vision quest. I argue that Dene humanoid constellations are powerful projections of an indigenous Northern Dene cosmology, worldview, and spirituality. Knowledge about these constellations went quiet and grew apart from popular culture when they underwent reinterpretation and erosion with continuing changes to religious ideology. After identifying and discussing several important features and patterns of Dene Traveler constellations as shamanic models and indigenous projections of cosmology and worldview, I comment on religious change with respect to stellar knowledge.

I conclude that the sky and its contents provide a rich, but undervalued perspective of Northern Dene cosmology, worldview, and spirituality. Although many studies concern processes of religious change among the Northern Dene (see, for example Ridington 1978, Moore and Wheelock [eds.] 1990, Helm 1994, Goulet 1998, Znamenski 2003), this research demonstrates a new approach to better understand the basis from which some of these changes

have occurred and continue to occur. Indigenous Northern Dene astronomical knowledge is richly developed, although largely tied to the enigmatic beliefs and practices of medicine people known by few remaining traditional knowledge bearers. Finally, this chapter outlines a wider relationship between social order and cosmic order that inextricably links earth and sky in a unified and holistic Northern Dene cosmology and worldview.

Distribution of the Northern Dene Mythic Traveler Cycle

A Traveler-Transformer is a cosmogonic personage that is extensively documented in the literature and known in nearly every Dene ethnolinguistic group (see Petitot 1886, 16-43, 1887, 1976, 61-66, Morice 1898, 4-10, Farrand 1900, 45, 7-14, Schmitter 1910, 21-25, Lowie 1912, 195-200, Camsell and Barbeau 1915, Goddard 1916, 1917, Teit 1917, 429-441, Osgood 1932, 89-91, 1936, 164-166, 1937, 173, Jenness 1934, 114-125, Mason 1946, 41-42, Honigmann 1954, 100-104, Williamson 1955, 123-143, McKennan 1959, 175-189, 1965, 98-122, Voudrach 1965, Ridington 1968, 1978, 116-119, 1988, 75-142, Curtis 1970 [1928], 141, Monus et al. 1970, 22-34, 49-53, Petitot and Habgood 1970, 94-104, Rooth 1971, 120-364, Netro 1973, 13-15, Thyurst 1974, Billum and Buck 1975, Brean 1975, 17-19, McClellan 1975, 72-75, Sabourin and Edgi 1975, Solomon and Jones 1975, 9-12, 18-20, Williams and Gabriel 1976, Wright 1977, Billum, Billum, and Buck 1979, 91-95, Cruikshank 1979, 83-98, Gautreau 1981, 16-22, Peter and Pope 1981, Williams 1982, 35-52, McGary 1984, 385-416, Mills 1986, 82, McClellan et al. 1987, 257-258, 305-306, Attla 1990, Blondin 1990, 1997, Moore and Wheelock [eds.] 1990, Thompson 1990a, de Laguna, Reynolds, and DeArmond 1995, Mishler 2001 [1995], 22-43, Stephen 1996, 11-12, Andrews, Zoe, and Herter 1998, Andrews, Zoe, and Herter 2007, Goulet 1998, 211, Coutu and Hoffman-Mecredi 1999, 61, Krupa 1999, 123-141, Legros and McGinty 1999, 178, Moore 1999, 85-107, 413-423, Helm 2000, 281-286, Lanoue 2001, 13, 2007,

Dinwoodie 2002, 93-96, 98-101, Johnson 2004, 49-54, Mishler and Simeone 2004, 126, 142-160, Smith 2004, 12-16, 23-26, 172, Auld and Kershaw 2005, 22-23, 92-96, Desgent and Lanoue 2005, Easton 2005, 15, Guédon 2005, 248-258, Thomas Sr. and Mishler 2005, 203-214, Parlee 2006, 95, 98, 149, Ridington and Ridington 2006, 174-175, 187, 232-235, 2013, Tenenbaum 2006, 54-71, Allen and Allen 2007, 55-63, Heine et al. 2007, McClellan, Cruikshank, and Kernan 2007a, 31-39, 59-77, Thomas and Beaulieu 2007, Cardinal 2009, 147, 196-197, Vuntut Gwich'in First Nation and Smith 2009, 12-16, Demit and Joe 2010, Andrews 2011, Legat 2012, 41-46, 90-91, Cook 2013, 604-631, Tatti 2015, David and Lovick 2017, 128-141, Kari and Tuttle [eds.] 2018, 59-81, Simeone 2018, 73, Cannon et al. 2019, Fletcher and Neyelle 2019, 41-58, Kwanlin Dün First Nation 2020, 73-74, Sam, Demit-Barnes, and Northway 2021, 63-74). Likewise, this figure extends to Pacific Coast Dene (Goddard 1903, 74-78) and Apachean (Opler 1941, 89, 197-199, Kluckhohn and Leighton 1946, 124-125, Reichard 1950, 16-26) where it has an analogue in the Navajo "Monster-Slayer" (*Naayéé' Neizghání*) and his twin brother "Born-for-Water" (*Tóbájíshchíní*) who, according to Griffin-Pierce (1997, 6), "made the earth's surface safe for humans by killing the monsters." Perhaps not by coincidence, these Traveler-Transformer figures are prominent in Navajo foundation stories and also became constellations (Haile 1947, 16, Griffin-Pierce 1992, 81). Moreover, Haile (1947) identifies that Navajo constellations are subdivided into numerous asterisms named using body part terminology of which a portion of these humanoid figures have a heart (*bižái*) and grasp a cane (*bigiž*) delineated in the stars. These correspondences between Apachean and Northern Dene suggest that the Traveler composed of body part star groups is the archetype Dene constellation. In addition, Haile (Franciscan Fathers 1910, 42-43) also describes Navajo stellar astronomy in the context of

medicine people's knowledge and refers to a "trail of beauty" in the sky that provides the "key" for the "preservation and prolongation of age and life." Haile (ibid.) states:

> Though there are comparatively few constellations the names of which are generally known, it is none the less well established that astrology is extensively practiced among the Navaho.[105] The fact that the class of singers pursuing *dest'ı́*, 'looking,' or astrology, are much in demand previous to the conducting of any important ceremony, would seem to indicate as much. Hence it is reasonable to assume that a much wider knowledge, however, is in possession of some few individuals who are loath to disclose it, owing to the circumstances that astrological pursuits, which require the secret and solitude of the night, are opprobriously classified with witchcraft.
>
> The older shamans were wont to initiate their pupils gradually into the intricacies of astrology by pointing out the new constellations to them as they appeared on the horizon. And as an apprenticeship usually required several years, sufficient time was had to make the initiation a thorough one. This extended also to stellar influence on climatic changes, or the destinies of man, with the corresponding remedies, and the like information. Certain portions, however, of this knowledge were enveloped in some mystery, which was lifted only after the most rigid test of fidelity. Thus, for instance, words like *sâ'â naghaí*, 'in old age walking,' and *bik'e hozhó*, 'on the trail of beauty' (Mathews), are said to signify some important, though well known constellation, a change in which would prove disastrous to the existence of the universe. Hence this invocation, which is

[105] Haile (1947) identifies some 37 Navajo constellations, most of which are subdivided into additional named groups of stars.

> attached to a large number of prayers and songs, would seem to be a petition for the protection and prolongation of age and life, while 'the trail of beauty' (in the skies) indicates the proper key to their interpretation.

Like the Northern Dene, Haile (1947, 5) states, ". . .starlore is not prominently mentioned in the legends, the few that know treasure it as distinctly personal knowledge." Also, corresponding to the Northern Dene systems are the ways that stars and constellations provide Navajo conceptual models for proper behaviors and actions and have capacity to edify about the self, society, and universe. Griffin-Pierce (1992, 171) states:

> Through the moral stories they index, the stars and constellations serve as reminders of the right way to live one's life. The rules for appropriate behavior are based upon acting with great respect for one another, whether that 'other' is human, divine, animal, or plant. The laws are reciprocal: not only do they govern people's actions but they also provide useful information that enriches human lives. By heeding the message of these stories, people grow in self-knowledge and self-respect, secure in their place in the universe. If human beings treat the other beings of the natural and supernatural worlds with the respect they would afford their own relatives, these beings in turn will take care of them. Following these rules calls forth a personal sense of relatedness and responsibility regarding other forms of life which humanity shares the universe.

The large inventory of names that refer to the Traveler in and across the Northern Dene languages is somewhat surprising given that the names for the star groups that they came to embody are more consistently named (e.g., *Yahdii* and 16 other cognates). In some instances, these names simply reflect dialect differences or speaker preference, whereas in other instances

they are completely different names altogether. For example, in Gwich'in the Traveler is projected on at least two figures: *Ch'iteehàakwaii/Atachuukąįį* and *Vasaagìhdzak* (and variants thereof).

The issue of conflated Gwich'in Traveler identities is not resolved by consensus among Gwich'in speakers. However, academics have long speculated that *Vasaagìhdzak*, a more comical trickster personality, is a borrowing from the analogous Cree figure, *Wesakidjak*, likely introduced during the fur trade (McKennan 1965, 89-90, McGary 1984, 165, Mishler 2001 [1995], 2-3). This scenario is probable, given that this name and parallel stories also appear in Dëne Sųłiné as *Wisáketcak* (Lowie 1912, 195), North Slavey as *Haskitjack* (Voudrach 1965, 38), and Dane-zaa as *Watc'agic* (Goddard 1917, 343) without exhibiting the regular sound changes expected in these divergent Dene languages.[106] Other Gwich'in variants are rendered *Weesagajake*, *Vansangitik*, and *Sakeethuk* (Gwich'in Renewable Resource Board 2001, 57-59, 65, 93-96), none of which have transparent etymologies without accounting for possible diffusion from the Cree where the Traveler-Transformer figure of this name is widely distributed (see Fisher 1946). In contrast, the Gwich'in Traveler *Ch'iteehàakwaii* ('the one who started paddling among things') has cognates or near cognates in Koyukon (*K'etetaalkkaanee*), Upper Kuskokwim (*Ch'eteetadhkanenh*), and Hän (*Ch'etatchekih*) (Thompson 1990a, 143-161). Regarding the conflation of *Ch'iteehàakwaii* and *Vasaagìhdzak* McKennan (1965, 89-90) states:

> The *Sagithuk* [*Vasagihdzak*] Cycle, on the other hand, shows many resemblances to the trickster myth of the Central Algonkians, particularly those of the Cree (Fisher, 1946, pp. 226 ff.). One of my older informants has since assured me that these stories were not of Chandalar origin, but were "French," a term that

[106] Dëne Sųłiné elders told me several *Sagithuk* stories that are nearly identical to Alaskan Gwich'in *Vasaagìhdzak* stories.

> suggests that they were brought to Fort Yukon by the French-speaking *coureurs du bois* in the early days of the fur trade. It is the *Jateaquoint* [*Ch'iteehàakwaii*] Cycle that most closely resembles the culture hero-transformer cycles of other Northern Athapaskan groups, specifically those of the Upper Tanana (McKennan, 1959, pp. 175 ff.), Han (Schmitter, 1910, pp. 22 ff.), and Kaska (Teit, 1917, pp. 427 ff.). . . Quite possibly, *Jateaquoint* has become a composite character, based on more than one culture-hero cycle. This would explain the attempts of those of my informants who had spent much of their lives in Fort Yukon to identify *Sagithuk* with *Jateaquoint* or to attach the one cycle to the other.

Jane McGary (1984, 165) agrees with this assessment and states:

> John Ritter also reports that the Eastern Gwich'in people do not recognize *Vasaagihdzak* as an original part of their oral tradition. McKennan's guess as to their introduction is almost certainly correct; it is also possible that some or all of the stories were introduced not directly by the visiting Cree but were diffused through trade networks in existence in the Yukon Territory before the arrival of Europeans among the Gwich'in. The name '*Vasaagihdzak*' (also pronounced *Vasaagitsak* and *Vasaagichak*) is derived from Cree *Wesugichak*. . . a process of syncretism has taken place, resulting in confusion of *Vasagihdzak* and *Ch'iteehaakwąįį*.

Issues of exchanged or conflated Traveler identities are by no means isolated to the Gwich'in language area. Regarding the Dene Tha' (South Slavey) Traveler figure, Moore and Wheelock (1990, xx) state:

Similarly, culture heroes such as *Yamonhdeyi* 'The Man Who Traveled Around the Edge' and *Mbetsun Yendéhshéi* 'Boy Raised By His Grandmother' are often interchanged in related Dene stories, and even within one community storytellers may disagree as to which particular culture hero performed a certain feat.

Names for Northern Dene Traveler figures, excluding analogous figures that map onto the Traveler cycle (e.g., Raven, Giant, and *Vasaagìhdzak* figures), are shown in Table 12. These names fall into one of several groups of related terms, such as: 'The One Who Paddled Among Things' (e.g., *Ch'iteehàakwaii/Atachuukąįį*), 'The One Who Went Around the Edge of the Sky' (e.g., *Yamaagn Teeshyaay*), 'The One Who Departed to Go Around the World' (e.g., *Yámǫréya*), 'Smart Young Man' (e.g., *Ciił Hywaa*), 'Smart Beaver' (*Tsa' Ushyąą*), 'Little Beaver' (*Dzauya*), and 'Boy Raised by His Grandmother' (e.g., *Mbetsun Yendéhshéhi*, *Betsoyinilye*). Several isolate names are *Sojee* [*tsé'zhi*?] ('son of beaver'), *Lhìndèsch'ósh* ('miniature dog'), *Lhìn Nìts'én Nánàyídásh* ('a dog who courts someone'), and *Ɜstas*. It is easy to see how stories about the Traveler, Raven, *Vasaagìhdzak* figures, two giants, the giant Traveler brothers, and other hero figures might easily map onto one another in different parts of the Northern Dene region. In Tsuut'ına, the Traveler is identified in English as "Old Man" (Curtis 1970 [1928], 141), an apparent borrowing from the analogous Blackfeet Traveler figure, *Nápi* ('Old Man') (Uhlenbeck and Tatsey 1912, 170). The Raven may have replaced the Traveler entirely in at least several of the Northern Dene languages not represented in Table 12.

Table 12. Names for the Traveler in 22 Northern Dene languages.

Name	Language (ISO-639-3) – dialect/region	Source
Ch'iteehàakwaii	Gwich'in (gwi) - Alaska	(McGary 1984, 385)
Ch'ataiiyuukaih	Gwich'in (gwi) - Old Crow	(VGFN and Smith 2009, XLV)
Atachuukąįį	Gwich'in (gwi) - Tsiigehtshik	(Heine et al. 2007, 1)
Ch'etatchekih	Hän (gaa)	(Thompson 1990a, 146)
Tsà' Wëzhaa	Hän (gaa)	(Mishler and Simeone 2004, 145-160)
Ch'etitadhkanenh	Lower Tanana (taa)	(Kari 2020, 196)
Ch'ititazkane	Upper Kuskokwim (kuu)	(Deaphon and Petruska 1980, 62-84)
K'etetaalkkaanee	Koyukon (koy)	(Attla 1990)
K'uzhaghałen	Dena'ina (tfn) - Nondalton	(Tenenbaum 2006, 54-71) (Osgood 1937, 173)
Yubugh Tayqan	Dena'ina (tfn) - Upper Cook Inlet	(Kari 2007, 310)
Kił Qeyu	Dena'ina (tfn) - Upper Cook Inlet	(Osgood 1937, 173)
Ciił Hywaa	Ahtna (aht) - Chitna, Copper Center, Gulkana, Tazlina	(Billum et al. 1975, 3)
Ciił Kuyaan	Ahtna (aht) - Chistochina	Fieldnotes
Yabaaghe Tuu Teeshyaay	Ahtna (aht) - Chistochina	Fieldnotes
Natu' Baagha Tezyaann	Ahtna (aht) - Mentasta	(Kari and Tuttle [eds.] 2018, 59)
Netseh Tełyaanen	Ahtna (aht) - Cantwell	Fieldnotes
Yabaaghe Tezyaann	Ahtna (aht)	Fieldnotes
Yaatu' Maagn Teeshyaay	Upper Tanana (tau) - Nabesna	Fieldnotes
Yamaagn Teeshyaay	Upper Tanana (tau) - Northway & Tetlin	(Lovick 2020, 38-39)
Yambaa Teeshyaay	Upper Tanana (tau) - Tetlin	(Lovick 2020, 593)
Tsa' Ushyąą	Upper Tanana (tau) - Scottie Cr.	(David and Lovick 2017, 38-39)
Saatedlech'eeghe	Middle Tanana (taa)	(Kari 2019b, 35)
Yaamaagh Telch'êegh	Tanacross (tcb)	(Arnold et al. 2009, 219)
Tuumaagh Telch'eegh	Tanacross (tcb)	Fieldnotes
Tatelch'eegh	Tanacross (tcb) - Healy Lake	(Demit and Joe 2010, 14-15)
Yaabaa Teeshaay	Tanacross (tcb) - Healy Lake	(Demit and Joe 2010)
Dzauya	Sekani (sek)	(Lanoue 2001, 13)
Tsááyaa	Dane-zaa (bea)	(Ridington and Ridington 2013, 16)
Yamadeya	Dane-zaa (bea)	(Ridington 1978, 8)
Usakindli	Dane-zaa (bea)	(Ridington 1978, 8)
Tumaxale	Dane-zaa (bea)	(Ridington 1978, 8)
Yamonhdeyi	Dene Tha' (xsl)	(Moore and Wheelock [eds.] 1990, 3)
Yamanhdeya	Dene Tha' (xsl)	(Moore and Wheelock [eds.] 1990, 3)
Zhambadèzha w/ brother Deet'ı	Dene Tha' (xsl) - Fort Simpson	(Andrews 2011, 78)

Table 12. Continued

Mbetsun Yendéhshéhi	Dene Tha' (xsl)	(Moore and Wheelock [eds.] 1990, xx)
Betsoyinilye	Dakelh (crx) - Fort Fraser	(Jenness 1934, 121-122)
Ǝstas	Dakelh (crx)	(Morice 1898, 4-10)
Yambaa Deya	North Slavey (scs)	(Sabourin and Edgi 1975)
Yamoria w/ brother Yamǫga	North Slavey (scs)	(Auld and Kershaw 2005, 7, 25-26)
Yámǫréya w/ brother Yámǫhgá	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
Yámorıa w/ brother Yámǫhgá	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
Yámǫdéya w/ brother Yámǫhgá	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
Yamoòzha w/ brother Gahmǫǫ̀zha/Ts'idzǫ	Tłı̨chǫ (dgr)	(Andrews 2011, 78)
Yamǫǫ̀ya	Tłı̨chǫ (dgr) - Wıìlıìdeh	Fieldnotes
Yabatheya	Dëne Sųłıné (chp)	(Andrews 2011, 78)
Hochok, Hocho	Dëne Sųłıné (chp)	Fieldnotes
Hachoghe	Dëne Sųłıné (chp)	(Parlee et al. 2005, 30)
Yamąhdeyā	Kaska (kkz) - Liard	(KTC 1997, 70)
Mamadeyā	Kaska (kkz)	(Moore 1999, 85)
Súguyā	Kaska (kkz)	(Moore 1999, 85)
Sojee [tsé'zhi?]	Northern Tutchone (ttm)	(Cardinal 2009, 147, 196-197)
Äsùya	Southern Tutchone (tce)	(McClellan et al. 2007a, 31)
Äsuya	Tagish (tgx)	(McClellan et al. 2007a, 368-369)
dEjuḻadi	Tagish (tgx)	(McClellan 1975, 73)
Lhìndèsch'ósh	Tsilhqot'in (clc)	(Smith 2004, 12)
Lhìn Nìts'én Nánàyídásh	Tsilhqot'in (clc)	(Smith 2004, 12)

Although this chapter is primarily concerned with situating Northern Dene astronomical knowledge in a meaningful system of knowing and less with the distribution of mythology, it suffices to say that analogous North American Traveler cycles are equally widespread throughout the Algonquian language family (see, for example, Hindley 1885, McLean 1890, 296-297, Chamberlain 1891, Rand 1894, Jack 1895, Kroeber 1900, 165, 190, 1976, Dorsey and Kroeber 1903, Simms 1906, Grinnell 1907, 1908, 1913, 156-188, 1962, 337-384, Jones 1907, 228-379, 1911, 209-211, 1917, McClintock 1910, 337-351, Michelson 1911, Uhlenbeck and

Tatsey 1912, 170-198, Skinner 1916, 1919, Speck 1918, 1925, 3-6, 12-16, 25-27, 1935b, 53-63, 1935a, Linderman 1920, Davidson 1928, 267-270, Radin and Reagan 1928, Ahenakew 1929, Bloomfield 1930, 8-57, Hallowell 1937, 667-668, Hallowell and Brown 1992, 67, 71, 73, Fisher 1946, Ewers 1958, 3-5, 145, Dusenberry 1962, 235-252, Reid and Grant 1963, Hill 1964, 1970, Landes 1968, 22, 24-25, 42, 92-93, 96, 193-195, 201, Stevens and Ray 1971, 19-46, Beck 1972, Day 1976, Pelly and McCallum 1976, Snake et al. 1980, Bullchild 1985, 127-228, Brown and Brightman 1988, 44-49, 108, 119-138, Brightman 1993, 38-39, 50, 72-73, Bird 2007, 175-197). In addition, several recent sources identify the Cree and Ojibwe Traveler (*Wesakaychak* and *Nanaboujou*) and a malevolent panther or catlike figure (Ojibwe, *Gaadidnaway* ['Curly Tail'] or *Mishi Bizhiw* ['Great Panther']) as constellations (Gawboy and Morton 2014, Lee et al. 2014, Lee, Wilson, and Buck 2016) suggesting at least a minimal, but important, Northern Dene-Algonquian connection with respect to stellar conceptualizations. To a lesser degree, the Traveler cycle extends to the Inuit (Rink 1875, 157-161, Boas 1888, 621-624, 1901, 182-185, Rasmussen 1929, 287-290, 1930a, 46-51, 1930b, 97-99, 1931, 209, 364-377, 1932, 237-238, Curtis 1970 [1930], 217-220, Holtved 1951, 41-46, Rasmussen and Ostermann 1952, 229-252, Arron 1957, 55-71, Giddings 1961, 94-98, Ticasuk (Brown) 1981, Oman 1995, Thompson 1990a, 162-167, Anderson 2005) and Siouan families (Dorsey 1888, 1889, 134-135, 1892, 11-16, 17-19, Lowie 1909, 100-134, 1960, Beckwith 1930, 429-437, Dusenberry 1962, 71-73). These story cycles frequently, but not exclusively overlap with the "earth-diver" motif primarily distributed throughout northern Asia and northern North America (Berezkin 2007, 110).

An Archetype of the Northern Dene Medicine Person and Vision Quest

The Northern Dene Traveler is variously described in English as the "First Man" (Demit and Joe 2010), "First Medicine Man" (Wright 1977), "Great Medicine Man" and "Lawmaker"

(Blondin 1997, 70), "Traveler" (Rooth 1971, 364, Krupa 1999, 123), "Transformer" (Ridington 1978, 8, Lanoue 2007, 244), "Navigator" (Petitot 1887, Jetté and Jones 2000, 320) and the "foremost" Dene culture hero (Moore and Wheelock [eds.] 1990), etc. In all its manifestations, the mythic Traveler cycle is a cosmogony of a Dene universe aptly described by Nelson (1983) as a "watchful world." Regarding the Koyukon, he states:

> Traditional Koyukon people live in a world that watches, in a forest of eyes. A person moving through nature - however wild, remote, even desolate the place may be – is never truly alone. The surroundings are aware, sensate, personified. They feel. They can be offended. And they must, at every moment, be treated with proper respect. All things in nature have a special kind of life, something unknown to contemporary Euro-Americans, something powerful (Nelson 1983, 14).

Nelson's description of the Dene world is congruent with contemporary usages of the term "animism," which refers to a way of knowing, being, and relating to a universe in which the concept of person "transcends a human appearance" (Hallowell 1960, 372). Analogous perspectives in Ojibwa culture led, Irving Hallowell (ibid., 361) to coin the now widely adopted phrase "other-than-human persons" to refer to the numerous objects, beings, and forces of nature that are nonhuman in appearance but also regarded as persons, such as the wind, a plant, or certain rocks, for example. Philippe Descola (2013a [2005]) similarly approaches animism as an ontology in which all things are assumed to possess a common type of interiority (spirit/mind/intentionality) whereas it is the exteriority (body/physicality) that fundamentally accounts for diversity and differentiation among beings.

Crucially, the nature of the Dene world in Distant Time accounts for a humanlike agency or sentience perceived in seemingly all things. Richard Nelson (ibid., 16) describes this universal agency or sentience as "the transformed embodiment of a formerly human spirit" that pervades Northern Dene attitudes towards the world and its inhabitants. With respect to the broader significance of ancient events and their bearing on indigenous Northern Dene ways of knowing, Nelson (ibid.) states: "Stories of the Distant Time are, first of all, an accounting of origins. They are a Koyukon version of Genesis, or perhaps of Darwin." Thompson (1990a, 3) similarly concludes that Distant Time stories are "the canon upon which Koyukon religion is based," of which the Traveler cycle is "the longest of these stories."

Of central importance to this research is the interpretation of the Traveler and his ancient journey as an archetype of the Northern Dene medicine person and vision quest, respectively.[107] Frank Speck was perhaps the first anthropologist to recognize the North American Traveler figure as a shamanic personality. For the eastern Algonquian, he states, "the Penobscot transformer cycle, *Gluskąʼbe* appears in the mixed role of a shaman, trickster, and a somewhat altruistic culture-hero. His benevolence grows as the story of his career progresses" (Speck 1918, 188). Regarding the Naskapi Traveler, Speck (1935a, 54) states: "*Tsəkaʼbec* stands forth as the personification of those aspirations held highest in the mind of the Naskapi, as the master of that conjuring craft exerted over man and animal which the hunter strives so hard to develop within himself." With respect to the Northern Dene, Ridington (1978, 1988, 1990) significantly carried this interpretation forward as a theoretical model. Thompson (1990a) and Guédon (2005, 248-

[107] As stated in the introduction, I essentially follow Descola (2013a [2005], 20) who describes a shaman or medicine person as someone who serves the interests of his or her respective society as "a mediator between human beings and spirits [other-than-human persons] with whom he [or she] can, at will, enter into contact by means of a voyage of the soul (in a trance or a dream) that enables him [or her] to mobilize their help in such a way as to prevent or ease the misfortunes of humans."

258) subsequently described variations of this model in their respective research with the Koyukon and Upper Tanana ethnolinguistic groups.

Ridington (1978) particularly explored the Traveler's role in the Dane-zaa Prophet Dance. Among his conclusions, Ridington posited that the mythic cycle of the Dane-zaa Traveler known as *Tsááyaa* (or *Yamadeya*) "provides a model for both the vision quest leading to personal medicine power and the dreamer's initiation leading to his power of mediating between living and dead" (ibid., 8). In a subsequent paper he states:

> Both creation and culture hero stories describe significant dimensions of the ideal shaman's personality. . . The creation and culture hero stories taught generations of Beaver Indians how imagination and culturally instructed intelligence defined the place of humans as transformers of the world. They explained an association between personal transformative experience and the ability to control the transformation of the natural environment into a cultural one. The vision quest was a central empowering, transformative experience in which the meaning of the creation and culture hero stories became central to the individual's personal sense of meaning. The stories provided a model for the adaptive artifice of nomadic hunting people (Ridington 1990, 71).

More recently, Ridington and Ridington (2013, 38) conclude: "*Tsááyaa* was the first hunter, the first person to go on a vision quest, and a model for the first dreamer." Likewise Guédon (2005, 248) identifies the Dene Traveler as the "prototype of the human shaman."[108] David Krupa (1999, 125) states: "Indeed most versions of the [Northern Dene Traveler] narrative

[108] Translated from the French: "*Yamangtéchai*, le Voyageur, est un homme de pouvoir, le prototype du chamane humain" (Guédon 2005, 248).

do concern the origin, purpose, and social context for the human acquisition and use of spirit power." In an especially articulate passage, Ridington and Ridington (2006, 174-175) state:

> The Dane-zaa tell stories about a time when the roles of people and animals were reversed. In those times, giant superhumanly intelligent forms of the animals known today lived in their country. They hunted people and ate them. *Saya* (also known as *Yamadeya*) is a culture hero who is associated with the daily, monthly, and yearly passages of the sun and moon and with the seasonal migration of ducks, geese, and swans. Both of his names refer to the passage of celestial bodies across the heavens. *Saya* was able to overcome the giant animals and transform them into the forms that are seen today. In the stories about *Saya* and the giant animals, the key to success comes from the hero's possession of knowledge about his situation. . . he comes to understand the intelligence of the giant animals at a more complex level than they can understand his human intelligence. He learns to use their own natures to overcome them, just as they previously used their understanding of human nature to overcome people. He is the first person to follow the trails of animals rather than be followed by them.
>
> Every Dane-zaa child experiences a similar empowering transformation through his or her vision quest. Elders traditionally sent both boys and girls out into the bush alone to obtain power from a "friend" or "helper" that might be an animal, a feature of the natural environment, or even the spirit of a cultural object. The child's vision quest recapitulates the story of how *Saya* lived in isolation on an island and received intelligence from swans, for whom he was named as a boy. In the story, a supernatural helper comes to Swan after his father abandons him.

> The boy is alone, which is similar to the primordial world described in the Dane-zaa version of the earth-diver creation story. This "strange person" tells the boy that there is power in the name Swan. He shows Swan how to live by trapping the migratory ducks and geese that fly past his island. After surviving through the winter on food he has prepared, Swan returns home and takes the name *Saya*, 'the person who travels around the world like the sun in the sky.' He uses his newly obtained power to transform all the giant animals into their present form.

On actuating the stories and knowledge of the Traveler into real life acquisition of knowledge and power during the vision quest, Ridington and Ridington (ibid., 175-176) continue:

> Like the boy named Swan who became *Saya*, the child sent out into the bush learns that a person who "little bit knows something" has the ability to understand a situation and to use that knowledge to the advantage of friends and relatives. Through knowledge and power obtained on the vision quest, a Dane-zaa child learns to understand his or her situation. This knowledge and power is symbolized by a song specific to the animal species or other friend that comes to help him or her. This is *ma-yine* [song of personal power], the deepest symbol of a person's power of connection to the world in which he or she is an intelligent and competent actor. A person in possession of *ma-yine* receives an understanding of his or her relationship to the animals, seasons, and the movements of sun and moon. He or she obtains control over the human capacity for acting upon information held in the mind. *Ma-yine* empowers a person to process information through the creative intelligence of dream and imagination.

In dreams the Dane-zaa person is able to travel along a trail that extends beyond the moment of sensation as well as to travel back upon the trail of past experience. *Ma-yine* empowers him or her to dream ahead into the realm of possibility, to experience the events that may lie on the trail ahead. In order to focus the dream experience into the future, a Dane-zaa hunter and his wife sleep with their heads pointing in the direction where the sun will return to the sky in the morning. From this direction, they receive dreams that explain the trails ahead. These dreams derive their power from songs obtained during the vision quest. The songs, *ma-yine*, also supply a person with the power to cure others whose physical or emotional relationship to their world has been damaged or weakened. A person with power may use his or her vision quest song to cure someone's illness or misfortune, in the same way that a hunter uses it to fly ahead on the trail of a hunt. The songs have healing power, not so much because of their musical qualities as because of their symbolic invocation of the deepest level of cultural intelligence within the life experiences of the power holder. Invoking a personal medicine song brings to bear the certainty of the sun's return to the sky-world. It reflects the power that *Saya* obtained on his own vision quest (Ridington and Ridington 2006, 174-176).

Ridington and Ridington elaborate on the visionary experience with other-than-human persons, which I believe adds context regarding the Traveler as a shapeshifter and the embodiment of all things. Ridington and Ridington (ibid., 233) state:

In its most complete form, a visionary encounter empowers a person to experience the world from the perspective of a nonhuman person. Although

> visionary transformation is ultimately personal and begun in isolation, the quest for it is also conversational and social. The person seeking power engages in dialogue with powerful nonhuman persons. His or her conversations in this visionary or dream state very much parallel the transformative encounters hunters have with the spirits of game animals.

The anthropological interpretations quoted above are based on numerous parallels between the ancient Traveler's journey and the analogous process of gaining knowledge and power. Guy Lanoue (2007, 244-245) similarly describes the Northern Dene vision quest as an inversion of "normal experiential reality" in which Dene hunters turn themselves into symbolic prey by creating ritual space that "metaphorically evokes the pre-Transformer epoch." The essential elements of this ritual space and vision quest are immobility, solitude, hunger, and defenselessness. Lanoue (ibid., 245) states:

> In these special circumstances, in which the human has become prey and the animal has in a sense become the hunter, a metaphorical link develops between the hunter and the animal. Some of the animal's power can be passed to the human.

Although I agree with these interpretations my own experiences learning from my Dene hosts and teachers suggests that the helpers that one encounters during the vision quest may also be the objects and beings of one's former incarnated self. In this respect, encountering and receiving the power of a nonhuman person is to gain its perspective, experiences, knowledge, and assistance by connecting and remembering oneself through that particular incarnation.[109] As learned from Dene elders and speakers, the soul never dies but may be reborn in a multitude of

[109] For example, an Ahtna elder explained antisocial behavior as a trait of a past animal in oneself that is more strongly expressed or identified with than the social tendencies of the human self.

different bodies that transcend both time and the human form. In other words, the soul (including one's knowledge, emotions, and experiences) is continuous, whereas the physical body is discontinuous. Dream and vision quest encounters are especially conducive during the transitory or liminal stage of adolescents when one is becoming an adult while also experiencing heightened senses and a period of imbalance. As quoted at greater length in Chapter Two, a Sahtúot'ı̨nę speaker who experienced the vision quest articulately described this process:

> And you're not only reincarnated from one person to the next, but from any one of the forces of nature; a bug, a bird, or any kind of animal. You're them first. You're that first. You're a wind, you're maybe a little piece of grass, or a little grasshopper; whatever the case may be. The final thing to do before you ascend to the heavens is that you gotta absorb all this back as a human. So, you get to dream about that as you're finding your vision quest. So, back in the day maybe I was a little dragonfly, so I absorb the power of the dragon fly as I go through my vision quest. Once I got it, now I got it back. Now, it's time for the next one. Then you kind of learn this as you go along. Try to get all the spiritual connection, all the creatures or the forces of life that you were before. You're getting that all back. That's what builds you up.

The isolation of the vision quest evokes mythic time and helps one overcome his or her fears while also channeling one's focus needed to encounter and battle with these other-than-human persons. As a Sahtúot'ı̨nę speaker explained, an inability to capture or control a being who visits during a dream or vision quest is "a very bad sign," given that it will "control you" and then "you'll never feel compassion," or be balanced and connected. A Gwich'in speaker compared dream and visionary encounters with one's "helpers" to pets that require obedience

training and similarly emphasized the importance of quickly learning to control them to prevent the opposite relationship.

The ancient Traveler spent his life on a vision quest compelled to journey until he encountered and transformed seemingly everything in the world. After completing his journey in old age, the Traveler incarnated in the stars as the embodiment of the world's collective soul which he projects or animates back to the universe. This accounts for his significant spirit power, shapeshifting abilities, and status as an ally, teacher, gamekeeper, and world custodian. With respect to shapeshifting as an attribute of animistic ontologies more broadly, Descola states:

> Conversion from animal to human and from human to animal is a constant feature in animistic ontologies: the former process reveals interiority, while the latter is an attribute of the power with which certain particular individuals (shamans, sorcerers, specialists in ritual) are credited, namely the power to transcend at will the discontinuity of forms and adopt as their vehicle the body of some animal species with which they maintain special relations.

In its broadest sense the Traveler embodies a way of knowing, being, and relating to the Northern Dene universe in all modes and transformations of life and spirit. The Traveler is a teacher and conceptual model for all who follow in search of knowledge, power, and the proper way to live and be in this world and the afterworld. The Dene not only follow the Traveler's metaphorical path through life as a model to emulate, but also follow his Milky Way trail to the afterworld.

Like the Dene Traveler who transformed dangerous animals into useful ones for the benefit of mankind, a Dene medicine person is likewise epitomized as a public and spiritual figure who works in the interest of his or her society as a diagnostician, diviner, healer, and in a

broader sense, a "transformer of malevolent powers into benevolent ones" (Ridington 1978, 18). Dene medicine people are mediators with the spirit world who ultimately draw from their connection and relationship with the Traveler (the embodiment of all things) to help secure game, protection, or help for themselves and their respective society.

Chad Thompson (1990a) provides an especially useful summary of the Traveler's personality as a medicine person in his analysis of the Koyukon Traveler cycle, as told by Catherine Attla (1990). In this extensive collection of Traveler texts, *K'etetaalkkaanee* begins his journey as a young man who sleeps excessively, suggesting heavy dreaming and the commencement of a vision quest (Thompson 1990a, 14-15). Throughout his travels *K'etetaalkkaanee* must "live out his dreams" and become a medicine person by overcoming obstacles and dangerous beings, which become the source of his medicine power (ibid., 15). Thompson (ibid., 14) states:

> A Koyukon medicine person will dream of obstacles and gain power from those dreams. When he or she experiences the obstacles in real life, medicine power is needed to overcome them, and when the obstacles have been conquered, the person's power is further strengthened. If an obstacle cannot be overcome, the person has reached an impasse and is unable to go forward or return.

By the end of his journey, *K'etetaalkkaanee* is a powerful medicine person who overcame the greatest of obstacles and challenges as he circled the world to gain his medicine power. In theory, he worked with or controlled seemingly everything on earth, inheriting each as a source of power. In Attla's version, he unexpectedly kills a group of "Little People" (*K'oyeedenaa Yoo*) near the end of his journey despite their kindness and generosity towards him (ibid., 55). Attla explains that he did this "for the sake of the future" and that "if he let them live,

the world would not be properly balanced" (ibid., 55). In the final episode, *K'etetaalkkaanee* is permanently transformed into a bird and flies away as a Pine Grosbeak known in the Koyukon language as *kk'ogholdaale* ('the traveler') (Attla 1990, 149, Guédon 2005, 251). Although Thompson (1990a, 57) states that the Koyukon do not regard Pine Grosbeaks as having any "special power," I interpret *K'etetaalkkaanee*'s transformation into a bird as a salient and widespread shamanic trait as an interlocutor between "cosmic zones" (cf. Eliade 1964, 157).

Similarly, the Dane-zaa Traveler, *Tsááyaa* became a swan person through the "intervention of a guardian spirit" during his vision quest undertaken as a boy (Ridington 1990, 71). Like a swan, *Tsááyaa* became a messenger between earth and sky, who "flies up from this world to bring down the spirit songs of people in heaven" (ibid.). Ridington and Ridington (2006, 233) state:

> *Saya* begins life as a boy named Swan. The name has shamanic implications, since the Dane-zaa say that their Dreamers have the power to fly, like swans, from one world to another and return in the same body. The Dreamer's flight, though is spiritual rather than physical. While his body remains on earth, his spirit follows *yagatunne*, the trail to heaven, which he experiences as a trail of song. When he returns, he wakes up singing."[110]

In addition, *Tsááyaa* is also linked to the sun and moon, demonstrating parallels with the stellar knowledge described in Chapter Two. Ridington (1978, 17-18) states:

> The boy [Traveler] then takes the name Saya [*Tsááyaa*] sun-moon in the sky, and becomes, "like a soldier" overcoming the giant animals that ate people and transforming them into their present forms. An epic cycle of stories depicts him

[110] Interestingly, Ridington did not learn or associate *Yagatunne* ('the trail to heaven') with the Milky Way.

> traveling, like the sun, around the world transforming the monsters into animals that may be of use to people and instructing humans in the arts of successful subsistence. Through his experience of transformation from boy to man in the vision quest, he is empowered to become the transformer of malevolent powers into benevolent ones. At the end of his cycle of transformation, he is said to have left the world and retreated to the moon, the sun's shadow. It is said that he will return at the end of the world.

The newly documented stellar knowledge presented in this study encourages an extension of this model in at least some Northern Dene cultures. To begin, I interpret the Traveler's land-based journey around the world as both a social frame for behaviors, actions, and relationships and as a model of an idealized medicine person in Dene society. The Traveler and other Distant Time stories are foundational to Dene ways of knowing. As Nelson (1983, 14) cogently states, they describe "the nature of nature." They teach social norms, ancient history and cosmology, and they frame attitudes and perceptions about the world. As McKennan (1965, 98) states: "Before he [*Ch'iteehàakwaii*] left he taught the Indians all that he knew, and thus they obtained their canoes, bows, and arrows, and most of their habits and customs." These are all valid and crucial points that have been previously discussed and identified in Northern Dene ethnography. However, Northern Dene astronomical knowledge is poorly represented in the literature, especially as part of this seemingly holistic cosmology and worldview as described in Distant Time stories.

Nonetheless, the present study shows that the Traveler's enigmatic transformation to the stars in at least a variety of Northern Dene cultures is a sacred component of their cosmology and worldview that embodies an intricate way of knowing about the universe. The Traveler's

transformation to the sky explicitly marks the boundary between a general domain of knowledge and a medicine person's way of knowing. Crucially, the mythic Traveler cycles usually end just as he completes his worldwide vision quest (the point at which he has fully gained his power as the embodiment of the world), or else his fate and whereabouts remain open-ended.

As identified by culture bearers in Alaska and Canada, the stars are the incarnated spirit of the Traveler as a medicine person after he completed his vision quest. While the land-based Traveler of mythology provides an underlying model that frames an array of social norms, relationships, attitudes, and perceptions, the incarnated Traveler in the stars is a more specific model and archetype of an idealized medicine person who animates himself as the embodiment of the world's collective soul back to the universe as a beneficent personage. This is of course, why my Dene teachers refer to him as a medicine person's friend, ally, teacher, and "caretaker of the world." He is a teacher to medicine people who acquired all knowledge and power during his world-wide vision quest. In turn, he redistributes and projects this embodied power back to all things in the universe. His crouching stance, as depicted in the Gwich'in, Ahtna, and Lower Tanana whole-sky constellations, is both protective and watchful over the world. The Traveler is also a gamekeeper and animal boss who ensures that his ancient contracts made with each species are honored with reciprocity. Animals give themselves to a worthy person in exchange for proper treatment and observance of relevant taboos and protocols. During historic times of scarcity, a medicine person would have conferred with *Yahdii*, *Nek'eltaeni*, or *Yihda*, etc. to identify the problem or breach of taboo, or else divined the location of food resources from another sign, such as the northern lights (see Chapter 7).

In the context of the Traveler, the stars are a sacred domain of Northern Dene cosmology and worldview that integrate with Distant Time stories known more broadly throughout Dene

society. This deeper level of knowing is explicit in one elder's statement: "The higher the power, the more schooling you've had . . . *Yahdii* is like the highest power. By the time you know about *Yahdii*, you know a lot." This is a powerful statement that underscores the equivalence between knowing about the world and knowing about the Traveler in the stars, as well as an equivalence between knowledge and power. In addition, the name, *Yahdii*, and its numerous cognates literally translate as 'seated in his house,' which according to Gwich'in and Sahtúot'ıné elders is the universe itself.

Charlie Hubbard similarly explained that the especially sacred component of stars is knowing that *Nek'eltaeni*'s identity is that of the Traveler, *Netseh Telyaanen*. While this name discrepancy between the mythic Traveler and the constellation may seem incongruous, not calling a person, or thing of status (e.g., bears) by their personal name is well established in Northern Dene ethnology (Thompson 1990a). Moreover, Thompson (ibid.) identified that medicine people frequently acquired a new name after death, perhaps shedding light on the name discrepancy between the land-based Traveler and the constellation that his spirit came to embody.

In addition, it is worth noting that Dene attitudes and perceptions towards stars closely parallel the ways that medicine people and other persons or things of status are treated, contributing to the enigmatic nature of Dene stellar knowledge. Culture bearers do not readily talk about stars, point at them, or frequently address them by name. This tendency is nicely illustrated in the following statement provided by an Upper Tanana elder from Tetlin, who explained that her mother forbade her from even using the generic word for stars (*san'*). Naming a star and then pointing to a person is an act of cursing someone. This elder stated:

> I don't know why star is important not to tell. Young time, right now, kids, they don't understand. But our days, we can't say *san'*. Mom would just have a fit with us. *Įɣjih* ['taboo/prohibited'] they say. . . they make bad medicine to people. . . *San'*, they call, and they point to just person. I don't know, just bad thing.

Similarly, a Koyukon elder from Allakaket stated:

> You're not supposed to point at them [stars] like this too, with one finger. No way! Them old people keep their hands away from that. They said if you point at stars something is going to happen, but I never see what they mean, you know. But there's things that might happen towards us, you know.

As a collective representation of the Traveler on earth and in the sky Traveler constellations are powerful projections of a Northern Dene worldview and cosmology that simultaneously link the past, present, and future while also relating the individual, the society, and the universe. Given the specialized nature of Dene astronomical knowledge, medicine people are likewise the keepers of a larger unified cosmology that they intimately knew from their dreams, travels, and understanding of their own spirit as an ancient and continuous part of the world. As an image in the stars, Dene Traveler constellations are a sort of cosmogram. They are richly layered iconic and symbolic representations of an indigenous worldview, cosmology, and spirituality that encourages society to treat the world properly and to live within the norms of established Dene social constructs. However, a symbolic and iconic interpretation alone is overly simplistic as it does not fully account for the deeply individual experiences with this other-than-human person as a consummate ally, teacher, world custodian, gamekeeper, and embodiment and distributor of medicine power. It is the heuristic process itself that fundamentally instills personal meaning and cements one's relationship with the Traveler. The capacity to collapse time into a

single lived experience and to continue teaching about all aspects of self, society, and universe is the driving power behind the Traveler as a huge epistemology for knowing and being Dene.

Although there is significant room to further develop interpretations of these constellations my goal for Chapters Two and Three have been to further delineate Northern Dene stellar knowledge and begin situating it in meaningful systems of knowing. I also hope to better demonstrate the value of the sky to Subarctic anthropology and to show that learning about the sky in a Northern Dene context is rooted in learning about everything else.

Despite McKennan's (1959, 110) statement that "Starlore plays no part in their [Upper Tanana] mythology," I contest that the mythic Traveler cycle is the basis for understanding the Northern Dene constellations described in Chapter Two. The Traveler's covert transformation to the sky also fills a vacancy in the anthropological literature by providing a more holistic understanding and perspective of a Northern Dene universe that links earth and sky in an existing and widespread cosmological narrative primarily informed by the mythology of Distant Time. Following in the footsteps of the Traveler on earth by living properly and observing the laws, taboos, and protocols that he established helps individuals discover themselves and their relationship to the world that will enable them to follow the Traveler's Milky Way trail that leads their spirit home. As such, the Traveler informs and guides one's path in both the lived world and in the afterworld. As a working theoretical model, the interpretation of Traveler constellations as projections of worldview and cosmology seems particularly valid with respect to the recontextualization that they apparently underwent with changes to religious ideology.

A Note on Religious Change and Stellar Knowledge

Throughout the Northern Den region, the Traveler is now largely equated with Jesus (Mishler 2001 [1995], 23), God (Moore and Wheelock [eds.] 1990, 3, Thomas Sr. and Mishler

2005, 210-214), or in some instances Noah (Rooth 1971, 120-364). Although the Traveler is more properly a transformer and teacher than a God-like Creator, stories from the Bible are usually interpreted as supportive, complementary, and reaffirming of indigenous Northern Dene beliefs and values as opposed to a competing religious ideology. For example, Easton (2005, 15) writes:

> Mr. Frank was insistent, however, on my understanding that the stories of *Ts'awusha* [i.e., the Upper Tanana Traveler, *Tsa' Ushyąą* 'Smart Beaver'] and others from myth-times were sacred, to be taken seriously and contemplated for their moral value; 'A long time, that man go around the world and come back. Some, lots of bad animals, he straighten 'em out too, that man. That man, my old people they say, he walk like God that man go around the world, he walk with God. Way back, no white man, they know God too, they know. . . *T'odiht'ay* they call him.'

Easton (ibid.) explains that the Upper Tanana Dene often relate the Traveler and other Distant Time stories to the Bible and adds: "I heard many other Dineh similarly refer to their myths as 'the Indian Bible.'" Likewise, in the Northern Tutchone region where the Raven is analogous to the Traveler, Tommy McGinty states ". . .the old timer said that this crow story is the true Bible story (Legros and McGinty 1999, 97)."

Rosaries are also placed on or near certain features associated with the Traveler, such as the "Sacred Tree" located at the mouth of the Yellowknife River in the Northwest Territories. The Yellowknives Dene explain that this tree grew from a snow shovel, paddle, or stick that the Traveler, *Yamoòzha*, stuck in the ground after using it to break an ancient giant beaver dam that threated to flood the region. Local and visiting Dene peoples place offerings on the tree such as

tobacco, coins, and rosaries before traveling on the land or when asking for a blessing or assistance in healing (Figure 28). The beaver lodge and debris from the broken dam that turned to stone are located adjacent to the Sacred Tree at the head of Yellowknife Bay (Figures 29).[111]

Figure 28. The Sacred Tree that grew from *Yamoòzha*'s snow shovel, paddle, or stick shown with offerings of tobacco, coins, and rosaries. The tree is located along the Ingraham Trail at the mouth of the Yellowknife River as seen on November 12, 2015.

[111] The Sacred Tree blew over in a windstorm in August 2018 as reported in a series of articles published by the CBC (Dubuc 2015, Fenn 2018, Last 2018). A replica of the Sacred Tree is displayed in an exhibit at the Prince of Wales Northern Heritage Centre in Yellowknife, N.W.T. called "This Land is Our Home: Wıìlıìdeh Yellowknives Dene."

Figure 29. An ancient giant beaver lodge that turned to stone at the head of Yellowknife Bay as seen on November 12, 2015.

With respect to the Traveler constellation, a Gwich'in elder stated: "I'm a Christian, but I also go by *Yahdii*." Nonetheless, erosion and recontextualization of the Traveler constellation were already underway by at least 1874, as evidenced in Radloff and Schiefner's (1874, 11) German-Ahtna-Dena'ina dictionary where they gloss *Nakltanē* (i.e., *Nek'eltaeni*) as both Ursa Major and the Christian God. Supporting evidence appears in Cornelius Osgood's (1937, 174) "Ethnography of the Tanaina" where he writes:

> This (*nákdéldáni*) is the common word in use for the Christian God introduced by the Russians. It seems also, however, to be an abbreviated form of the earlier *náq'óčkdéldáni*, a native deity. . . Having since discovered the term, two other informants, one in Kenai and the other in Tyonek, recognized it as aboriginal. At Kenai, *náq'óčkdéldáni* is said to live in the north star and to travel around the sky

all the time. . . At Tyonek, *náq'ǒčkdélddni* is said to embody the whole constellation of the Little Bear. When people lie down and think of *náq'ǒčkdélddni* what they dream they think is real. Men appeal to him by holding up a hand saying, *kóxt'anayéyóni*' (you who made the people), and then they ask for what they wish.[112]

Although Cook (1908, 277) does not reference the stars, he similarly reports: "In the spirit world they [Dena'ina] place one supreme being named *Nah-cri-tah-ny*, who is regarded as the maker and creator of all things." As Northern Dene religious ideologies shifted and became more syncretic with Christian concepts, the indigenous conception of these man-animal constellations shifted accordingly. The late First Traditional Chief of the Ahtna region, Fred Ewan, explained:

That's what they call *Nek'eltaeni*. Don't know why they call it a man, you know. . . I guess Lord; must have been. . . They don't know there was a Lord [aboriginally]. They believe in wolverine. He's a man, you know. You see sometime [in the stars]. He got eye and nose and mouth, you know . . . star is made by that guy there. . . Everything just fit there. Must have been Lord, you know. But we don't know from beginning, you know. Only taught animal, we believe in animal. . . *Nek'eltaeni*, everything made by *Nek'eltaeni*.

When explaining that *Nek'eltaeni* is the Ahtna Traveler, *Ciił Hwyaa* ('Smart Young Man'), Fred stated: ". . . this one here made everything you know, where he go over [the sky]. *Ciił Hwyaa yates* ('Smart Young Man over the sky'), that's the Lord, we call *Ciił Hwyaa*. He added:

[112] This passage is quoted in full in Chapter Two. Compare to the similar quote in Osgood's (1933, 715) earlier paper, "Tanaina Culture."

> That's Indian story. But we don't know the Lord then. That was the Lord, I guess. From that one you got light and everything; *Saghani Ggaay* ('Little Raven'). *Ciił Hwyaa* ('Smart Young Man') is different, another one, you know. Two of them always, you know. That's the only way we teach that, I guess Lord. You know, in old days, you know.

In traditional households, Charlie Hubbard stated that Ahtna religion "was taught one on one and it went right along with nature. . . If you didn't respect the world, you didn't respect *Nek'eltaeni*." However, through ongoing processes of religious change, he explained: "Missionaries basically eliminated him [*Nek'eltaeni*] and took his name and put it to their own God." Today, in Ahtna and Dena'ina country the names for these constellations, *Nek'eltaeni* and *Naq'eltani*, respectively, are almost exclusively used to denote to the Christian concept of God (Kari 1990, 330, 2007, 312), whereas the collective memory of these constellations as powerful and beneficent indigenous personages is limited to a handful of culture bearers. In other Dene languages, such as Gwich'in and Sahtú, the words *Yahdii* and *Yíhda* are now almost exclusively used to denote just the seven stars of the Big Dipper, if known at all. The unrelated Gwich'in and Sahtúot'ıne terms, *K'eegwaadhat* and *Newehts'ıne*, denote God in Anglican and Catholic contexts, respectively.

Syncretism between the large humanoid or Traveler constellation and the Christian concept of God is also noted in the Tanacross and Upper Tanana regions of Alaska. The late Tanacross elder, Emma Northway explained that the constellation *Neek'e'elteen* was once more widely associated with the Christian God *Wut'axdịht'eey*. Although contemporary memory of this constellation is nearly forgotten Emma said:

> Tanacross people, they say *Wut'axdịht'eey*. *Neek'e'elteen* [is] *Wut'axdịht'eey*. It's not only one village; everybody. They just pray for that thing like that [large humanoid constellation]. Not only Tanacross, the other people. They use their own language and they call different; that *Neek'e'elteen*.

Although the Upper Tanana Traveler is in an unseen realm above the sky or else envelops the world like the atmosphere as opposed to a constellation, Roy David similarly compared the Traveler, *Yambaa Teeshyaay*, to Jesus or God. During a conversation about stars he explained:

> *Nahtsịąh* ('wolverine') [and] *Yambaa Teeshyaay*, they're the two. Wolverine [is] the devil and *Yambaa Teeshyaay* is God. There's two, you see. You see, it's a story. Same story [as the Bible], it come out. It no other way. All same story.

With respect to the Milky Way and Morning Stars as conceptual models for behaviors, actions, and relationships, Roy explained: "He [*Yambaa Teeshyaay*] point and there's always wise (i.e., wisdom), we follow near trail to the morning star. Who is that morning star? [It] is sons of God. That's true."

Throughout the Mackenzie River region, the Catholic missionary, Emilé Petitot, apparently took a defensive stance against the stellar 'heart' or *ʔedzə́* that Charlie Neyelle describes as the Traveler's heart and embodiment of the world. Although Petitot (1890, 85) apparently conflates *ʔedzə́* with the man or boy in the moon, he confirms a wider distribution for the concept of a celestial heart throughout the Northwest Territories and states:

> Finally, the Dènè-dindjié give the evil spirit an even more mysterious and equivoqual name by calling him *Edzil'*, *Edzéè* [*ʔedzə́* 'something's heart'], *Edzon*, *Adzjiel'* i.e., the Heart of heaven or of nature. Under this designation he is still the genie of disease and of death, at the same time as a lunar divinity. However, I

> cannot asseverate that he is the same god as *Ettséné* [*ʔɻtsíné* 'spirit']; indeed I do not think so at all (Petitot and Savoie [ed.] 1970).

Finally, it is worth noting that the words "shaman" and "shamanism" were heavily stigmatized in Dene communities in the recent past, perhaps further distancing accessibility to this already covert body of stellar knowledge. In place of the word "shaman," the less stigmatized phrases "medicine man" and "spiritual/gifted person" are usually preferred in English conversations with Dene speakers and culture bearers (see also pp. 26, n. 6). Although this preference for terminology remains, my experience in the field suggests that this stigmatization is beginning to fade in Alaska and Canada. This change is perhaps primarily owed to younger Alaskan Dene and Dene First Nations members engaged in endangered language and culture revitalization efforts to better preserve and connect with their indigenous heritage and spirituality while also following a Christian ideology that is sometimes observed and practiced in uniquely Dene ways. Regarding the presentation of medicine people's knowledge in this research, a middle-aged Gwich'in first language speaker and indigenous language advocate valuably suggested:

> I wonder if you can share that people are of different opinions on this subject matter, but that the need to preserve the information outweighs losing it to obscurity. There must be a way to present the material without endorsing or condemning one way or the other [i.e., shamanism or Christianity].

Although religious movements, syncretism, and other processes of religious change are largely beyond the scope of this research, this section is intended to briefly address potential avenues in which stellar knowledge has eroded, changed, or otherwise undergone recontextualization. On the other hand, it is an oversimplification to interpret the astronomical

knowledge systems described in Chapter Two as reconstructions given that they are constituted in the realities and worldviews of the elders who I learned from as opposed to recollections or memories of the past.

While my position is that Traveler constellations have deep antiquity as the archetypical Dene constellation, I do not imply or suggest that there has not also been some evolution of thought regarding these constellations. What does stand out, however, is that the conceptual model that the Traveler provides with respect to informing behaviors, actions, and relationships has relevance to Dene people today despite changing perspectives, issues, and problems, including those confronted in a modern and globalized world. This timelessness has become most evident to me in the responses of many Dene people I've met at workshops, presentations, and other community settings who readily identify and grasp this knowledge and its layered teachings while also letting it speak to them in new and personal ways that are, nonetheless, uniquely Dene.

Chapter Three Conclusion

In this chapter, I interpreted an enigmatic area of Northern Dene stellar knowledge and situated it in a wider corpus of anthropological literature. Drawing from interviews, linguistic elicitation, and a long-term experience-based approach, Northern Dene elders, speakers, and culture bearers have helped me learn and document a rich domain of astronomical knowledge and practices. The Ahtna, Gwich'in, and Sahtúot'ı̨nę language areas where I closely shared in the lives and experiences of my Dene hosts and teachers, particularly illustrate the independent maintenance of analogous systems in widely separated Northern Dene communities (>1,200km apart). While fully anticipating other alternative systems and ways of knowing localized to specific groups, this research simply posits a general pattern across the Northern Dene region,

both in terms of stellar nomenclature based on a body-part metaphor and on the association of this knowledge with the Traveler mythology and related events and figures of Distant Time. Moreover, at least minimal elements of these systems extend to Navajo and the Algonquian family.

Although the humanoid constellations described in this research exhibit variability in size and conceptualization, they are an integral component of the beliefs and practices of medicine people. While the land-based Traveler recounted in Northern Dene mythology edifies social norms, attitudes, beliefs, and perceptions about the world, the incarnated Traveler in the stars is a sacred component of Dene cosmology and worldview that completes the archetype of an idealized medicine person. Nonetheless, the potential to discover, know, and see this beneficent personage in the stars is seemingly open to anyone under the right circumstances and disposition, suggesting a diffuse boundary between secular ways of knowing and a medicine person's way of knowing, perhaps varying more by degree than by type. In any case, stargazing is an active spiritual experience in the context of seeking or affirming a relationship to the Traveler constellation through processes of incarnation when its latent spirit and image become visible.

As a cosmogram, the Traveler constellation is a powerful projection of an indigenous Northern Dene worldview that links the past, present, and future. It is also uniquely personal while simultaneously embodying a broader cultural ethos that underscores society's responsibility to observe traditional values and to live within the norms of established Dene social constructs. In sum, the Traveler constellation is spun in larger "webs of significance" (see Geertz 1973, 5) that relate the individual, the society, and the universe. Moreover, this conceptualization is inextricably linked to and balanced with an opposing malevolent and watchful figure in the stars, illustrating a celestial dichotomy between proper and improper ways

of being. However, as religious ideologies shifted, these constellations largely underwent recontextualization and erosion.

Although a significant body of research has addressed Northern Dene religious change, the astronomical knowledge presented in Chapter Two exposes the extent to which an earlier basis from which these changes occurred remains unknown in the academic sphere. Nonetheless, these systems endure as viable, although covert, oral traditions, beliefs, and practices. It is not that these knowledge systems have vanished, rather it is the contexts for learning about them that are most at risk of loss. It is the context of culturally situated experiences that provides the underlying frame for immersion into "quiet" knowledge systems such as Dene astronomical knowledge. As I stated previously, learning about the Northern Dene sky is to learn about everything else. Seeking answers to questions about the stars opened doors to a rich and detailed cosmology and worldview that integrates with concepts of the spirit, personhood, rites of passage, the land, place names, socialization, mythology, songs, and the acquisition of knowledge and medicine power, etc. While these results have broader implications for Northern Dene ethnology, they also encourage closer attention to the sky in other related studies throughout the circumpolar north. However, anthropology in general has been slow to recognize the value of the sky as an important domain of linguistic and cultural knowledge.

Obvious future directions for this time sensitive research are to continue delineating Northern Dene astronomical knowledge systems at the discretion of traditional knowledge bearers and Dene stakeholders. These knowledge systems will no doubt reveal wider relationships and variability across the greater Na-Dene and Algonquian language families. However, this documentation will especially benefit from a long-term approach and careful problematization of social categories so as not to tacitly project Western constructs on Dene

knowledge systems. For example, bright stars are not necessarily the most important stars, the North Star (Polaris) may have little value in wayfinding, a constellation identified as an animal may not be a literal animal, but instead a therianthrope or Traveler figure, and English phrases such as "Little Dipper" and "Morning Star" may correspond to the Pleiades and Arcturus rather than Ursa Minor and Venus, respectively.

Finally, the earth and sky are not exclusive of one another; rather, they are part and parcel to a unified cosmology and worldview. It is at the intersection of these domains where meaningful relationships between social processes and order and cosmological processes and order can be found. I now turn my attention to knowledge, beliefs, and practices associated with a wide range of other stars, celestial objects, and atmospheric phenomena that integrate with an animistic worldview where all things have sentience, a spiritual essence, or an animating life force.

Chapter 4: General Concepts of Stars and Other Constellations

You're not supposed to point at them (stars) like this too, with one finger. No way! Them old people keep their hands away from that. They said if you point at stars something is going to happen, but I never see what they mean, you know. But there's things that might happen towards us, you know.

- Koyukon elder, Johnson Moses

You can't joke around about the stars. They take people. They took two sisters already.

- Yellowknives Dene elder, Alfred Baillargeon

In this chapter I provide an overview of general concepts of stars. I also comment on the "Star Husband" story and discuss a constellation conceptualized as hunters or dogs pursuing one or more animals. Although this constellation was presumably introduced over the Traveler/Humanoid stellar system, variants of this constellation are common to indigenous peoples throughout North America and Eurasia. It is notable, however, that my Dene teachers who learned detailed knowledge about the Traveler constellation and cosmos did not also know about the constellation of hunters or dogs pursuing an animal. While Northern Dene Traveler constellations embody a sacred domain of knowledge and practices, the constellations described in this chapter are part of a general domain of knowledge that are overtly recounted with a star-lore. However, the names and stories for these constellations are less widely attested throughout the Northern Dene region.

General Concepts of Stars and the "Star Husband" Story

Like most things in the Northern Dene universe, individual stars are autonomous beings that have a spirit or life force. For example, Ahtna elder, Charlie Hubbard, used the phrase

uggaaye łue c'ilaen ('there are children') to refer to all the unnamed stars in the sky while Upper Tanana elder, Roy David, similarly employed kinship terminology to refer to different sizes or magnitudes of stars, such as *san' unąą* ('star's mother') and *san' uta'* ('star's father') for the largest stars, and *san' ugaay* ('star's child') for the smallest stars. He referred to stars of intermediate magnitude as *san' udia'* ('stars younger sister), *san' mbaadeh* ('star's older sister'), *san' uchiil* ('star's younger brother'), and *san' mǫǫndaa* ('star's older brother'). Likewise, Sahtúot'ı̨nę elder, Charlie Neyelle, explained that the vast assemblage of unnamed stars are the spirits of the world's collective flora and fauna whereas a Gwich'in elder generally described them as "*Yahdii*'s children."

The widespread North American "Star Husband" story (Thompson 1953) that recounts the epic of two women who were taken by stars after pointing at them is common throughout the Northern Dene region (see Boas 1897 39-42, Farrand 1900, 31-32, Teit 1917, 457-459, 1921, 247-248, Curtis 1970 [1928], 140-141, Osgood 1937, 130, Lane 1953, 323-324, McKennan 1965, 139-140, Rooth 1971, 314-315, Sidney et al. 1977, 73-79, McClellan 1975, 75, 78, 181, Cruikshank 1979, 128-133, 1983, 6, 17-18, 1990, 105-107, McClellan et al. 1987, 311-312, Moore and Wheelock [eds.] 1990, 358-359, Kaska Tribal Council 1997, 381, Moore 1999, Desgent and Lanoue 2005, 153-156, McClellan, Cruikshank, and Kernan 2007b, 298-301, 417-420). These stories are especially prevalent in the Northwest Territories where I heard multiple versions from Yellowknives Dene and Sahtúot'ı̨nę elders, while hearing substantially fewer versions in Alaska. The "Star Husband" story not only underscores that stars are powerful animate beings that engender respect, but it also emphasizes humility and the importance of abiding by social protocols. A Yellowknives Dene version of the "Star Husband" story told by Alfred Baillargeon is provided below in English as interpreted in real time by Dennis Drygeese.

Star Husband
Originally told in the Tetsǫ̨t'ıné dialect of Dëne Sųlıné by Alfred Baillargeon
in Dettah, N.W.T. on November 11, 2015
Recorded by Chris Cannon with Alex Jaker and Dennis Drygeese

His [Alfred Baillargeon's] great grandfather told him stories about this. The Creator created the sun, and stars, and the moon. Small stars, big stars.

Two sisters stayed home, and the parents went hunting.

They were small; young.

The oldest one was keeping [looking after] the youngest one.

They were looking at the stars,

counting the stars.

The [older] sister said, "The small star's for you, the bigger star's for me," the older sister said.

And the [younger] sister said, "No."

[So] the older sister said, "[Then] you have the big one and I'll have the small one."

And they went to bed.

They got up.

And there was a big guy sitting beside the sister. That was the star.

And the small man was sitting beside the older sister.

The stars took the girls and put them up there [in the sky].

So now they're up there because of that.

The stars are people, they're human.

And they were killing caribou.

They were using something from the land.

They made string from the caribou hides;

long rope (*tɬ'ul*).

So, they put a rope through (i.e., around) the girls and they shimmied her down (lowered her down). Shimmied her [younger] sister down [to earth].

And the older sister went down after her.

The baby sister went into the eagle's nest.

So, they both stayed in the eagle's nest (*det'ą cho togh'a*).

So, the star took the rope out.

One baby eagle stayed in the nest while the girls [were] there and another [eagle] came back.

The eagles were big [in] those days.

They ate people in those days.

So, the sisters told [the eaglet they] would kill the mother, they said.

So, they hit her [the mother eagle] on the head and threw her off; threw her off the nest.

So, when it kind of rains it means the mother's coming back.

And they hid themselves.

[The eaglet told the sisters that it will begin to rain when their mother is returning to the nest. The sisters hid under the nest and then clubbed the mother eagle after she returned. Then the sisters climbed down the tree and returned to their home where they told their story about being abducted by stars.]

So, they start [their] journey on towards [where] those old ladies were, or old ladies are.

[The] Creator created the stars to be the way they are individually.

There are lots of different things in this world.

. . .

You can't joke around about these stars.

They take people.

They took two sisters already.

> When you're lying in a lean-to, those lean-tos he's talking about, you look at the stars, you know. You don't make fun of these stars, he says. His great grandfather told him that; at nighttime looking up.

Although the Star Husband story is more widely distributed in other parts of North America, I briefly mention it here as another pretext for considering the ways that Northern Dene peoples relate to the stars and socialize the sky. A list of Northern Dene names for "star" is shown in Table 13.

Table 13. Northern Dene names for "star."

Name	Language (ISO-639-3) – dialect/region	Source
*səm'	Proto Dene	(Krauss and Leer 1981, 65)
są'[113]	Gwich'in (gwi) - Alaska	(Peter 1979, 122)
sò'	Gwich'in (gwi) - Old Crow	(Montgomery et al. 2000, 5)
sàn'	Gwich'in (gwi) - N.W.T.	(GSCI and GLC 2003, 183)
sà̱n'	Hän (gaa)	(Ritter and Paul 1980, 74)
sen'	Lower Tanana (taa)	(Kari 2020, 423)
swn', srwn'	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 98)
tlen'	Koyukon (koy) - Upper	(Jetté and Jones 2000, 585)
tloon'	Koyukon (koy) - Central & Lower	(Jetté and Jones 2000, 585)
tthoon'	Holikachuk (hoi)	(Kari et al. 1978, 25)
tthen'	Deg Xinag (ing)	(Kari 1978, 45)
sin, sem	Dena'ina (tfn)	(Kari 2007, 150)
sim	Dena'ina (tfn) - Nondalton & Lime Village	(Kari 2007, 150)
sen	Dena'ina (tfn) - Upper Cook Inlet	(Kari 2007, 150)
son'	Ahtna (aht)	(Kari 1990, 464)
sę', sen'	Middle Tanana (taa)	(Kari 2019b, 219)
sén'	Tanacross (tcb)	(Arnold et al. 2009, 252)
sän', son'	Upper Tanana (tau)	(Lovick 2020, 104)
sán'	Northern Tutchone (ttm) - Mayo	(Ritter 1976, 45)
thyán', théln'	Northern Tutchone - Selkirk	(Ritter et al. 1977, 92)
thę̀l	Southern Tutchone (xsl)	(Tlen 1993, 58)
s̲um	Dakelh (crx)	(Walker and Wilkinson 1974, 209)
sim, sen	Witsuwit'en (bcr)	(Hargus 1999, 109)
són'	Kaska (kkz)	(KTC 1997, 392)
sùn	Sekani (sek)	(Hargus 2000, 96)
s̲an	Dane-zaa (bea)	(Holdstock and Holdstock 1986, 38)
sú	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
fę́'	North Slavey (scs) - Shúhtaot'ı̨nę	(Rice 1989, 10)
wę́	North Slavey (scs) - K'áshogot'ı̨nę	(Rice 1989, 10)
whę́	North Slavey (scs) - Sahtúot'ı̨nę	(Rice 1989, 10)
whǫ̀	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 118)
thę́	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 165)
thén	Dene Tha' (xsl)	(Moore et al. 1980, 12)
tthe̊́n	Dëne Sųłıné (chp)	(Kaulback et al. 2012, 119)
sòn'	Tagish (tgx)	(Wren and Kemble 1994, 35)
s̲on'	Tahltan (tht)	(Carter and Carlick 1994, 116)
ŝem	Tsilhqot'in (clc) - Xeni Gwet'in	(JHLC 2020)
sr̥, sx̥, sxa'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 13)

[113] The Gwich'in terms *są' dok* ('collection/bunch of stars') and *są'il* ('star cluster') refer to general groupings or clusters of stars that approximate the English word "constellation."

A Constellation of Hunters or Dogs Pursuing an Animal

A Northern Dene constellation of hunters or dogs pursuing one or more animals was uncommon in my field research with names and stories for this constellation provided by single culture bearers in the Upper Kuksokwim and Dëne Sųłıné language areas. The literature, however, reveals a larger distribution for this constellation with other variants described in Dakelh (Morice 1898, 28-33, Jenness 1934, 137-141, Munro 1944, 99-104) Tsilhqot'in (Farrand 1900, 31, Lane 1953, 340), Sekani (Desgent and Lanoue 2005, 140-141), and Dena'ina (Rooth 1971, 91-92, 96, Ellanna and Balluta 1992, 99). Additional names for constellations that refer to hunters, travelers, or dogs pursuing something in the sky are also reported in Gwich'in (Ginnis and Mishler 1986), Northern Tutchone (Ritter 1976, 45, Ritter, McGinty, and Edwards 1977, 92), Dene Tha' (Moore et al. 1980), and Koyukon (Jetté and Jones 2000, 118, 411), suggesting further extension to these language areas.

The hunters or dogs that compose these constellations are usually associated with the stars of Orion's Belt, whereas the Pleiades is typically the animal or groups of animals that they pursue. The collective stories that describe the origin of these constellations fit within a larger mythological motif referred to as the "Cosmic Hunt," which has wide distribution throughout North America and Eurasia (Berezkin 2005). While the Upper Kuskokwim, Dëne Sųłıné, and Tsilhqot'in stories describe the transformation of human hunters and the game animal(s) that they pursued, the Sekani, Dakelh, and Dena'ina versions center on the origin of "dog children" who were transformed into stars while pursuing one or more animals. The latter stories, which characterize the "Dog Husband" motif, also have wide distribution throughout North America (Sheppard 1983). However, some versions explain that the animal(s) and pursuers were transformed into rocks or other objects on the land as opposed to stars (see, for example, Petitot

1886, 311-316, Boas 1897, 37-39, Teit 1909, 318, Petitot and Habgood 1970, 116-118, Cruikshank 1979, 114-118, 1990, 102-105, Helm 2000, 289-290, McClellan, Cruikshank, and Kernan 2007b, 290-294).

Madeline Drybone of Łútsëlk'é told a version of the "Cosmic Hunt" in Dëne Sųłıné that recounts the transformation of seven human hunters who pursued a muskox in the Barrenlands of present-day Northwest Territories. The story and constellation described by Madeline corresponds to a similar constellation that is widely recounted in Inuit star-lore across Alaska, Canada, and Greenland (see MacDonald 1998, 84-88).

Star Story: Hunters Pursuing a Muskox
Told by Madeline Drybone with comments by Allan Adam
Recorded by Chris Cannon with Alex Jaker and Melissa Daniels in Alberta near Fort Smith, N.W.T. on May 9, 2018
Transcribed and Translated by Alex Jaker, Dennis Drygeese, and Chris Cannon[114]

[M.D.]
Taanı dëne.
Three people.

Kaanı.
Three.

ʔɣłáa, ʔedláulye na, Yaídelaze,
So, at first, what was it called, *Yaídelaze*,

tthe̋n, Yaídelaze.
stars, *Yaídelaze*.

Haúye, ʔeyı ʔejëre ʔat'e.
That's what it's called, that's the muskox (Pleiades).

ʔejëre nádé na hazúu k'e, ʔeyı.
The muskox that live on the Barrenlands, that's where they live.

ʔeyı tth'ı yuné kaanı dëne lo.
And also, there are three men following behind them.

[114] An ellipsis indicates the omission of a brief comment, question, or interpretation spoken by another person in the group while Madeline told the story.

Bezí náasní hadúe, bezí k'óreshą hɻlé húlí,
It's hard for me to remember the name, even though I used to know the name before,

dódɻ́, thaá hɻt'e, thaá, thaá, thaá.
nothing, it's been a long time, long, long, long.

Hát'o t'a kaanı yek'énedél.
And like that, three were following behind them.

ʔatthe yunúizɻ́ hát'eɻ́t'a shéts'elyı.
Before, in the old days, they would eat only like that [from the land].

Dódí ʔasíı hɻlɻ́-le, k'atıné tth'ı dódí-ú.
There was nothing, and there were also no white people.

Hát'o yek'énedél-ú,
Like that they were following behind it,

ʔeyı t'á ʔą́del.
because of that, they got lost.

ʔá heédel ts'ɻ́ ʔáné, hút'a hát'e.
And from that point onwards, they got lost, it was like that.

ʔeyër bóret'ɻ́.
You could see it there.

ʔeyı, ʔeyı áhnı.
That one (Orion's Belt), that's what he means.[115]

…

ʔę́, tthą̋n, kaa dëné, taa, taanı. ʔę́.
Yes, the stars, three men, three, three. Yes.

Tthą̋n kaa lo.
Three stars.

[A.A.]
Ah, there's three stars.

[M.D.]
Tthą̋n hayǫ́ ʔelá ʔedzáaze lo.
All three of the stars are clustered together (Orion's Belt).

[115] I asked Madeline if Orion was a group of hunters, which prompted her to tell this story.

ʔeyı ʔejëre.
Those (Pleiades) are the muskoxen.

[A.A.]
OK, so there's three stars, they're the three men and they went hunting after muskox. So, there's a whole bunch of stars together.

Dlíní ts'ę́n?
Towards where?

Yuʔáné ts'ę́n ʔekó, *dlát'o ts'ę́n*?
Towards way over there, towards where?

[M.D.]
Dlát'o ts'ę́n.
Towards there.

…

ʔeyı, *kú ʔeyı*, *ʔejëre heedı lo*, *Yaídelaze heedı*.
There, that there, they don't say muskox, they say *Yaídelaze* ('a groups of small things thrown into the air').

. . .

[A.A.]
ʔeyı taanı dëneyú ne?
Those (Orion's Belt) are three men, right?

[M.D.]
ʔę́, *ʔę́*.
Yes, yes.

[A.A.]
ʔeyër kú dé ʔejëre, *yudaá ts'ę́n*.
At that time it was a muskox, that went up.

[M.D.]
ʔę́, *ʔeyër łá*.
Yes, at that one time.

[A.A.]
ʔeyër ʔejëre ts'eédel.
Right there they went to the muskox.

ʔeyër ʔejëre k'énı, *Yaídelaze*.
Right there after the muskox, *Yaídelaze*.

[M.D.]
Yaídelaze húlye-ú.
It is called *Yáıdelaze*.

Yek'énı dzéheedíl-a t'á, kút'a ʔá heédel-a.
Because they were following it around, all of a sudden they got lost.

Dırı ní k'e nats'et'ı̨-le, ʔeyı hát'e.
They were never seen again on this earth, it's like that.

…

[A.A.]
(Asks Madeline if the stars are hunters)

[M.D.]
Názée dëné hı́t'e-lo, dëneyúı́ dáret'e.
Of course, they were hunters, they were only men.

…

ʔeyı beghą́ háasní dé, ʔeyı kú,
If I were to tell the story, at that time,

ʔatthe yunízı̨ síı,
before, in the old days,

ʔełk'íth tth'ı hı̨lı̨-lú, k'á ʔú́ł́ı̨.
there were also no guns, only bows and arrows.

K'á, hát'e-lo wé tthe.
Arrows, that's why that rock (i.e., arrowhead).

…

ʔé, nát'ǎdh-ú, k'á lą hela na.
Yes, you cut it, and it goes on the tip of the arrow.

ʔeyı t'á ʔasíe łą́ą́łde.
With that they killed things.

[A.A.]
Yeah, so in the old days, there were no guns, like rifles, no muskets, nothing. And people used to hunt with only bows and arrows. And she was describing the stone that was used to put on the tips of the arrows.

[M.D.]
ʔeyı t'ą́ı́ t'a shéts'elyı lo.
It was only this way you could eat.

ʔę́, hát'e t'á, dırı síı hųlı́-le, jíı chu,
Yes, because of that, there was nothing like this, and berries,

bę́r chu, ʔayı́ há, ʔatthe yunízı́.
and also meat, there was only that, before in the old days.

Nunı nuetthe ʔat'e-lo.
This was before us.

ʔę́, ʔeyı t'á k'étł'áázı́ názé nádélí-lo.
Yes, because of that they were hunting all the time.

Náanı łý łá-ú, náke-ú bets'ı́ snı la.
Some had one dog, some had two, so they say.[116]

ʔę́, ʔeyı t'á dëneba ʔasíı dzérélyı.
Yes, because of that, they would carry things around for people.

ʔeyı t'a hát'e.
That's how it was.

Hát'o tth'ı t'át'o dëne xél dzérélʔą́s hásą́.
And that's how they [dogs] travelled around with people.

Hát'o, dırı, dırı-ú ʔejëre,
Like that, these, these muskox,

kú, bę́r báts'edı tth'ı dúé lo.
and at that time, the people were very hungry.

Hát'e t'á, ʔejëre k'énı heédel k'é, hazúu k'e.
Because of that, they followed the muskox, to the Barrenlands.

Dechën bezí hųlı́-le, naı.
Some trees have no name.

Sı hát'e dzíríya ʔası́.
I travelled around [in the Barrenlands], that's why I'm saying that.

[116] Madeline clarified that none of the hunters' dogs became stars.

Dódí k'äí hų́lį, nechílaze.
There is nothing, only small willows.

Hát'o, yek'énedél yek'énedél t'ót'a,
Like that, they were following, following after them,

yuné ts'ën xa dé,
if it was behind,

nıdhá ʔat'ı dú.
and it was so far.

Dódí dechën hų́lį́-lo.
There were no trees.

Hát'o t'a yek'énedél-ú.
Like that they were following him.

Hút'a dáúle ʔajáı.
All of a sudden, they all disappeared.

ʔeyı tł'ą́ą-ú, dëne náréke.
After that, people started dreaming.

Náanı náréte la, náte.
Some have dreams, they dream.

Hát'e ʔeyı ghą náhetį-ú,
And so when they've dreamed about that,

ts'ébeéle ʔat'e k'é.
that's where they ended up.

Bų́łʔą snı.
They say they found them [in the sky].

. . .

ʔeyı t'a bóretį na, łáįsdį́ dëne ʔat'e.
And this which we see here, those are seven people (Orion's Belt and Sword).

Kú ʔeyı, łáįsdį́ lábóreʔį-á, ʔekú.
and this here, it looks like a [number] seven.

Łáįsdį́ bek'erítł'ís lábóreʔį.
It looks like the number seven written (i.e., Orion's Belt and Sword).

The three bright stars of Orion's Belt (δ Ori, ε Ori, ζ Ori) are the three hunters pursuing the muskox (Pleaides) while the four stars and nebula that compose the sword hanging from Orion's Belt (σ Ori, c Ori, θ Ori/M42, ι Ori) are four other hunters returning to earth to tell their story. Madeline identified the three hunters of Orion's' Belt as *Názée Dëné* ('three hunters') while the muskox that embodies the Pleiades is called *Yaídelaze*, which Dennis Drygeese translates as "a groups of small things thrown into the air."[117] In her summary of how people should think about the sky, stars, and world more broadly, Madeline emphasized humility and respect for everything as autonomous beings:

> Everything you have to respect; the stars, everything. Even that little bug that's crawling down there, if you look at it, he'll stop. He's got his own mind. If you talk to it, he'll listen to you. That little bug will listen to you. So, praying all the time. Praying for good things, those are really important. The value of life is everywhere and it's a big circle.

The late Upper Kuskokwim elder, Bobby Esai, of Nikolai, Alaska described a similar constellation of two brothers pursuing a group of caribou. Although he did not remember the name or stars that correspond to the brothers, he identified the Pleaides as *Midzish* ('caribou') and said:

> I think there were two brothers driving, chasing an animal, caribou. Chasing caribou. Oh, they told me, but I don't know which one, stars. They said there's stars, lots of little dot [Pleiades]. And there's two stars over here behind; front and behind. That was two brothers. Two brothers were chasing, chasing caribou those

[117] Kaj Birket-Smith (1930, 78) similarly elicited *JẼ'ndEla˙zE* as a Dëne Sųłıné name for the Pleaides.

days. I don't really know too much about it. . . *Midzish* somewhere in there. And there's two brothers over here someplace, running behind somewhere . . . There's a bunch of dots around here somewhere; caribou, caribou.

During the same trip to Nikolai in April 2014, Gary Holton, Stephen Nicolai, and I transcribed and translated an archival recording of the late Upper Kuskokwim elder, Miska Deaphon, telling a more detailed version of the story. Miska begins with a few comments about the constellation, *Noghitale*, and refers to the Pleiades as *Midzish* ('caribou') pursued by two brothers while also commenting on the Milky Way or *Tetin* ('trail network').

Stars (UK961D1977) Tape 1, Side A
Told and Recorded by Miska Deaphon in 1977
Transcribed and Translated by Gary Holton, Stephen Nikolai, and Chris Cannon
on April 5, 2014
Revised and Edited by James Kari on February 20, 2021

[40:38 – 42:25]

Yoyan' hits' delanh dino iyit tetin hwyet.
When the sky is clear there is a trail network (the Milky Way) within it

rwn' iyde chu Noghiltale hiyił neyi hiyi dinch'i hiyighot
that star they used to call *Noghitale* that one, according to it

idle hutolał ts'in' hwghw hwghenish ts'in'
they know it's going to be cold

dihiyił ghezene Noghitale yodigwt
they could use that *Noghitale* up there

srwn' ts'iłdi nedinalgwt ts'in'
the stars bunched up in one place (the Pleiades)

chu' oghet'a heye
it also is always that way

eyde midzish heyił neye
that one they call the caribou (Pleaides)

srwn' iyde nich'i heyghot iɬ dinish ts'e'
that star up there too they are watchful over that

tetin yin ghwn hutoltseɬ ts'e' xiyghot
according to that trail of stars (Milky Way) they would know what will occur

hi'iɬ hidiniyh ts'e' diheyelzen' hey edinich'i
they would know that and they would use that

ede midzish chu' ts'eghiɬdiɬ ts'e'
that caribou also running in fright

six nilan ts'in' ghiɬdiɬ ts'in'
six of them running

nelungha yugh yinodiɬ ts'e'
two brothers (stars) there are following them

dungha sistoneyo ts'e'
the old brother went away

mungha hiɬde' yonets' mik'i nedalninh deno
while his older brother following got left behind

eydinh michila eydinh hiɬde' midzish yuk'o' diniɬzinh ts'in'
that younger brother picked out a caribou with an arrow

yodigw yoyet srwn' dina nilan ts'e'
instead, he became a star man up there

midzish iltret izeɬ ts'in' srwn' nilan ts'e' didiyok
he became a caribou grabbing the star

nw'wn nohdidinezet deno
beyond there what will happen meanwhile

hiyighot tetin hiyighot hw hutoltseɬ ts'e' hwnohwghinesh yi
according to that trail network (Milky Way) they would know how it (weather) would change.

k'idi'on danedak na
the people that lived of long ago

k'odet chu mada'edinh chu yugh tetin noyexwnhwnish hit'al hiyine
nowadays whoever knows about that trail (Milky Way) there, perhaps he can too, they say.

A list of Northern Dene constellations described as hunters or dogs pursuing one or more animals in the sky is shown in Table 14.

Table 14. Northern Dene constellations of hunters or dogs pursuing one or more game animals.

Constellation Name/Description	Stars	Source
Dëne Sųłné		
Názée Dëné ('three hunters')	δ Ori (Mintaka), ε Ori (Alnilam), ζ Ori (Alnitak)	Fieldnotes
Four other hunters returning to earth	σ Ori, c Ori, θ Ori/M42, ι Ori	Fieldnotes
Yaídelaze ('a groups of small things thrown into the air'), a muskox	Messier object 45 (Pleiades)	Fieldnotes
Upper Kuskokwim		
Nełungha ('two brothers')	unidentified	(Deaphon 1977)
Midzish ('caribou')	Messier object 45 (Pleiades)	Fieldnotes
Dene Tha'		
Mbedzih ('caribou')	δ Ori (Mintaka), ε Ori (Alnilam), ζ Ori (Alnitak) "and other stars"	(Moore et al. 1980, 55, 173)
Dakelh		
Enitəł ('the pursuers'), three dog-children brothers	Orion	(Morice 1898, 28-33, 1932b, 65, Poser 1996, 30)
Three packages of salmon	Sword of Orion's Belt	(Morice 1898, 28-33)
Sister dog-child	unidentified star	(Morice 1898, 28-33)
Ukwe'eyəłkaih ('on it daylight comes'), mother of dog-children w/ basket of burning coals	unidentified morning star	(Morice 1898, 28-33, 1932b, 85, Poser 1996, 68)
Səmiłnu ('star island'), a herd of caribou	Messier object 45 (Pleiades)	(Morice 1898, 32, 1932b, 65, Poser 1996, 28)
Tsilhqot'in		
Three brothers	δ Ori (Mintaka), ε Ori (Alnilam), ζ Ori (Alnitak)	(Farrand 1900, 31)
Moose and dogs	unidentified	(Farrand 1900, 31)
The brothers' grandmother w/ torch	Unidentified morning star	(Farrand 1900, 31)
Sekani		
Two dog-children brothers and their mother	δ Ori (Mintaka), ε Ori (Alnilam), ζ Ori (Alnitak)	(Desgent and Lanoue 2005, 140-141)
A dog-sister	A single unidentified star (presumably Aldebaran)	(Desgent and Lanoue 2005, 140-141)
Six elk	Messier object 45 (Pleiades)	(Desgent and Lanoue 2005, 140-141)
Northern Tutchone		
Tlin hudzi nana ('dog chasing caribou')	unidentified	(Ritter 1976, 45)
Tlin hudzi nanda ('dog chasing caribou')	unidentified	(Ritter et al. 1977, 92)

Table 14. Continued

Gwich'in		
Łąįį Ch'ihiił'oh ('dogs are chasing')	"Little Dipper" (presumably Pleaides)[118]	(Ginnis and Mishler 1986)
Łaii Atł'yaa ('dogs strung together')	"Little Dipper" (presumably the Pleaides)	(Ritter 1983, 50)
L'énatlla [*Łaii Atł'yaa*] ('dogs strung together')	δ Ori (Mintaka), ε Ori (Alnilam), ζ Ori (Alnitak)	(Petitot 1876a, 354)
Koyukon		
K'enodele ('those that are following something')	δ Ori (Mintaka), ε Ori (Alnilam), ζ Ori (Alnitak)	(Jetté and Jones 2000, 118, 411)
Yokk'e Tok'enodele ('the travelers upon the sky')	(variation)	(Jetté and Jones 2000, 118)
Dena'ina		
Sister barking at an animal	β UMa (Merak)	(Rooth 1971, 91-92, 96)
Two brothers pursuing their sister	α UMa (Dubhe) and γ UMa (Phecda)	(Rooth 1971, 91-92, 96)
Snowshoe trail of sister and brothers	δ UMa (Megrez), ε UMa (Alioth), ζ UMa (Mizar), η UMa (Merak)	(Rooth 1971, 91-92, 96)
Sister (a barking puppy)	unidentified	(Ellanna and Balluta 1992, 99)
Two dog-children brothers	unidentified	(Ellanna and Balluta 1992, 99)
Mother of dog-children	unidentified morning star	(Ellanna and Balluta 1992, 99)
Trail of dog-children brothers	Milky Way Galaxy	(Ellanna and Balluta 1992, 99)

Chapter Four Conclusion

In this brief chapter I introduced general Northern Dene concepts of stars and described three additional stellar motifs that are distributed in parts of the Northern Dene region. The "Star Husband," "Dog Children," and "Cosmic Hunt" motifs are, however, much more widely distributed throughout North America and beyond, suggesting an overlay of several constellations and their stories on an existing system of stellar knowledge embodied by the ancient Dene Traveler on earth and in the sky. Although there are a variety of other star and

[118] Among Northern Dene people, the English phrase "Little Dipper" is a commonly used to refer to Pleiades, as opposed to Ursa Minor.

constellation names that have little or no broader attestation across the Northern Dene languages, this chapter has focused on identifying additional stellar themes to better distinguish major characteristics of Northern Dene conceptualizations of stars. Notably, the constellations and stories described in this chapter are part of a general domain of knowledge in contrast to the systems of knowledge and practices embodied by the Traveler constellations described in Chapters Two and Three. In the following chapter, I introduce the Moon's Dog as another minor stellar theme and discuss several other constellations as they relate to time-reckoning, wayfinding, and weather forecasting.

Chapter 5: Stellar Time-Reckoning, Wayfinding, and Weather Forecasting

Stars are very important to our life. It not only tells us how to navigate, but it also tells us how to tell time.

- Yellowknives Dene elder, Fred Sangris

I just look up at the stars and take a heading. Take a heading and a lot of times I come out and my snowmachine is on the ice right there, you know, or else my boat.

- Gwich'in elder, Paul Herbert

In this chapter I describe the role of stars in time-reckoning, wayfinding, and weather forecasting. I begin with an overview of Northern Dene divisions of time and then discuss how stars are used in time-reckoning. Although this chapter is divided into sections according to categories of use, the content on Yellowknives Dene and Gwich'in stellar wayfinding demonstrates how each of these practical uses for stars come together when traveling in specific Subarctic landscapes. The Gwich'in section particularly integrates with other spiritual and relational aspects described in Chapters Two and Three to show how the Traveler continues to be a guide and consummate helper, even in wayfinding contexts. I conclude this chapter by describing the role of stars and planets in weather forecasting.

Northern Dene Divisions of Time

Indigenous time-reckoning is based on the observation of contemporaneous events, cycles, and phenomena perceived in the natural world that "represent culturally defined and socially meaningful 'guide marks' informing a people when an activity should start" (Iwaniszewski 2014, 12). As such, time-reckoning facilitates the synchronization of social activities with events and cycles perceived in the natural world (ibid.). Iwaniszewski (ibid., 11-

13) notes that it is the regularity, periodicity, and predictability of astronomical objects and phenomena that render them suitable time-reckoning devices while also demonstrating additional ways in which "peoples socialize the skies" (ibid., 11-13).

The Northern Dene divide their year into seasons, months, and days, with each day subdivided into approximate temporal periods based on the appearance, position, or magnitude of the sun and stars. While Dene names for "year" have some variability, they are often synonymous with the word for "winter," such as Sahtúot'ı̨nę, *xaı* ('winter, year'). A resident of Délı̨nę explained that because winters are so harsh people spent much of their time preparing for it in the summer and autumn, and then marked the time of surviving it in spring.

Winter and summer solstices are usually described with phrases that refer to the shortest and longest days of the year, such as Gwich'in, *drin dinyit* ('day is long') and *drin daagòo* ('day is short') and Tanacross, *dzeen dinthaat* ('day is long') and *dzeen nihk'ol* ('day is short'). Gwich'in peoples who reside above the Arctic Circle also observe the return of the sun after the winter solstice as a temporal marker referred to as *shree gineehòo'ą̨ı̨* ('sun is beginning to return again'). In contrast to the solstices, Northern Dene names for equinoxes, such as Upper Tanana, *tadn eh dziin nilchidat'ah* ('night and day touch each other'), are highly variable and not always easily elicited from Dene speakers.

Steve and Pauline Hobson explained that the Dena'ina had a ritual or celebration on the winter solstice where everybody took a steambath, washed, and then switched their socks before having a feast. The socks were not changed, rather, the sock on the left foot was swapped to the right foot and vice-versa. This ritual presumably had greater symbolic meaning associated with the transition from shortening to lengthening daylight and the return or deliverance of aquatic and land animals in the upcoming year as contextualized by the "Salmon Boy" legend (see Kari,

Fall, and Pete 2003, 184-190). Tanacross elder, Larry Jonathan, described a similar practice observed on both the summer and winter solstices where everyone swapped the moccasin on their left foot with the moccasin on their right foot and vice-versa. Larry referred to this ritual practice as *ęękentsįįth niłdihxaxeydihłeek* ('they customarily exchange their own moccasins'). Regarding this practice, Kenny Thomas Sr., quoted in Thomas and Mishler (2005, 176-177), explained:

> When you're exchanging your socks you're supposed to be mentally preparing yourself for the change of the season. That's what it means. . .That's when we change all together. We're supposed to change with the world. Change from summertime into wintertime.[119]

Months were reckoned according to the lunar cycle, where each lunation approximately coincided with an important natural or social event for which the month was named. Northern Dene words for "month" are usually synonymous with the word for "sun, moon" (e.g., Sahtúot'įné *sa, -zá*) or "sun, moon shines" (e.g., Gwich'in, *zhrii*). With the exception of notched or pegged "stick calendars" used to maintain a seven-day week during the missionary period, time was often tracked by tying knots in pieces of rope or cord to mark the passage of days, such as when observing a certain period of mourning. In the Upper Kuskokwim region, for example, the late elder, Bobby Esai, explained that his mother used a string calendar to mark a 48-day period of mourning after his father passed away. However, Hadleigh-West (1963, 321) notes that the traditional Gwich'in skin house or *niivyaa zheh* also served as a mnemonic device for keeping track of the year, where each pole of the domed shelter corresponded to a month:

[119] Kari (1992) elicited a Tanacross month name corresponding to December called *detel' niłdenh nadiiłeek* ('when he changes his socks'). In his Lower Tanana Dene Dictionary, Kari (2020, 153) states, "People switched moccasins at solstice."

> It was said that in former times the poles of the skin tent were called by month names. At least this seemed to be the case for the winter months. As one stood inside the tent, the pole on the right side of the door was called December; the middle of the door was January; and the pole on the left was February. It was further said, in a sense, the whole house represented the full year. The small opening of the door was to indicate the short days of the three cold months. The significance, if any, of this is not clear.

Although month names emphasize a certain event or cycle, a variety of contemporaneous natural phenomena were, and still are, observed to mark the passage of time, creating what Stephen Fabian (1992, 12) describes among the Bororo of Brazil as a "layered effect" that results in "precise temporal cognition." In Fort Yukon, for example, July is referred to as *Łuk Choo Zhrii* ('King Salmon month'), however, elders also note that the salmon return when the balsam poplar trees (*t'aa*) begin to seed. I had the opportunity to observe this correlation when staying with Paul Herbert in Fort Yukon at the end of July 2017. A few days after noticing the first cotton seeds while traveling on the Draanjik River, we heard an announcement on the local radio that the salmon were just beginning to pass through Fort Yukon (Figure 30).

Figure 30. Dispersal of cotton seeds from a Balsam Poplar tree or *t'aa* in Fort Yukon Alaska, which approximately coincides with the arrival of the first salmon.

Although I did not learn an explicit method for reconciling the solar year with the lunar months, I suspect that a variety of natural events and phenomena were observed to maintain this synchronization. In particular, the appearance of two "morning stars" on the dawn horizon around the winter solstice are occasionally reported as important yearly guide marks. For example, Upper Tanana elder, Cora David, explained that people knew it was the winter solstice

or *dziin uniik'ul* ('shortest day') when they saw a certain star (presumably α Aql) as opposed to observing the position of the sun or the lengthening daylight. For the Koyukon, Jetté and Jones (2000, 696) explained that the two morning stars called *Yokkolaaye* ('it leads the light into day,' α Aql and γ Aql) "are observed as announcing day-break, after the first weeks of the New Year." As quoted in Heine et al. (2007, 210), the Gwich'in elder, Gabe Andre of Tsiigehtshik, said:

> They knew what month was coming, by the stars. They used the Big Dipper – there are three stars that come up when the short days start in September [presumably δ Boo, ε Boo, α Boo]. And when the days are becoming longer, two more stars come out [presumably α Aql and γ Aql]. That's the start of the longer days. And by the moon they could tell how many months there are in a year. And they even knew what time the sun would come up. It came up in January . . . that Dipper, that's the only one they used for time, for their clock. They knew what time daylight was going to come out. They just looked at that in the morning."[120]

The full Gwich'in calendar is referred to as *shree drin* ('sun's, moon's days') while a contemporary clock or wristwatch is known as *shree kàchyaa* ('elongated object marks the sun'). In comparison, the Dëne Sųłıné and Sahtúot'ıę refer to a clock as the "sun's heart" or *sadzıé* and *sadzǿ,* respectively. Although I do not give extensive comparative attention to Northern Dene calendrics the following lists of Gwich'in and Dëne Sųłıné names for months and seasons provide examples of these temporal periods (Tables 15 and 16). Several months that were

[120] This statement is corroborated by an audio recording that Craig Mishler made with the late Gwich'in elder Frank Ginnis of Fort Yukon who said: "I remember that two stars just come up before the dawn. If you get up 6:00 tomorrow morning you might see it, anyway. But daylight always now [i.e., at the end of May]. But in wintertime there's always three, three star [presumably γ Aql, α Aql, β Aql] come up just one week before the dawn. Exactly, that the time, that's exactly the time, the time my ancestors used to use. Just before - first two, two star come up before the dawn, they know just soon the last star gonna come up. It only come up one week during the shortest day of the year. They know by that just exactly what time it is (Ginnis and Mishler 1986)."

formerly named after an important localized event, cycle, or phenomena perceived in the natural world now refer to a contemporary religious day of observance or holiday.

Table 15. Gwich'in names for seasons and months provided by Paul Herbert of Fort Yukon, Alaska.

Name	**Translation**	**Season/Month**
khaiits'a'	autumn	Autumn
khaii	winter	Winter
shreenyaa	spring	Spring
shin	summer	Summer
drin choo zhrii	big day month (New Year's)	January
ch'izhin zhrii	eagle month	February
ch'ikee zhrii	hawk month	March
gwiluu zhrii	crust snow month	April
vanan neech'iniijaa	among when birds return	May
vanan ch'iighoo	among when birds lay eggs	June
łuk choo zhrii	King salmon month	July
khii zhrii	Dog salmon month	August
dinjik zhrii	moose month	September
vadzaih zhrii	caribou month	October
divii zhrii	Dall sheep month	November
vanan nee drin aakii	among when daylight gets longer	December
drin tsal zhrii	small day month (Christmas)	December

Table 16. Dëne Sųłiné names for seasons and months provided by Gabe Sepp of Fort Smith, N.W.T.

Name	Translation	Season/Month
xaıt'ą́s	autumn	Autumn
xaye	winter	Winter
łuk'é	spring	Spring
sıne	summer	Summer
dzį nedhé zaá	big day month (New Year's)	January
sa nedúe zaá	short sun month	February
nįłts'ı cho zaá	big wind month	March
łį tthële zaá	dogs' assholes month[121]	April
degáı Márı zaá	Holy Mary month	May
ʔeghézé zaá	egg month	June
tsą́mbe nálye zaá	month when money is distributed (treaty month)	July
ʔídélı zaá	molting month	August
deníe ʔełk'e nádé zaá	moose rutting month	September
t'anchái nátł'í zaá	leaves are falling month	October
gerelur zaá	slippery [ice] month	November
ʔeyune zaá	ghost month (All Soul's Day)	November
tëdhe yatıé zaá	night prayer month (Midnight Mass)	December

Day and night are distinguished by terms such as Gwich'in *drin* ('day') and *tǫǫ* ('night/dark') with additional diurnal periods delineated by the appearance, position, or magnitude of the sun and stars. Names for diurnal periods are most concentrated around morning and evening twilight, suggesting the most important times of the day for refined temporal reckoning. The late Ahtna elder, Fred Ewan, provided the following list of phrases that he used to denote the traditional periods of time in the day-night cycle (Table 17).

[121] Refers to driving a team of happy dogs that have their tails raised in the air as they run.

Table 17. Names for Ahtna diurnal divisions of time provided by Fred Ewan of Gulkana, Alaska.

Name	Translation	Temporal Period
son' nadalts'et	stars are fading from light	early morning when stars begin to fade
son' dasdzax	light (of morning) star is coming	first glow of light on the horizon when the morning star is visible
kahwbaadghighel	early light of dawn	early dawn
yikaas	dawn	dawn
kay'ghi'aan	(sun) came up/rose	sunrise
kutba'	whiteness of daylight	full daylight
ts'idzaenniidze	midday	noon
'unse di'a'	(sun) is about to set	just before sunset
nay'ghi'aan	(sun) went down/set	sunset
ba'aaxe' hwnidzaex	area beyond became soft	twilight
naghiłghaetl'	walking around dark	evening, but still light enough to see
naxełnghelghot	darkness is bent	complete darkness (no moon)
son' ta'itggey	stars are bright	period of night when the stars are brightest
yikaa ts'e' cila' ilts'iitl'	The fish tail (Big Dipper) is curved towards dawn	early morning, but still dark

Northern Dene Stellar Time-Reckoning

The Big Dipper is widely observed as a celestial clock throughout the Northern Dene region. The late Gwich'in elder and lifelong trapper, Fred Thomas, of Fort Yukon described using the Big Dipper as a timepiece whenever the winding mechanism on his pocket watch caught on the fur lining of the bag that he carried it in:

> Fox skin bag. I put it [pocket watch] in there, but then that winder would go like that and it would catch the hair, you see. And finally, it would stop. And I tell you, if it's cloudy and there's no moon out, you have one heck of a time knowing it [the time]. But if it's clear, you can guess about half an hour from the real time, you know, by the Dipper (Figure 31).

Figure 31. A time-lapse photograph of the apparent rotation of stars about Polaris as viewed from 64.5°N latitude in interior Alaska. Note that the altitude of Polaris is equal to the observer's north latitude, or 64.5° in this photo.

The handle of the Big Dipper is observed like the arm of a huge celestial clock. As the stars appear to rotate through the night sky the changing relationship of the Dipper's handle relative to the horizon denotes different temporal periods. However, stars have complex apparent motions and developing the skills to use them as both time-reckoning and orientation devices requires memorizing their nightly and seasonal positions with respect to the local landscape. For instance, in the Northern Hemisphere stars appear to rotate about Polaris at approximately 15° per hour or 360° per day. They also appear to rise and set four minutes earlier each day (almost 1°), which equates to a complete circuit around the horizon each year (a sidereal year). In other words, a star located due east (90°) at 10:00 pm will be located due west (270°) at 10:00 pm 182.5 days later.

Because the day-night cycle is reckoned according to periods of unequal length, as opposed to precise moments, using the Dipper as a timepiece only requires memorizing a few approximate positions for each season when stars are visible. For example, during mid-September in interior Alaska the handle of the Big Dipper is parallel to the horizon in the early evening (e.g., 9:30 pm). However, after four hours the Dipper will have rotated another 60º standing at an oblique angle to the horizon, which indicates very late evening or early morning in autumn. As the night progresses, the Dipper continues to stand at a more upright position until reaching a near vertical attitude just before morning twilight. The vertical position of the Dipper with its handle pointed towards the horizon therefore indicates the pre-dawn period during the fall season (Figure 32).

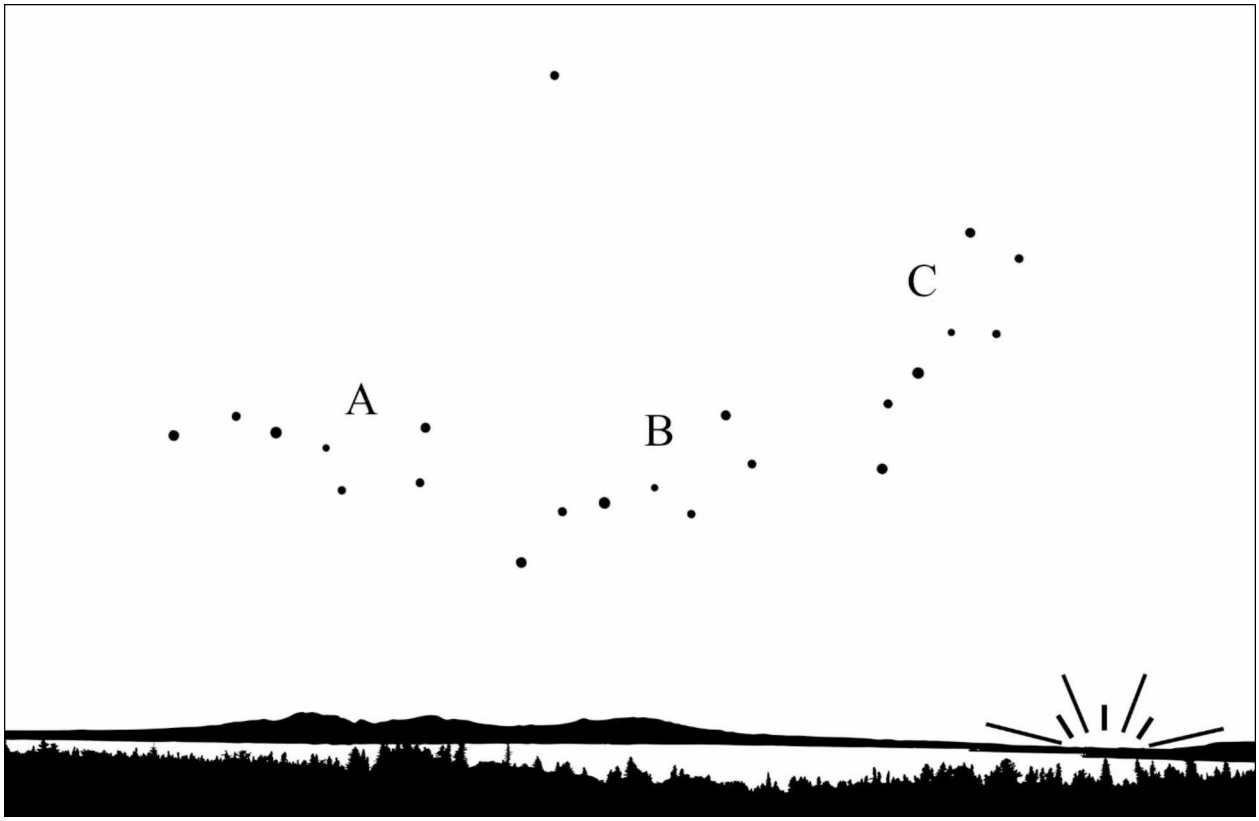

Figure 32. The position of the Big Dipper at three different times as viewed from interior Alaska in mid-September. A) 9:30 pm, B) 1:30 am, C) 5:30 am, pointed towards the first glow of dawn on the northeast horizon.

The Dipper's vertical position in autumn, or the point at which it begins to turn upside down in winter, has significance to the Northern Dene, indicating that dawn is approaching and that it is almost time to wake up to begin the day. Charlie Neyelle of Délı̨nę said, "When Dipper tail, you know, if it goes to daylight that's where morning come. And they [are] always following that way." Oscar Jimmie of Northway similarly said, "Yeah, this old-time clock. That seven star up there. Yeah, that's what they use for time, old days. . . [When] it go this way, it daylight coming up." Ahtna elder, Fred Ewan, referred to the Dipper's vertical position as *yikaas ts'e' cila' ilts'iitl'* ('the fish tail has gotten curved toward dawn'), indicating the period just before morning twilight. Fred said, "Yeah, [when] it turn to daylight you say, *cila' ilts'iitl'*. You know, *cila' ilts'iitl'. Yikaas ts'e' cila' ilts'iitl'. Yikaas*, it's early in the morning. Go to daylight, you know. That the Indian [clock]." Charlie Hubbard simply referred to this pre-dawn position as *uce' neketezghel* ('its tail has rotated'). For the Koyukon, Jetté and Jones (2000, 500) write:

> In January and February, the 'head' of the *naagheltaale* points to the east, some time before sunrise, hence to say 'it is morning,' 'it is time to rise,' the Ten'a will say *naagheltaale yekkoyh aatleeneetleyh*, 'the *naagheltaale* turned its head to the light,' has ['touched the light with its head',] or merely: *yekkoyh aatleek'eneetleyh* 'it has turned its head to the light'. . . ['it has touched light with its head'].

Alphonse Takazo of Délı̨nę explicitly noted that young men observed the Big Dipper as a dawn time-referent during their vision quest. While isolated, they knew to wake up when the Dipper stood in a vertical position with its handle pointed toward *Bek'éahka* ('it makes light/whiteness after it'), a morning star identified as Arcturus (α Aql). Dëne Sųłné elder, Jackie Emile of Fort Smith, also noted the significance of the Dipper's vertical or inverted position and

said: "The Big Dipper, that's what my dad used to watch all the time. That's what my father used to watch, it started to turn. It turns. It's daylight [when] it turned away." Through an interpreter, Yellowknives Dene elder, Eddy Sikyua, similarly said:

> Mornings too, he says when it's really cold when you're sleeping in a blanket in the morning, you know, when it's just about to be daybreak you could see the Dipper standing straight up like this. You could see that, he says. And that will tell the time that it's time to get up; it's going to be morning soon when the Dipper's like this [in a vertical position]. And right after that daybreak come out. So, when they're hunting that would be the sign for them to get up and start doing their hunt.

Although the Big Dipper is a primary time-referent, my Gwich'in, Ahtna, and Upper Tanana teachers utilize the collective whole-sky humanoid constellation as a clock and orientation device. For example, Simon Francis Sr., observed *Yahdii*'s general body position and attitude in the sky with respect to the local landscape. While describing the early morning period Simon said, "Yeah, [*Yahdii*] come in and hand like this, tail and nose like this. So, when [it is] gonna be daylight, he [Gwich'in people] know it. That's why he use [*Yahdii* for telling] the time." Simon also explained that *Yahdii* walks each night until he sees the three morning stars or spirits called *Yeedàk Gahàajil*. *Yahdii* and other whole sky-constellations that are based on a body part metaphor have significant utility during periods of partial cloud cover when certain groups of stars may be obscured. On an audio recording, the late Gwich'in elder, Frank Ginnis, told Craig Mishler, "I could see any part of it, just any part of it, any part of *Yahdii* and I know exactly what time it is; approximately" (Ginnis and Mishler 1986).

The Big Dipper and/or Traveler constellation combined with the morning star(s) and the sun to provide a self-adjusting system for reckoning temporal periods in the day-night cycle regardless of season. In the summer when no stars are visible, the magnitude and position of the sun became the primary time-referent. However, when the stars are visible from about mid-August to mid-April, the Big Dipper, morning star(s), and sun were used in sequence as time-reckoning devices. In an excerpt from an archived audio recording the late Gwich'in elder, David Salmon (1992), explained how the Big Dipper, morning stars, and sun were used together as a time-reckoning system in Gwich'in country. David begins by explaining how he learned how to tell time by traveling with his father in the 1920's:

> . . . every evening when the sky is clear and we stay overnight and he [David's father] keep track on moon, you know. And keep track on Dipper. Dipper is the Indian time. And the three stars come up in the early in the morning, that's the Indian time. That's the real Indian time that they teach children over there. And the big star over there (Arcturus), right over here toward the northeast, you know, little over, just like this. Like this, and that's where it is pointed. These three star is pointed to that star, you know. Everybody knows it in Yukon Flat. They use that time. And when the night - long night begin in November and December, you know, and we have no watch, we have a problems, you know. But in them days, they know what . . . what time of night, you know. And then they stay up, stay up and then pretty soon it get dark, get dark, get dark and something like that maybe. I don't know what time is it that they watch the Dipper. And the Dipper is go around like this, you know. Go around like this. But the sun goes around like this. The Dipper is go around like this. Go around like this and over there toward the

West it just stand up. Something like this, you know. That's late, you know, getting late, round about 10:00 and then everybody goes to sleep. My mother keep the Dipper instead of clock, you know. They don't use no clock in early days anyway. Hard to keep clock, so he used the Dipper like this. And then as that Dippers go around like this in nighttime and go around like this in nighttime slowly, and then in the morning as that Dipper is go toward the West again in Yukon River down that way; go that direction. And when [it] is up there like this it's coming little late anyway, but [it] is just right in the morning. So, they know that when the daylight comes by that time the first star is come up, you know, like this. And then the next star is come up in the East, like this; follow the first star. And the last star is come up in the daylight, daylight on the way. So, when my father had no time as he look at the star, they call them *Vats'a' Gach'agahaajil* [δ Boo (Thiba), ε Boo (Izar), α Boo (Arcturus)], they call it, you know. Because they – and the star they call it is come up, come up before the daylight. That's what they call them. So that star come out, you know, little high and then I think the last star will come up like this and that's the last that he called it too, you know. And then . . . take down all the camp and then load up anyway and then we started travelling. And then after a while the daylight come anyway.

And then when the daylight come and then they watch the sun. The sun go up. And even how short the day [in winter], the sun is always in the south. In the southeast, you know, southeast. Always it's the middle of the days, they said. My brothers and my mother said that. When the sun is rising over there, I watch the sun and I study the sun too much, you know. And I go by it too. And in December

> I watch the sun is just risen over there . . . it never go up, you know. It just on the horizon on top of the ground, like this, and then disappear. . . That's their time and pretty soon the days getting longer and then they know. They know that it was daylight in early in March anyway. And then March and the April that star come up. And the wintertime is disappear, they can't see it no more because too much daylight come early, but they don't see it. They don't see it and then they . . . use the sun for the time. And at the beginning of the April through the summer until right now. Until right now they use the sun, from April to October, you know, they use the sun.

The Big Dipper reaches a vertical position earlier each evening as the seasons progress from autumn to spring. As such, the Dipper's vertical attitude that indicates late evening or early morning in autumn indicates early evening in late February through March. It is due to this slow but regular progression of stars that necessitates memorizing a few nightly and seasonal positions to effectively use them as both a clock and compass. The following sections on Yellowknives Dene and Gwich'in stellar wayfinding provide detailed examples of how stars are used in practical ways to determine time and direction when traveling in the Subarctic.

Introduction to Northern Dene Stellar Wayfinding

To the best of my knowledge a stellar wayfinding system has never been robustly attested or described among the Northern Dene or any other inland Subarctic culture. In contrast to studies conducted in psychology and geography, cultural anthropology has made limited contributions to research on wayfinding in large-scale environments (Levinson 2003, 217). In a review of anthropological theories on human spatial orientation Istomin and Dwyer (2009, 41) call for additional ethnographic examples of "how different peoples perceive their environment

and navigate around it." Given the relative dependence of wayfinding systems on socio-cultural factors (see Gollege 2003, 17) it is surprising that more ethnologists have not engaged in delimiting the range of strategies and methods employed in finding one's way across a landscape. On this matter Levinson (2003, 217) states:

> Still, I think it must be conceded that in many ways we know much less about navigation in our own species than amongst birds, bees, and ants. Apart from the efforts of the geographers, there are simply relatively few examples of how humans actually find their way around real novel environments, or calculate angle and distance and current location in moving around on a scale larger than the psychological laboratory. One might have expected anthropologists to have had a keen interest in wayfinding amongst, especially hunter-gatherer groups. But, on the whole, the information available is extremely disappointing.

When narrowing the literature to studies concerning indigenous stellar wayfinding systems the research is nearly exclusive to maritime contexts, particularly among societies in Oceania (see Makemson 1938, 1941, Goodenough 1953, Best 1954, 1955, Åkerblom 1968, Gladwin 1970, Lewis 1972, 1978, Riesenberg 1972, Kursh and Kreps 1974, Johnson and Mahelona 1975, Finney 1998, Moyle 2003, Osmond 2007), but with some detailed coverage of those systems utilized by peoples of the high Arctic (Lewis and George 1991, MacDonald 1998, Bradley 2002). In reference to external aides that assist spatial cognition in wayfinding, Golledge (2003, 26) states: "While hard-copy or digital cartographic maps are the supplement of choice, in earlier times travelers used knowledge of star patterns, sun angles, wind or wave direction, terrain visualizations, or other environmental features as those supplements." He continues:

"There has been much speculation on whether these former abilities are still extent in humans despite radical changes in information technology (ibid.).

In the next sections I describe two Northern Dene stellar wayfinding systems utilized in two different Subarctic environments; the "Barrenlands" (Taiga Shield High Subarctic) of the Northwest Territories for the Yellowknives Dene, and the boreal forest of the Yukon Flats (Continental Subarctic) in interior Alaska for the Gwich'in. In both cases the landscape, culture, and individual experience and travel behavior factor into the development and efficacy of these wayfinding systems.

The Yellowknives Dene system described below is based on conversations and outdoor observations of the night sky with Fred Sangris of Ndilǫ, Northwest Territories whereas my understanding of the Alaskan Gwich'in system is based on my conversations and travels with Paul Herbert of Fort Yukon. Both mentors actively use their indigenous knowledge of the stars for reckoning time and direction in particular contexts and scenarios. Fred uses stellar wayfinding to reach a hunting area in the Barrenlands any time after there is sufficient snowfall for travel and before early spring. Paul uses stars for orientation from about September through March when stars are visible in interior Alaska and only if he loses his bearing and no recognizable landmarks or distinguishing topography are in view.

Although the wayfinding systems described in this chapter are significantly different from one another, both utilize dead reckoning in conjunction with a celestial schema when traveling off established trails and waterways in large monotonous landscapes that lack views of prominent landmarks and distinguishing geography. Dead reckoning, also called path integration, is "the ability of an agent to update the distance and direction traveled from a starting point" which "requires storing either a minimal homing vector or a more complete record of the

path traversed" (Foo et al. 2005, 195). In these contexts, I use the term "schema" to refer to an external representation that "compensate[s] for the lack of [landscape] information beyond the immediate perceptual domain" (Golledge 2003, 29). However, use of these celestial schemata are suspended in favor of route-based navigation when the traveler intersects a familiar geographical feature or trail near the final destination, suggesting preference for the latter wayfinding strategy when available. Route-based navigation relies on "remembering specific sequences of positions, which may be defined as sequences of landmarks, junctions, vistas, homing vectors, turns, and so on" (Foo et al. 2005, 195).

Like oceans, the Arctic plain, and some deserts, the Barrenlands and Yukon Flats are monotonous landscapes that have a low "legibility" of landmarks. In the geographical sciences, landscape legibility refers to "the degree of distinctiveness that enables viewers to comprehend their surroundings" and examine them for "coherent structure" (Lynch 1960, 2-3, Golledge 2003, 34). Although difficult to measure, highly legible landscapes are those that have a recognizable pattern composed of distinguishing landmarks and topographical relief, whereas flat, heavily vegetated, or otherwise monotonous landscapes tend to exhibit low legibility and are more difficult to navigate and memorize (Kelly 2003, 48-51). Monotonous landscape may either contain too many features, such as thousands of lakes or an extensive region of similar sized hills or summits, for example, or they may be characterized by a perceived lack of features, such as the open ocean or a vast snow-covered plain (cf., ibid., 49). Different weather and light conditions may, of course, also change the perceived legibility of any given landscape.

Aside from the physical aspects of a landscape and their spatial relationships, landscape legibility is also dependent on personal experience, travel behavior, and socio-cultural constructions, such as mnemonic devices or significant and sacred places which may impart

greater significance to a landscape for different people and peoples (Golledge 2003, 34). For these reasons, landscape legibility is dependent on: 1) physical landscape characteristics and their spatial relationships, 2) socio-cultural factors, and 3) individual travel behavior and experiences (ibid., 35). Each of these factors are considered in the following case studies and have relevance to the development, selection, or implementation of a celestial schema for wayfinding in some parts of the Northern Dene region and not in others. In addition, these examples integrate with time-reckoning methods and concepts to demonstrate how the sun and stars are utilized as both a clock and compass.

Yellowknives Dene Stellar Wayfinding

The traditional estate of the Yellowknives Dene extends from Great Slave Lake, north to the Coppermine River and east to the vicinity of the Thelon River. However, journeys as far north and east as the Coronation Gulf and Hudson Bay, respectively, were not uncommon in earlier times (Weledeh Yellowknives Dene 1997). The entirety of this estate is broadly classified as the Taiga Shield ecozone and contains approximately 200,000 lakes and among the oldest exposed rock in the world (2.5-4.0 billion years BP) (Ecosystem Classification Group 2008). Waters in the Taiga Shield feed into Great Slave Lake and Great Bear Lake eventually reaching the Arctic Ocean via the Mackenzie River, or else they drain to Hudson Bay via the Thelon and Dubawnt River systems (ibid., 19). Permafrost is discontinuous to continuous and vegetation ranges from slow-growing mixed-wood forests to lichen dominated tundra (ibid.).

The specific area relevant to this study is the region between Gordon Lake, MacKay Lake, and Artillery Lake northeast of Ndilǫ and Dettah, which are the two principal Yellowknives Dene communities located on the north arm of Great Slave Lake (Figure 28). This area is approximately bounded between 62°25' and 64°18' north latitude and 114°21' and

107°33' west longitude. The region around Artillery Lake or *ʔehdaàcho tì* ('big point lake') has cultural and subsistence value of great import to the Yellowknives Dene and the Dëne Sųlıné of Łútsëlk'é and contains the landscape type known colloquially as the "Barrenlands" or *hoezìı* ('the area which is smooth'), otherwise classified as the Taiga Shield High Subarctic. The topography of this ecozone consists of a "complex of glacial till and Precambrian bedrock outcrops" that is quite rugged in places (ibid., 25). Lakes cover nearly one quarter of the total land area and elevations range between approximately 200-500 m, although local variations rarely exceed 100 m (ibid.). The landscape is largely treeless (Figure 33). Frost is common in all months except July and August with a mean annual temperature between -4°C and -9°C (ibid.). January is the coldest month with a mean temperature that ranges from -27 to -30°C, whereas July is the warmest month with a mean temperature between 13 and 16°C (ibid.). Mean annual precipitation ranges from 27 to 39 cm (ibid.).

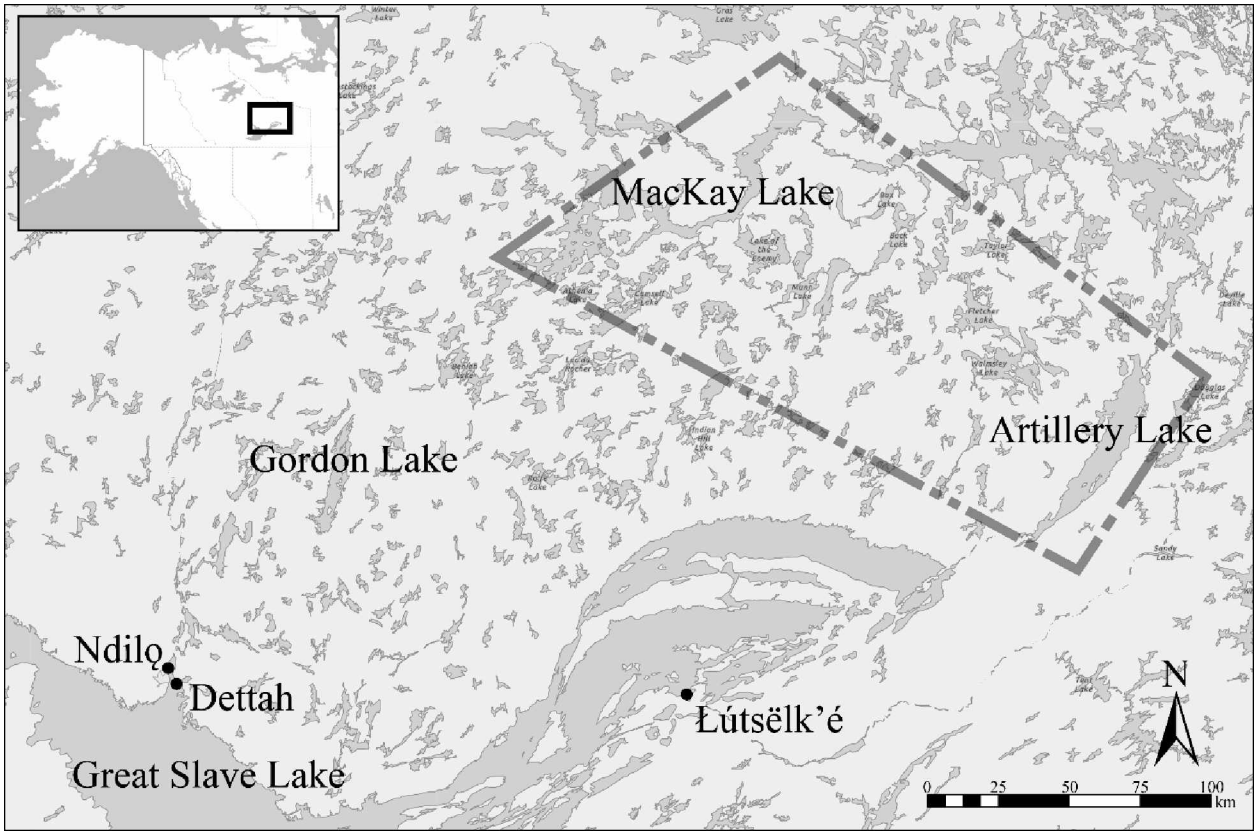

Figure 33. Area between MacKay Lake and Artillery Lake in the Northwest Territories (dashed polygon) where Fred Sangris uses traditional stellar wayfinding methods after traveling from Ndilǫ via a route that passes through Gordan Lake.

The Barrenlands around Artillery Lake is a valued hunting territory for muskoxen and caribou and contains numerous sacred places tied to ancient events and the transformation of the world. In traditional times, trips made from tree-line to basecamp destinations in the Barrenlands were conducted at night by setting a bearing to a sequence of low altitude stars rising from the eastern horizon. During the generation of Fred Sangris's grandfather, *Hotethk'aáldhër* ('portage boss,' born in 1890), the hunters broke trail on snowshoes while traveling with their dog teams at night while the women and children followed behind on the packed trail in the morning with the remainder of the family's possessions. Fred explained:

> My grandfather, they used to travel from Lac de Gras going to the [caribou] calving grounds. In order for them to travel that kind of distance they would have

> to travel at night. All night they will break trail and continue following certain stars to another star, to another star, to get to an area where they want to go. Once they arrive there, daylight will come around. And then the women and children who were left behind; miles behind, by morning they would be packing up and would be following the same snowshoe trail in the daytime to where the harvesters were.

Family groups maintained this travel itinerary until reaching a basecamp destination where they resumed a daytime schedule.

Today, Fred Sangris is among few Yellowknives Dene who still occasionally use a traditional stellar wayfinding system. To reach the Barrenlands, Fred approximately travels northeast to Gordon Lake and then continues to MacKay Lake where he takes a southeast bearing to the vicinity of Artillery Lake. Fred begins a typical trip right from Yellowknife Bay in Ndilǫ and then travels approximately 90 km to Gordon Lake. This segment of the journey is made during the day or night and follows a series of trails through open canopy forest punctuated by numerous lakes and hills of mantled bedrock. However, a portion of these trails now overlap with the winter road that connects the Ingraham Trail Road east of Yellowknife to the Diavik and Ekati Diamond mines at Lac de Gras north of MacKay Lake. If a night schedule is selected for this leg of the journey, then Fred departs around dusk. For a daytime trip, Fred departs just before dawn, usually reaching Gordon Lake by late evening of the same day.

Fred observes Arcturus (α Boo), known as *Wezhìı Nàgede* ('they go inside'), as a traditional time-referent used to determine his departure times near dawn or *k'òmba*. The Big Dipper points directly to this star as it rises from the east-northeast horizon at morning twilight from mid-October to early December. Regarding the use of this star Fred said:

> You got to get the early start in the morning. By the time *k'òmba* comes around you should be gone on the trail. So, it was one of those teachings that they say that you have to be up and there's no time to waste to sleep in and take your time. You only have so many hours during the day to do so much things. . . Another thing, I drink lots of tea because I have a hard time waking up. So, when I drink tea, about four in the morning I'm getting up. I go to the washroom. So, when I go out, I could see the stars. I look at the stars if the sky is clear. It'll tell me that it's still in the evening. It's still not quite morning. So that's when I go back to sleep and then later on I will get up again and look at the star. When I see that big finger (Big Dipper) there's a star that should be coming up (Arcturus). And if I see that star, then I'm one hour away from daylight. That's the time I get up. So, it's right after that [star], *k'òmba* comes up. So that's the big star (Arcturus). When it comes up, I got an hour to prepare my food, get my gear ready, get my sled dogs ready; ready to travel. So, by the time I start traveling on the lake (Great Slave Lake) it's still little bit dark, but I get a head start and I move ahead. . . If we leave here right after *k'òmba* then we get there (Gordon Lake) at night.

This segment of the journey utilizes classic route-based navigation and may be conducted any time after there is sufficient snow for travel, from late autumn to the end of winter.

After sleeping and resting at Gordon Lake, Fred continues northeast to MacKay Lake. At this point Fred transitions to a nighttime travel itinerary and begins using a celestial schema to maintain his southeast bearing across the Taiga Shield to the Barrenlands near Artillery Lake approximately 175 km away as the crow flies. Before departing MacKay Lake, Fred obtains an approximate southeast bearing by placing two sticks vertically in the snow about 12 m apart

aligned to the rising sun. After marking this southeast-northwest axis at dawn, Fred goes to sleep until late afternoon when he wakes up to begin packing up his camp in preparation for nighttime travel.

When the first stars begin to appear just after dusk, Fred waits with his dog team or skidoo until any conspicuous star rising near the southeastern horizon aligns with his southeast-northwest oriented sticks. After an alignment is made, Fred pulls his sticks and sets out following the target star. Because stars appear to rotate through the sky at 15° per hour, a new star must be picked up near the original place of the proceeding star at about 40-minute intervals. This homing process also involves tracking somewhat behind or to the left of the target star, which appears to move across the sky from east to west rising at an oblique angle to the horizon. Fred described this process:

> In front of my teepee on the Barrenlands I have two poles. Maybe one form here to the next house, which is about 40 feet. I have one pole here and then I watch the sun; where the sun come up. I put another pole there. And that way during the day I always know where the east is. . . So, in the Barrenlands it's dangerous kind of to travel during the daytime, especially if it's whiteout. You have no idea where you're at. But if the stars come out and the sky is clear and you're traveling, that's the safest. For me that's the safest way to travel because I've done it many times. And then I watch the east sun, or the star from the east (i.e., southeast). I would pick that. I would pick that star. There's lots of stars. Remember, lots of stars in the sky, eh. But I pick the unusual star and I keep my eye on that star. And I keep traveling, traveling a great distance. And then it comes right up like that. Just like that. Just like that, and then I would find another

star over here not too far from that and I would pick on that one. I'll pick on that one for a little while. I'll keep going, eh. After a while I'll stop and [then] I'll pick another one here (to the left of the previous star). And that's how I get from one end to the other end (Figure 34).[122]

[122] While traveling with the Yellowknives Dene near Lac de Gras Warburton Pike (1917 [1892], 123-124) described waking up one evening to a "chant" intended to "bring out one of the principal constellations" to determine their direction: "The wind rose in the evening, and the snow ceased falling, but began to drift heavily. In the night there was a tremendous uproar. I was awakened by hearing the universal Indian chant (*Hi hi he*, *Ho hi he*), and much clapping of hands, while the dogs were howling dismally far out on the ice, evidently thinking they were meant to hunt something, but disappointed at not being able to find anything to tear to pieces. I looked out to see what was going on, and found everybody sitting in the snow shouting; Saltatha had discovered a single star, and the noise I had heard was the applause supposed to bring out one of the principal constellations, so that we might get an idea of our direction. The heavens certainly did clear, and when daylight broke and the wind moderated we made out our position easily enough. In fourteen hours' walk we had come perhaps five miles straight, having made a huge circle to the right and fallen on an island close to the shore that we had left in the morning. There was still the whole width of the lake to cross, but when we camped late in the portage between the two big lakes I thought we had got out of the scrape very well. There was no apparent reason why the snowstorm should have stopped, and a continuation of it must have brought us serious trouble."

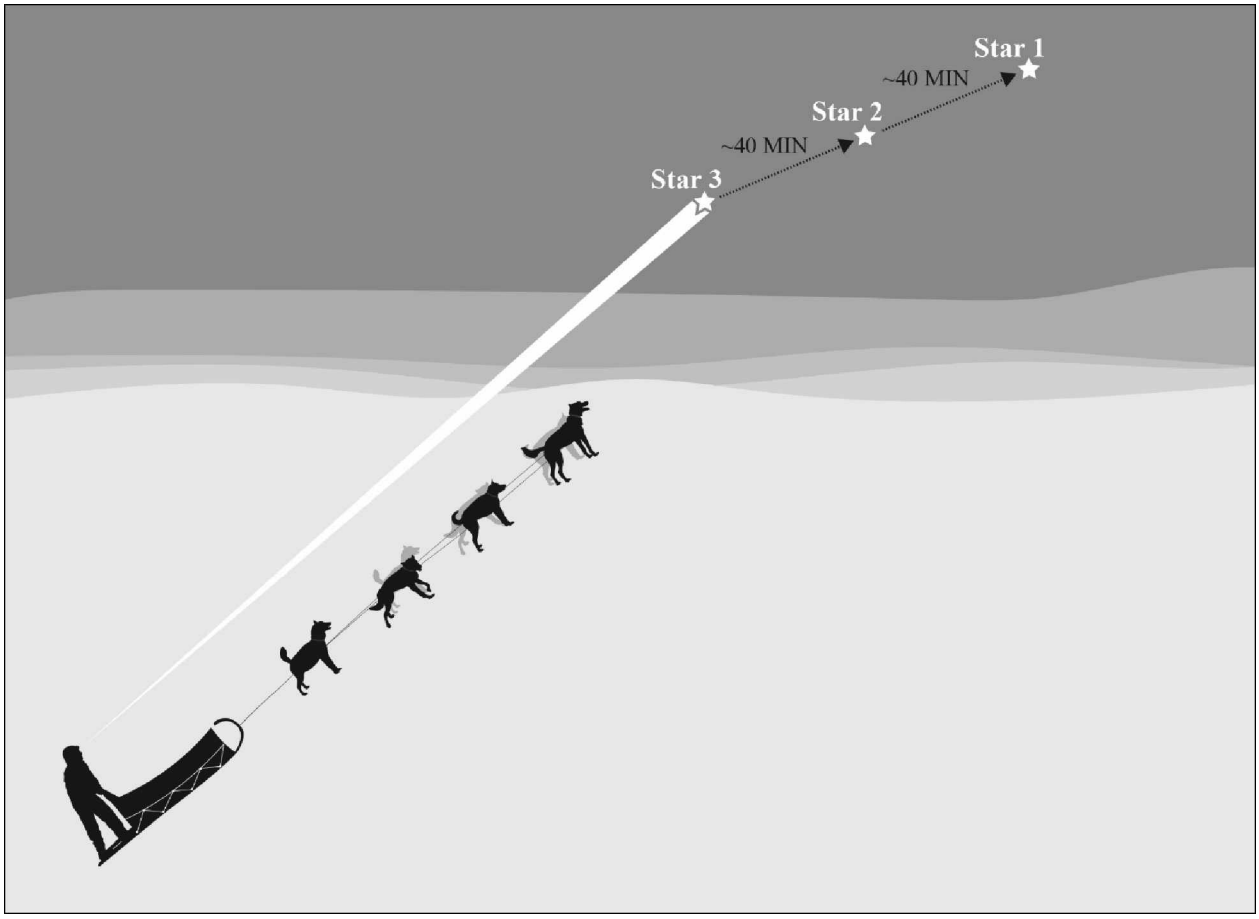

Figure 34. Yellowknives Dene method of picking up and tracking a new star at about forty-minute intervals as they rise from the southeastern horizon in the Barrenlands of Northwest Territories.

Fred repeats this process (following a new star at approximately 40-minute intervals) until the Pleaides known as *Łą Wedzà Elexè Whela* ('they sit together'), *Wetseè Dzà* ('its tail measure'), or *Kwǫ̀ Tsòa* ('small group of stars together') has ascended to a generalized high position in the sky indicating that it is late at night and time to rest the dogs again. Fred said:

> Late in the evening there will be some star coming up too. If you look towards the east, you will see a star (Pleiades) that will come up that will look like a high noon. And that star will tell you that it's about eleven o'clock to about twelve o'clock at night. So, when you look at the star over to the east, that star will tell you that it's late at night. Time to rest the dogs and time to go to sleep. And if you

don't pay attention to the stars you may travel all night and your dogs will get worn out. You'll have no idea what time it is, and you'll really lose track of time. So, if you pay attention, you'll keep track of the skies as you travel, and you always know where you are and the distance you need to go.

So, for me when I travel late at night with sled dogs in the past, I can see that big star (Pleiades) going up pretty high; high noon, like. To me it's eleven o'clock at night. And that's when I usually set up my camp for the night and I go to bed. So, probably around four in the morning. . . but if I keep going and the star's way over here [towards the south or southwest] then I know I'm beyond the time; going late at night, which is not good. So that's the one we watch.

After Fred makes his way across the Barrenlands by repeating the procedures described above for two or three days, he transitions to a route-based approach when intersecting a trail or other familiar geographical feature near his final destination. In this respect, a trail or large familiar geographical feature, such as Artillery Lake, has efficacy in expanding the size of Fred's target destination, just as a Micronesian navigator at sea might expand the target size of small distant island or atoll by looking for distinctive vee-shaped land clouds or certain species of birds (see Lewis 1971). Because trails and certain lakes are relatively large targets, it does not matter so much where they are intersected, so long as the traveler reaches them at some point. After arriving at the general target (e.g., trail or lake), the traveler recognizes the familiar landscape and knows which course to travel to reach a more specific destination, such as a particular bay or esker near Artillery Lake. After Fred has reached his destination in the Barrenlands, he adjusts back to a daytime itinerary to hunt and carry-on life in the bush as normal from a basecamp location.

To return to Ndilǫ from the Barrenlands, Fred again reverts to a nighttime itinerary and repeats the process followed during the outbound leg, but in the opposite direction following target stars that are setting on the northwest horizon. Again, when intersecting a familiar landmark, such as the ice road or MacKay Lake, Fred will turn southwest and switch to a route-based wayfinding approach to continue towards Gordon Lake and beyond to Ndilǫ following established trails.

Although a celestial schema offers great utility for traversing the Barrenlands, Fred emphasizes the importance of always paying attention to landscape features in case of inclement weather. Fred stresses that when the weather is cloudy, memorization of the landscape must be used to "bring you back." In addition, landscape features are sometimes used in conjunction with the star-based method. For example, if a distant hill is aligned beneath a target star, the traveler may choose to fix on the hill instead of the moving star. As the traveler approaches the hill, he will look for a new low-altitude star approximately aligned with his bearing to the hill and then continue by following that star.

Another strategy used by travelers is to mark well-traveled routes with stone cairns, or piles of rocks called *kwe daɁla* ('rocks were piled up'). Apparently, certain paths, such as portions of a route from Łútsëlk'é to the Thelon River, are already marked with stone cairns aligned to an east-west course set by following stars. These cairns also have utility when traveling in summer between portages when no stars are visible. Fred explained that travelers sometimes carry several boulders with them in their dogsleds or skidoos to place after the last pile of stones, thereby gradually extending the marked portion of the route during the winter. In this respect, Fred stated:

> The markers were placed long before, following the stars. Long before me. They're out there yet, and some of the hunters still use them to this day. We go from Łútsëlk'é to Thelon. There are markers along the Thelon already; rocks. . . If I'm traveling – we'll say the three of us are traveling, we just left the fresh ground, with unmarked ground, eh. Nothing there, and we know where the sun comes out. So, we'll keep going to that direction and as we move, we'll put boulders out. So, we'll keep going to that direction and as we move, we'll put boulders up, boulders up, boulder up. Boulder up like that (i.e., building rock piles). So, pretty soon you don't have to pay attention to the stars. You just watch the boulders, the rocks. It's been placed already . . . And if you go to another new ground, you know, unmarked; well, then that's when you got to be careful. You got to know your way around.

Another route-marking strategy used by Dene peoples throughout the Northwest Territories is to mark a winter route with a series of sticks placed in the snow at an angle pointed towards the home destination. In this way, the traveler knows which way to return even in a whiteout. This method is not only used in the Barrenlands by the Yellowknives Dene, but also by the Sahtúot'ı̨nę when traversing Great Bear Lake. If caught in overcast weather, travelers will often estimate their bearing against the direction of sastrugi or wind-crusted snow called *tsı̨łkëné* ('snow road') or *tàhtsıì* ('snowdrift') until they are able to camp and wait for better travel conditions. Because the windblown drifts orient in the same direction, travelers can maintain their approximate bearing by feeling how their skidoo or dog team rides with or across the drifted snow. With respect to orienting by the wind and snowdrifts, Dennis Drygeese of Łútsëlk'é explained:

> Yeah, those snowdrifts were indicators, I guess, for traveling across long distance on the lake, especially in the whiteouts when there's just heavy snow falling. So, you can't see nothing. There's no other land you can see or landmarks. So basically, you'll just look at the snow, what direction they're going. And if the snowdrifts are facing one direction, they'll try to keep their skidoo or their dog team in that direction to where their destination is, I guess. So that was an indicator for people to travel a long distance on the lake without any [other] indicators and stuff like that. . . when you go out, when you're off you could tell. And the same with the wind too. The wind, that's basically on skidoo; the wind direction. Because on a skidoo you can't feel these *tsɬkëné* sometime because you're going so fast. But you can feel the wind on one side of your face. And all of a sudden the wind's in your face. That tells you you're in the wrong direction.

In addition, Fred noted that he and other travelers formerly marked the shadow of a stick with a rock or chunk of ice to estimate the passage of time. However, Fred also emphasized that Barrenlands travelers all have their own slightly different techniques for finding their way and estimating time.

Finally, it is worth noting that until at least several decades ago, Yellowknives Dene trappers commonly spent the duration of the trapping season in the Barrenlands before returning home in the early spring. Fred explained that the distinctive "dancing" appearance of the sun caused by refracted light in March or April is a tell-tale sign to return from the Barrenlands before spring breakup. This was an important temporal marker given that the spring thaw in the tundra lags breakup in Ndilǫ at Great Slave Lake. Fred explained:

March is the long sun. And then right after the long sun is *sa datlo* ('sun is dancing'). The sun started to dance in April, eh. You can't look at it, it's too bright; *sa datlo*. Then you know you have to leave the Barrenlands before *sa datlo*. Because if you don't leave the Barrenlands [by] *sa datlo*, about 50, 60 miles out there'll be no snow. You'll be coming back from the tundra, you'll be going through water. There'll be ducks swimming around. Yeah, then you'll be in trouble. So, you get back by the time the long sun and before the dancing sun; *sa datlo*.

Fred's collective wayfinding knowledge was not only honed by years of personal experience, but it was also passed on to him by his grandfather and father who confiscated his wristwatch and paper calendar when he was a teenager to stress the importance of learning to read the land and sky. With respect to learning to tell time by the moon, sun, and stars, Fred explained:

In 1976 I was eighteen years old. I went to the Arctic tundra in the tree-line around MacKay Lake. And my father helped me with sled dogs for the first load; setting up my camp. And he noticed I had this big watch. Big military watch that I just bought that summer and also with the cardboard. I made a calendar with a pencil and cardboard. And he said, 'Give me your watch.' He said, 'You don't need a watch. Where you are right here, you don't need a watch. Your watch tells you when to sleep and when to get up, but you should really pay attention to your surroundings, listen to your body, listen to your surroundings, and look at the stars at night. And every time a moon goes by, a full moon, keep track of it. And every time the sun goes down, the stars will come up. And try getting up early in the

morning and you'll see. You'll see a big star called - we call it the finger (Big Dipper),' he said. 'At the tip of the finger there'll be another big bright star (Arcturus as the "morning star") that will come up, maybe about one hour before the daylight. That star is the important star. And if you pay attention to it that star will tell you that it's in the morning time.'

Finally, Fred commented on the status of Yellowknives Dene stellar wayfinding and time-reckoning knowledge and practices and said:

> Today there are still hunters with the community who still use the stars. My family, brother and sister, we still travel at night here. Within the next week or two we'll be traveling up north of here and I think we'll be traveling at night. So, that's how we get to our hunting ground. . . So, stars are very important to our life. It not only tells us how to navigate, but it also tells us how to tell time. Time is very important, and in olden days we didn't have watch. We had to navigate. We didn't have Tim Horton's and all the good stuff, but we had to look into the sky. As my grandfather said, 'It's all written in the skies.'

Gwich'in Stellar Wayfinding

The Gwichyaa Gwich'in ('residents of a broad area') and Draanjik Gwich'in ('platform cache river residents') estates that compose much of the Yukon Flats district of Alaska is a vast floodplain of the Yukon River and its tributaries covering roughly 35,500 square kilometers (Williams 1962, 289). The region is approximately bounded between 65°45' and 67°30' north latitude and 142°30' and 150°00' west longitude (ibid.). The topography is markedly flat with few low-lying hills and thousands of shallow lakes, sloughs, and streams. The braided Yukon River meanders through the Flats dropping just 61 m (200ft) over a distance of roughly 435km

(270 miles) as the river flows (U.S. Fish and Wildlife Service 2017). Two other major rivers, the Porcupine (*Ch'oonjik* 'quill river') and Draanjik, feed into the Yukon River near the Gwich'in community of Fort Yukon or *Gwichyaa Zhee*. These three rivers and their tributaries provide a matrix of routes for winter and summer travel. To the north and east, the Yukon Flats transitions to the Porcupine Plateau, an upland area that extends to Canada with hills and rounded mountains reaching 1,067 m (3,500 ft) (Todd 1978a, 10-1) (Figure 35).

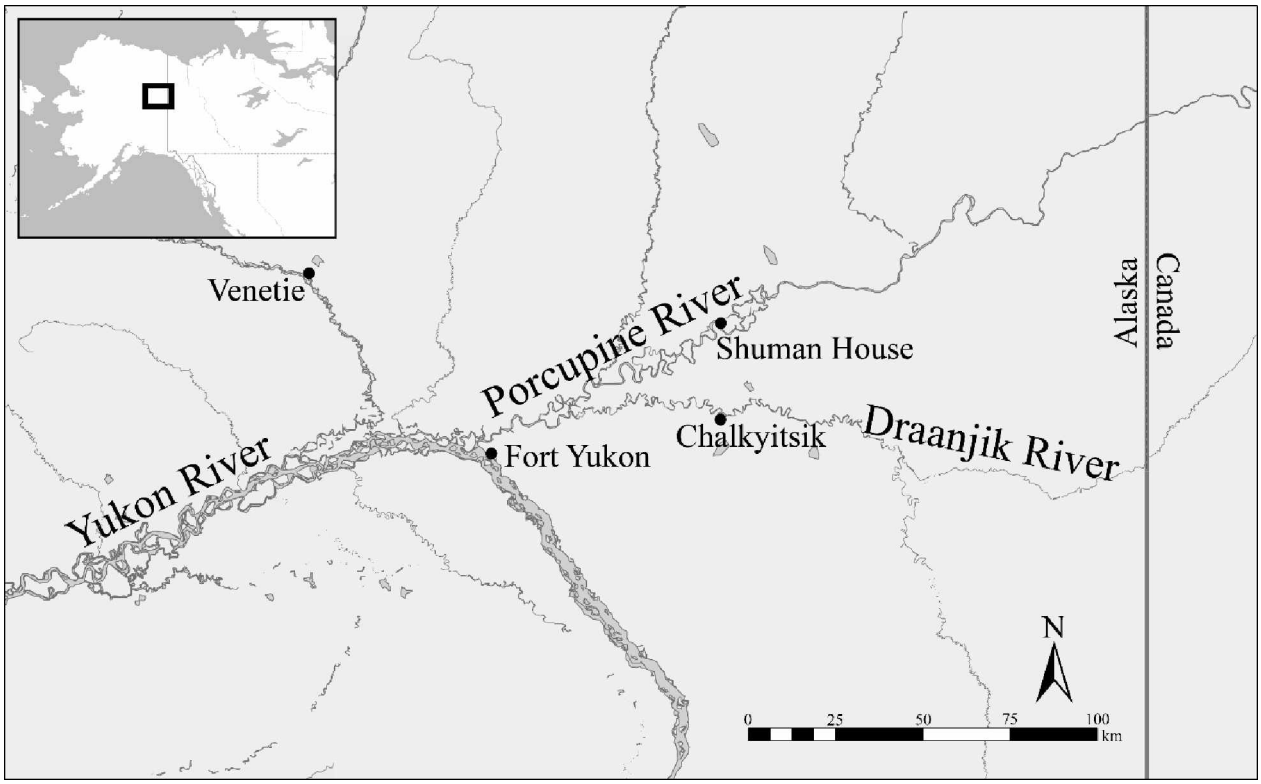

Figure 35. The Yukon Flats and Porcupine Plateau in Alaska where Paul Herbert employs a celestial wayfinding schema when needed.

The climate of the Yukon Flats is classified as "Continental Subarctic" and is noted for relatively low rainfall (~17.8-25.4 cm or ~7-10 in annually) and extreme temperatures (Todd 1978b). For example, between 1928-1958 Fort Yukon registered a mean annual temperature of -6.3°C (20.66°F), whereas maximum and minimum temperatures were 36.1°C (97°F) and -57.2°C (-71°F), respectively (Johnson and Vogel 1966, 3). The mean number of days with freezing

temperatures for the same period is 215 (ibid.). Black and white spruce, birch, larch, alder, and various species of willow account for thick forest vegetation. When combined with the region's relatively flat topography, the landscape affords few vantage points for orienting by prominent geography and distant landmarks, particularly when traveling off waterways and established trails. Nonetheless, the Yukon Flats offers expansive views of the sky filled with reliable orientation markers for those who have learned to read them.

Although the *Gwichyaa* and *Draanjik* Gwich'in of the Yukon Flats also utilize a celestial wayfinding schema in an environment having a low legibility of landmarks, it is completely different than the one employed by the Yellowknives Dene. These differences may be related to the fact that the Yellowknives Dene utilize a celestial schema designed for tracking target stars over relatively long distances in open country, whereas the Gwich'in schema primarily facilitates orientation during short trips into thickly vegetated forests after departing familiar trails and waterways. The Gwich'in schema is unique in that it projects human anatomy and its bilateral symmetry into the sky as a uniquely adapted whole-sky constellation that serves as a mnemonic device for remembering the spatial relationships of key stars. This whole-sky constellation, *Yahdii*, integrates with the landscape and the Gwich'in riverine directional system to facilitate orientation when prominent geography and landmarks are not visible.

Although travel in the Yukon Flats is largely conducted on watercourses and established trails, numerous circumstances require travel off these paths into dense vegetation where maintaining one's directional orientation can be challenging. In this region, views of a trail or river are often obscured by thick vegetation after just a few dozen paces into the forest or brush. In situations that require longer detours off a primary route, such as when tracking a wounded

animal, the landscape can become truly disorienting if no external sky-based schema is utilized (Figure 36).

Figure 36. Aerial view of the Yukon Flats and Yukon River in April 2018.

Except in the summer, the Gwich'in observed the positions of stars to determine the timing of the day's first activities around morning twilight. From early October to early December *Yahdii*'s tail or *vitsì'* (Big Dipper) points to three morning stars called *Vành Oozhrii* ('it is naming the morning') or *Yeedàak Gahàajil* ('they went/rose far up') and variants thereof, which rise in sequence from the northeast horizon between the time from morning darkness to the first light of dawn.[123] These stars, δ Boo (Thiba), ε Boo (Izar), α Boo (Arcturus), are evenly

[123] The first and second stars, δ Boo (Thiba) and ε Boo (Izar), are circumpolar at the latitude of Gwich'in country. However, they appear to dip below the treetops giving the appearance that they rise.

spaced, each signaling an activity in the morning routine, particularly in hunting or subsistence contexts. When the first star appeared, people woke up to begin their day. When the second star came into view, one should have finished eating breakfast and be dressed to head outside. When the third and final star appeared around the first glow of dawn, hunters should already be out on the trail lest they miss their opportunities for the day. Gwich'in elder, Paul Herbert, explained:

> Say four o'clock, the first one come up over the horizon, that's four o'clock. Next one is five, and then six. And then after that there's daylight. You see? So, when you're hunting that's how people a long time ago, all they did was hunt, eh. Go hunting for food. I mean long, long time ago. They have to go hunting to survive. OK, so they go by the stars for the direction, for their time. So, when in early in the morning when you get up and you go outdoors. You go outside and you look. You see the stars start just peeking over the horizon, you know it's four o'clock [by the appearance of the first star, δ Boo]. So then by the second one [ε Boo] you've already drank, drank something, you ate and you're going. You're on your way because you got ready. Like if we're going to go tomorrow, we're ready to go tonight. OK, we got everything ready. All you've got to do is jump into your warm clothes and you're going. Your gone, by the second star. And by the third star (α Boo), you're one hour out that way.

In his Native language, Paul summarized:

> *Tr'ohkìt Vành Oozhrii gahàa'ąįį izhit khèekee'ąįį.*
> S/he got out of bed when the first morning star rose.
>
> *Gwats'ąįį Vành Oozhrii khànee'ąįį ts'ą' neech'in'àl.*
> We ate something when the next morning star rose.
>
> *Gwats'an tik Vành Oozhrii gineehòo'ąįį gwizhit hàazhii.*
> S/he went from there [to go hunting] when the third morning star rose.

As described in Chapter Two, the morning stars are regarded as three spirits rising directly towards *Yahdii* and are a metaphor and reminder to follow protocols and live correctly to keep one's own spirit light and untethered from the emotions and baggage of this world. Early dawn is also an important time for spiritual exchange, which underscores the significance of the relationship between waking up with these stars, the dawn period, and hunting (Figure 37).

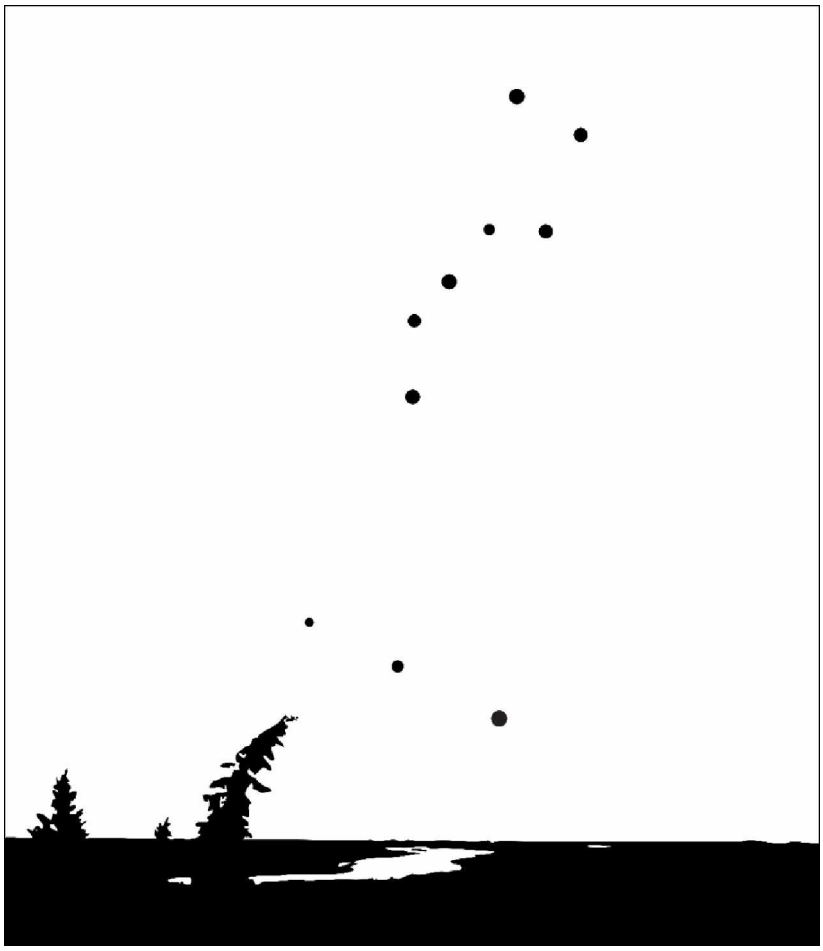

Figure 37. The Big Dipper or *vitsì'* ('his tail') pointing to a Gwich'in constellation of three morning stars called *Vành Oozhrii* ('it is naming the morning') or *Yeedàak Gahàajil* ('they went/rose far up') and variants thereof on November 1 at 6:30 am local time in interior Alaska.

After a pre-dawn departure estimated by the morning stars, travel is largely conducted along a trail or watercourse during daylight hours when no stars are visible. If a situation requires venturing off the trail or river, such as when following a wounded animal or searching for a fishing lake, the sun and wind are used as primary referents for orientation. In these situations,

Paul maintains his bearing by noting the direction of the wind or the position of the sun relative to the trail or watercourse where he parked his transportation before setting out on foot into the brush or forest. For example, if the sun is in the downstream direction on the Porcupine River (e.g., to Paul's right side when headed east-southeast into the forest), he will keep it in the same relative position to his body when traveling outbound or he simply notes that the sun is to the right side of his body (downstream direction) when departing the river. Paul also pays close attention to the landscape and occasionally counts lakes or ponds that he passes to estimate distance. To return, Paul simply reverses course by maintaining the sun or wind on the opposite side of his body (e.g., to his left or upriver direction) until he intersects the trail or river near where he parked his boat, skidoo, ATV, or dog team. Paul explained:

> If you didn't rely on the stars or anything, you go by the sun or the wind. . . because wind here [on the lower Porcupine River] is always blowing from the north or else from the south. So, if you got out of your boat and the wind was blowing from the south and you were back in here [the forest] and you got lost, then you stop and feel the wind. So, if it's coming this way, you know, that's the south and you know it's coming this way. You know that's the south. And you know when you started you were going north [with the wind at one's back].

Like the Yellowknives Dene strategy, trails and watercourses expand the size of the target destination given that travelers will recognize where they are along the familiar route after they intersect it above or below their parked transportation. Although travelers strive to arrive at the trail or river exactly where they left their transportation, a celestial or wind-based orientation device must only be accurate enough to ensure that a traveler intersects the trail or river at some point above or below his or her departure point. An alternative strategy is to occasionally break

the ends of branches as one walks along to mark the route off the river or trail. Two drawbacks of this strategy are that it requires one to retrace his or her steps and it is not particularly effective after dark when broken spruce boughs are difficult to see. When back on the river, distances are typically measured in "bends" and are referred to with phrases such as "*Yeenjì' tik neegòhdii izhit dinjik tr'qqh'ya'* ('we saw a moose three bends upriver').

If it is dark and at least partially clear, Paul maintains his orientation to the landscape by observing the whole-sky constellation, *Yahdii*. Again, this constellation is composed of 19 groups of named stars that span greater than 143° of which 16 are named using body part terminology. When accounting for the height of trees, *Yahdii* covers the entire visible portion of the sky. The bilateral symmetry of this constellation provides multiple axes and reference points for orientation (see Chapter 2). Body parts on the left and right side of *Yahdii* are distinguished using Gwich'in terms *tł'ǫhts'ąįį* ('left') and *shreets'ąįį* ('right'), applied from his perspective. The stars that compose *Yahdii*'s left hand and part of his cane are the only stars in the constellation that are not quite circumpolar at the latitude of Gwich'in country. In autumn, the left side of *Yahdii* is partially below the evening horizon, becoming more centered towards morning. As the months advance from fall to winter, *Yahdii* becomes more centered in the evening sky. By late January through March *Yahdii* is arched across the zenith at evening twilight.

Once the stars corresponding to the individual body parts in *Yahdii* are known, their locations can be readily identified as he rotates through the night sky. Even when clouds partially obscure *Yahdii*, the recognition of one part of the constellation allows an observer to infer the locations of the other parts based on an existing mental map of the human body. For example, if *Yahdii*'s left hand is visible, then the observer can infer that his right hand is on the opposite side

of the sky bisected by his tail, heart, and body located high overhead. When centered in this position, *Yahdii*'s hands and feet are each located in separate quadrants of the sky. His feet, hands, ears, and eyes are easily recognized as bright pairs of stars that form key reference points along with his tail (Big Dipper) and snout (Pleiades). Collectively, *Yahdii* provides a single unifying system for mapping the night sky. The ability to infer the locations and spatial relationships of stars even when *Yahdii* is partially obscured by cloud cover, thick vegetation, or the horizon, is testament to the ingenuity of a single unified whole-sky constellation uniquely adapted to a Subarctic forest environment.

However, to use *Yahdii* as a celestial schema for orientation it must also be related to the landscape so that the different positions of *Yahdii* have directional meaning when the landscape becomes illegible. Paul has accomplished this by memorizing the different positions of *Yahdii* at different times of the night and seasons when stars are visible relative to the major local rivers and the Gwich'in directional system. This process is essentially the same as using the Big Dipper and other stars for time-reckoning as explained above, except that the positions of stars are mentally correlated with a land-based frame of reference as opposed to simply noting their positions or attitude relative to the horizon.

As is typical of Alaskan Dene languages, the Gwich'in direction system utilizes an absolute frame of reference anchored to the region's major river or waterway and its drainage system (Leer 1989, 576, Levinson 2003, 90-91, Brucks 2015, 50).[124] Gwich'in directional

[124] In direction systems that utilize an absolute frame of reference "orientation is determined by a feature of the larger environment," which in this case is the major river or predominant flow of water in the region (Berez 2011, 29). An absolute frame of reference contrasts with a relative frame of reference, which the Northern Dene also use, such as when using perspective dependent terms such as "left" and "right." See Levinson (2003) for an extensive discussion on frames of reference.

terminology is composed of six prefixes that combine with nine "stem-suffix sets" to form more than 200 possible direction terms as shown in Table 18 (Kari 1985, 472, Busch 2000, 7).

Table 18. Prefixes and stem-suffix sets of Gwich'in directional morphology adapted from Busch (2000, 9).

Prefix	Translation
oo-	near (proximal)
yee-	far (medial)
yi'ee-	very far (distal)
k'ii-	straight (linear)
gw-	(areal nominalizer)
eh-	(postpositional)
geh-	(areal postpositional)

Stem/Suffix	Allative (going toward)	Punctual Locative (point location)	Areal Locative (areal location)	Ablative (coming from)
up (above)	-dàk	-dee	-dòk	-dąą
down (below)	-zhàk	-zhee	-zhòk	-zhąą
upstream	-njì'	-njìt	-njùk	-nii
downstream	-dì'	-dìt	-dùk	-dįį
upland	-ndàk	-ndee	-ndòk	-naa
downland	-tthàn	-kìt	-kyùk	-kyąą
across	-nìn	-ndìt	-ndùk	-nii
ahead	-ndàa	-ndaa	?	?
away	-'àn	-'àt	-'òk	-'ęę

Leer (1989, 576) notes that most of the Alaskan Dene directional stem-suffix sets occur in opposing pairs, such as upstream vs. downstream, upland vs. downland, and across the river, the latter of which "is its own opposite." The directionals are not, however, entirely anchored to a drainage-based or riverine frame of reference given that stem-suffix sets for up vs. down (vertically) and "ahead" have functional usage independent of the regional flow of water (Leer 1989, 576).

While Alaskan Dene directional systems are based on absolute frames of reference, the terminology anchors to a new major waterway (directional axis) when crossing drainage systems (Leer 1989, Busch 2000, 8-10, Levinson 2003, 90-91, Kari 2010, 129, Berez 2011, 35, Brucks 2015, 51). In other words, the system is absolute, but only in a regional context. In this respect,

Busch (2000, 12) concludes that Gwich'in directionals and their frames of reference reflect a "regional consciousness" that is "congruent" with patterns of mobility. Directional terms also combine with an extensive place names network (see, for example, Kari et al., 2003, Kari 2008, 2010, Kari et al. 2012, Matesi 2016) to attain a high degree of "location precision" in which Kari (1996b, 445) states, ". . . the combination – [place] name plus directionals – functions much like a surveyors triangulation system." In summary of this perspective, Busch (2000, 7) states that Northern Dene place names "are the fixed units in the cognitive map" while the "direction terms provide a dynamic way of linking places together".[125] What has not been previously considered or described in the literature is how a celestial wayfinding schema, such as *Yahdii*, integrates with the landscape and directional system.

In the country utilized by Paul, the Porcupine River is the underlying frame of reference where *yeendàk* ('far upland') is approximately north, *yetthàn* ('far downland') is approximately south, *yeenjì'* ('far upriver') is approximately northeast, *yeedì'* ('far downstream') is approximately southwest, and *yeenìn* ('far across') refers to either direction across the river along a northwest-southeast axis. Having spent many years memorizing the different nightly and seasonal positions of *Yahdii* from his home, Paul draws from that knowledge to infer the axis of the river and the directionals when out on the land by simply viewing all or part of *Yahdii*, even when miles from the river.[126] In other words, the position of *Yahdii* informs Paul where the directions are based on his preexisting knowledge of the way that *Yahdii* appears at different times of the night and seasons relative to the river and directionals. If disoriented when on the

[125] For descriptions of Northern Dene direction systems see (Kari 1985, 1990, 633, 2007, 336-341, 2008, 22-24, 2010, 129-134, Kari et al. 2012, 13-14, Leer 1989, Rice 1989, 319-338, Holton 2000, 294-299, Jetté and Jones 2000, 808-810, Busch 2000, Hargus 2007, 307-317, Berez 2011, Thiering 2014, Brucks 2015, Lovick 2020, 224-262).
[126] Note that Paul has lived at Shuman House on the Porcupine River, Chalkyitsik on the Draanjik River, and currently lives in Fort Yukon on the Yukon River and maintains cabins throughout the broader drainage system.

south side of the Porcupine River in autumn at evening twilight, for example, Paul would know that *Yahdii*'s snout (Pleiades) is approximately in the upriver direction (*yeenjì'*) while his tail, body, heart, packsack, ears, and left foot are parallel to the northern or "upland" (*yeendàk*) horizon. To return to the river where his boat is parked in this hypothetical example, he simply needs to walk toward *Yahdii*'s tail (Big Dipper) until intersecting the river (Figure 38).

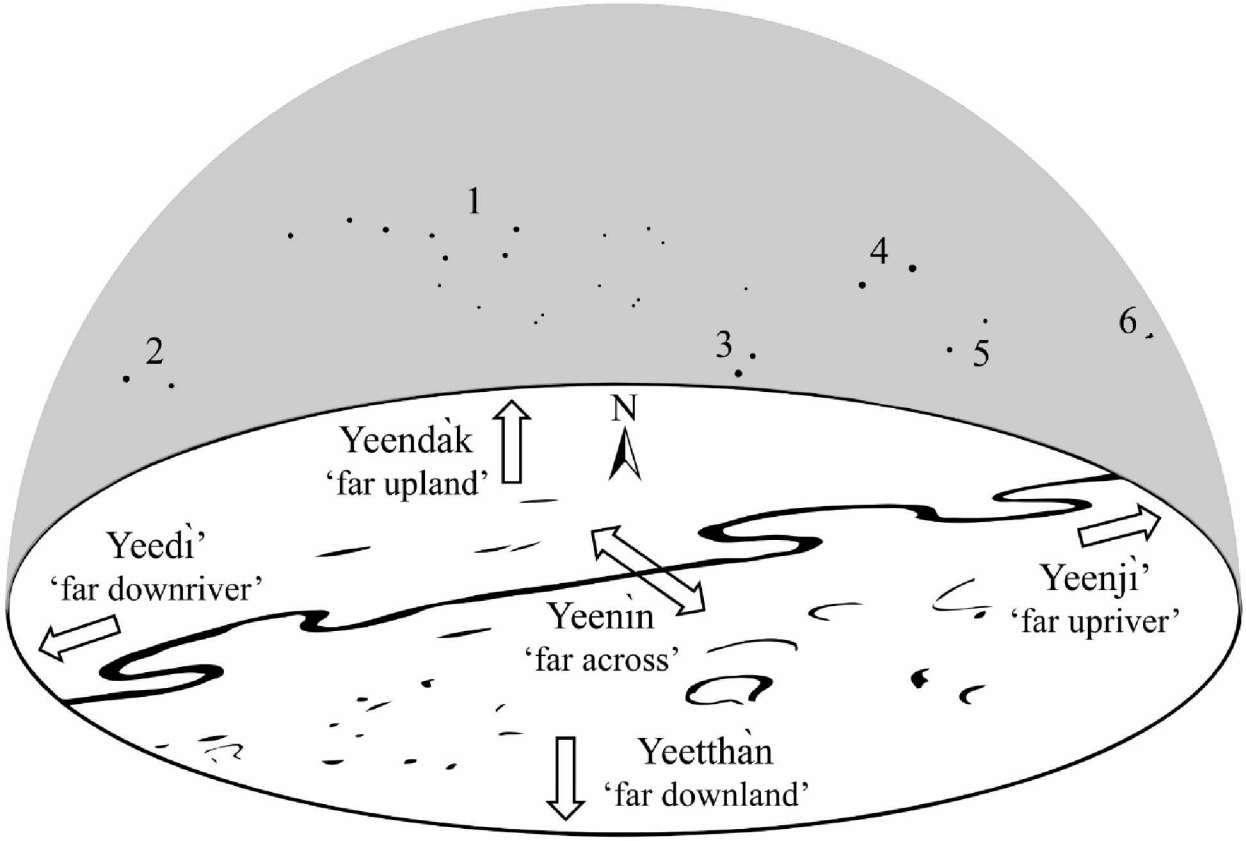

Figure 38. An aerial view of a section of the Porcupine River marked with directional terminology relative to the position of *Yahdii* on October 1 at 10:00 pm local time. Key reference points shown are: 1) *vitsì'* ('his tail,' Big Dipper), 2) *tł'ǫhts'ą́į́ vakwàì'* ('his left foot,' α Boo and η Boo), 3) *tł'ǫhts'ą́į́ vidzèe* ('his left ear,' α Gem and β Gem), 4), *shreets'ą́į́ vidzèe* ('his right ear,' α Aur and β Aur), 5) *vindee* ('his eyes,' ι Aur and β Tau), and 6) *vanch'àl* ('his snout,' Pleiades). His bag (*va'ǫhtsùu*), body (*vizhìn*), and heart (*vidrii*) are shown but not labeled given that they are secondary markers in wayfinding contexts. Except for his right ear, body parts located on the right side of *Yahdii* are not shown in this figure.

Although using this celestial schema to infer directions might seem complex, it is based on rote memorization and practice. In this respect, Paul emphasizes the importance of habitually

observing the sky and living by it so that one can draw on that knowledge when it is needed on the land. He said:

> Years ago before all this modern stuff they said they live by it. You know, every day. You've got to do it every day to really believe it. You can't just unroll your [sleeping] mat every now and then and look at it and say, 'Oh, yeah.' Like me, I [observe the sky] almost every day. You know, it's an everyday thing.

Knowing the evening twilight positions of *Yahdii* is especially important given the frequency in which hunters and trappers find themselves out on the land shortly after it becomes dark, such as when harvesting an animal late in the day or dealing with an unexpected issue or mishap. In this respect, Paul said:

> A lot of times you go in the dark when you go out, eh. You go out and then it get dark out there. You know, you're wandering around through the woods, you know, and it get dark on you. 'Hey, which way is back?' you know. I just look up at the stars and take a heading. Take a heading and a lot of times I come out and my snowmachine is on the ice right there, you know, or else my boat.

It is important to note, however, that the celestial schema embodied by *Yahdii* is only used when no prominent or distinguishing landmarks are visible, suggesting a strong preference for classic route-based navigation. Notably, reference to the sun or other sky-based schema is abandoned after intersecting a river, trail, or other prominent landmark. As one might expect, employing a celestial schema is a secondary, if not last resort option when directional orientation cannot be achieved from familiar land-based signs and their spatial relationships. However, what is familiar to one traveler may not be familiar to another, which emphasizes the role that travel behavior, personal experience, and socio-cultural factors have in rendering a landscape more or

less legible for different people and peoples (cf. Golledge 2003, 34-35). Finally, the celestial schema described in this section should not be viewed strictly from a functionalistic perspective given that the spirituality of *Yahdii* is also at play in wayfinding contexts demonstrating an additional way that the ancient Traveler is a consummate ally, guide, teacher, and guardian.

Discussion on Northern Dene Stellar Wayfinding

The Northern Dene stellar wayfinding systems described in this chapter demonstrate two completely different approaches for determining a route through two different Subarctic landscapes that lack views of prominent landmarks or an otherwise distinguishing ground pattern. Golledge (2003) states that landscape legibility "appears to have physical, spatial, social, or cultural markers as well as behavioral dimensions, and in any given setting one or more of these can dominate." The Yellowknives Dene wayfinding strategy has remarkable utility in that the celestial schema that it employs to account for a lack of perceptible landscape information requires no preexisting knowledge of specific stellar arrangements or their names to successfully track stars across the "Barrenlands" (Taiga Shield High Subarctic). This strategy simply relies on taking an approximate southeast or northwest bearing according to the rising or setting positions of the sun and then tracking any sequence of rising or setting stars aligned to that bearing. Names and knowledge of specific star groups does, however, come into play in time-reckoning contexts, such as when determining the departure and ending times of one's daily or nightly travels.

Development of the Yellowknives Dene stellar wayfinding system might be related to their historic land-use pattern, which extended well into present-day Nunavut. The Yellowknives Dene established seasonal camps in a contiguous area reaching to Contwoyto Lake at the northern end of their estate with occasional journeys reported as far north as the mouth of the Coppermine River (Smith 1981, 135, Weledeh Yellowknives Dene 1997, 12). Given the northern

extent of the Yellowknives Dene travels it is notable that the Copper Inuit of the Coronation Gulf also utilize a nearly identical stellar wayfinding strategy. The late Hudson Bay Company trader, Duncan Pryde, (quoted in MacDonald 1998, 167), explained:

> The usual routine is to follow the star as it rises obliquely (or sets for that matter, if you are following a setting star) on the horizon. The rapid displacement of the star means you can only use the star for a short time, then you discard it and pick up a new star roughly where the original one rose. Once the travelling-star has been displaced about 25° (roughly a handsbreadth at arm's length) from its original spot it is far enough away to start looking for another star to follow. The star has to be very low on the horizon since your eyes are focused ahead of the dogs to look out for rough ice or any other problems in your path, and if you have to keep looking away and then back it can eventually become bothersome. You can be certain that if you have to raise your head to see the star then it is too high, and if you have to turn your head to see the star then it is too far to one side. Only low stars in sequence are any good for dog travel.

Whether this shared stellar wayfinding strategy is a factor of borrowing or independent innovation is difficult to ascertain. In contrast, the Gwich'in celestial schema embodied by the whole-sky constellation, *Yahdii*, is highly cultural in the sense that it requires learning Gwich'in knowledge about star names and their conceptual representations that are then related to a regional land-based frame of reference encoded in directional terminology. While the system could be adapted to other absolute frames of reference, such as the cardinal directions or another river, the latitudes where *Yahdii* is functional as a celestial wayfinding schema is restricted to the circumpolar north where most of the constellation remains above the horizon throughout each

night when stars are visible. Notably, Ahtna, Upper Tanana, and Lower Tanana elders and traditional knowledge bearers in Alaska also described analogous whole-sky constellations. Although I cannot posit a specific southern limit where *Yahdii* breaks down as a functional celestial schema, it suffices to say that Gwich'in and other indigenous astronomies throughout the world are uniquely adapted to place.

Like the sideral compass used by navigators throughout Oceania (see Goodenough 1953, Gladwin 1970, Lewis 1972, Johnson and Mahelona 1975), *Yahdii* is used as an elaborate celestial schema that requires rote memorization of stellar positions and spatial relationships that are mentally related to a terrestrial frame of reference and direction system. At the same time, *Yahdii* provides a highly functional mnemonic device based on an existing mental map of the human body plan. Although other investigators have not described detailed knowledge of Northern Dene constellations or stellar wayfinding systems, directional orientation and travel in the Yukon Flats has apparently long baffled outsiders who have limited experience traveling in the area.[127] For example, in his "Contributions to the Ethnography of the Kutchin," Osgood (1936, 64-65) states:

> In regard to travel, one of my informants pointed out that the Yukon Flats Kutchin were more sedentary than the other [Gwich'in] groups because of the nature of their country which, as he said, contains too many sloughs, mosquitos, and bushes

[127] A few general statements about Northern Dene stellar wayfinding appear in the literature. With respect to the North Slavey, Hara (1980, 65) states: "When the people go into the bush from their camps, they carry a gun or rifle, axe or knife, and a packsack. On the trail, they occasionally chip off the bark of the trees or put a wrist-size ball of moss on the top of a short-standing dead tree in order to make landmarks. The general characteristics of the landscape, peculiar trees, rocks, or camp fire sites also serve to orient the traveller. In the evenings, and in winter, the people guide themselves according to the position of the Big Dipper or *y'éta* which indicates both time and direction." While describing a journey across Great Slave Lake, Robert Kennicott (Committee of the Academy 1869, 169) wrote: "We had a track to follow-that made by my Indian companion by going from Resolution to Fort Rae the previous week. But the Indians and voyageurs make a very straight cut, with only the sun or stars for a guide. Occasionally, however, voyageurs have lost their way upon the lake, and wandered about for some days ere finding the shore."

which combined with its flatness leaves the travelers unable to see where he is going.

In contrast to the Gwich'in wayfinding system reported in this chapter, Richard Nelson who worked extensively with the Draanjik Gwich'in in Chalkyitsik when Paul and his great grandmother, Belle Herbert, lived there, writes:

> . . .the Indians have very little knowledge of astronomical phenomena, with names for only a few stars and constellations. McKennan (1959, 110) points out that 'small as the astronomical knowledge of the Upper Tanana is, it apparently is no smaller than that of the other Northern Athapaskan groups." This certainly holds true for the Tranjik Kutchin.
>
> The Kutchin very rarely become lost, since they nearly always follow established trails or stay on frozen rivers and lakes, and they know the land so well that they seldom find themselves in unfamiliar territory. If a man should lose his way, however, he may wander around until he reaches a known landmark, sometimes climbing a tree to look around. If there are hills it is difficult to get lost because these are highly visible points of orientation, and from a hill it is easy to sight prominent landmarks such as rivers or lakes (Nelson 1973, 185).

Despite the statements quoted above, there are few vantage points in the forest of the Yukon Flats from which distant landmarks are visible, yet the Gwich'in of this region are by no means "more sedentary" than other adjacent groups. It is important to note, however, that using a celestial or wind-based schema is a subtle endeavor and another traveler may not even recognize that his or her partner is glancing at the sun or stars or feeling the wind on his or her face to chart a course through the dense boreal forest. This subtlety may give a false impression that

everything in the perceptible domain is familiar or known to the local indigenous traveler while overlooking other innovative cognitive strategies for finding one's way through a large-scale environment that lacks views of distinguishing landmarks or topography.

While Paul is the only Gwich'in elder I worked and traveled with who utilizes *Yahdii* in wayfinding, Ahtna elder, Charlie Hubbard, explained an identical method using the analogous Ahtna whole-sky constellation, *Nek'eltaeni* ('that which moves over us'). Charlie agrees that the body part metaphor embodied by *Nek'eltaeni* facilitates memory of the stars and their spatial relationships. Although Charlie is originally from the mountainous area around Cantwell, Alaska where the landscape is highly legible, he agrees that the legibility of any landscape can decrease under different conditions and contexts (e.g., pitch darkness or low-level clouds or fog with clear sky above) in which case *Nek'eltaeni* offers an alternative orientation device external to the immediate landscape.

Both wayfinding systems described in this chapter suggest that large-scale environments that lack views of prominent or distinguishing landmarks may be more conducive to the development or adoption of a celestial schema. However, use of these celestial schemata are suspended in favor of route-based navigation when the traveler intersects a familiar geographical feature or trail near his or her destination, suggesting strong preference for orienting and wayfinding by landmarks. Moreover, both systems use trails, rivers, and other large familiar landmarks or landmark clusters (e.g., a community) to expand the size of the target destination. While the traveler strives to arrive at a precise location, a greater emphasis is placed on simply reaching a broad familiar area after which point the traveler can use route-based navigation to attain a specific destination.

Achieving an approximate bearing to a more familiar area is underscored by an alternative orientation device that Paul uses based on the northern lights (*yakaih*). Although he seldom employs this strategy, Paul described a situation where he took a bearing off the northern lights after seeing it glow between the treetops one autumn while moose hunting away from his boat. In interior Alaska, the northern lights regularly develop as a low arc across the east to northwest horizon before growing into a larger formation or dissipating as the night progresses. Due to the consistency in their formation, headings can be approximately obtained from auroral arcs. In comparison, Richard Nelson (1969, 138) reported that the Inupiaq of Wainwright, Alaska also utilize auroral bands for directional orientation:

> Several Eskimos mentioned, when asked, that the northern lights are sometimes used for navigation, because they are always oriented in bands running from east to west across the sky. Throughout the entire winter, notes were kept on the auroral orientation, usually observed around midnight. The results of this check show a monotonous regularity at this hour; the east-west orientation occurred in nearly 100 percent of the observations, whenever there were long cohesive bands. There is also a characteristic curvature of the bands, such that their ends bend toward the north. It is therefore possible to get oriented by observing the luminescent auroral bands.

Although theories on human spatial orientation have received extensive attention across disciplines (Istomin and Dwyer 2009), the material presented in this chapter is an attempt to heed the call for additional ethnographic descriptions of "how different peoples perceive their environment and navigate around it" (ibid., 41), especially among hunter-gatherer groups (Levinson 2003, 217). The case studies presented in this chapter not only contribute to broader

research in Northern Dene ethnology but are among few detailed examples of stellar wayfinding schemata utilized by indigenous cultures outside of maritime contexts.

Stars and Planets in Weather Forecasting

The appearance of stars is affected by different atmospheric conditions, rendering them useful as indicators for certain types of weather. Among the few weather signs that the Northern Dene interpret from stars is their brightly twinkling appearance or "scintillation," which forecasts wind and changes in temperature. Scintillation is caused by the refraction of stellar light through different densities of hotter and colder air, which magnifies and demagnifies the appearance of stars as the atmosphere is stirred by wind, turbulence, or temperature differentials (Schneider and Arny 2009, 220). In Gwich'in and Upper Tanana, brightly twinkling stars that indicate wind are described by the phrases *są' ch'adzaa* and *san' ch'eldzüh* ('star is dancing'), respectively. In contrast, the Gwich'in phrase, *są' adrii* ('star shines') refers to a steadily shining star. Other Northern Dene phrases that describe stellar scintillation as a predicator of wind are Ahtna, *son' nekenałts'iihwdelae* ('the wind is sweeping the stars'), and Koyukon, *tloon ggolts'eyhtl* ('stars are swinging'). Ahtna elder, Fred Ewan explained:

> We know wind too. *Son'* ('star'), it start moving all over. Big wind is headed down here pretty soon. . . *Son'*, you know. *Son' nekenałts'iihwdelae* ('the wind is sweeping the stars'). This world, pretty soon going to be big wind down here. We know that, you know. *Son' nekenałts'iihwdelae*, just like he sweep over. Not hanging in one place, you know, everyplace.[128]

Likewise, Koyukon elder, James Johnson Jr. corroborated:

[128] The Ahtna phrase *son' denat* generally refers to a twinkling or "flashing" star irrespective of wind.

> I know a lot of time I go out nighttime, and cold night. And you'd look at the stars and they're just up there twinkling. You know, like they're more than just staying [still] like that. You know, they move like. Yeah, that's wind. . . Cause they say *tłoon ggołts'eyhtl* ('stars are swinging'), if you go out. *Tłoon ggołts'eyhtl*, and that's stars. You know, bright stars out there shining.

For the Koyukon, Jetté and Jones (2000, 585) similarly list *tloon' naa'ełts'eeyhleyaah* ('the wind swings the stars') as an expression for brightly scintillating stars that forecast wind. Dena'ina elder, Helen Dick, referred to scintillating stars as either *qen hdnet* ('star is twinkling/flashing') or *sem nuk'ench'eł* ('star is blinking'). With respect to wind, Helen said, "*Qa'it'u ch'ek'nasun teh nqel'eh ndenet*" ('it is going to get windy when the stars are twinkling brightly') and added, *"Izhi itułch'ex*" ('get dressed for wind'). Yellowknives Dene elders referred to twinkling stars as either *wendaà hat'ı* ('it is blinking its eyes') or *whǫ dagohwho* ('the stars are dancing') and described them as indicators of temperature change. For example, Fred Sangris explained, "If it's twinkling and little twinkles like that, long distance, that means that the air's getting cold. And that's how we watch." However, twinkling stars may also indicate warmer weather. In this respect Paul Herbert stated, "The stars twinkle, eh. You know, when it's been cold for a while and then when you see the stars start twinkling, that means it's gonna warm up.",

The apparent size of stars, planets, and the moon are also used as a proxy for estimating temperature given that warm air tends to magnify these objects while cold dense air makes them appear smaller. For this reason, Fred Sangris said, "We can tell the weather's going to warm up or get cold. If the planets or the moon start to get larger then we know it's warming up." The apparent spacing between stars is also observed as an index for temperature. When it is warm,

for example, Paul explained that the stars that compose the Big Dipper appear larger and closer together than when it is cold. For the Dena'ina, Anna Birgitta Rooth (1971, 73) similarly wrote: "Alexej Evan stated that the stars in the Dipper are close together when it is going to be warm. When it is going to be cold 'the stars - one [of them] is far away from the other. . .'"[129] The Koyukon, Upper Kuskokwim, and Dëne Sųłiné also observe the Milky Way as an indicator of cold weather when it appears bright and vividly clear.[130]

Suspended atmospheric ice is, however, a regular phenomenon during extreme cold spells in the Subarctic, which decreases atmospheric clarity or "seeing," often obscuring or blurring stars. The Koyukon phrase, *tloon' tl'oł yee daadletl'ee* ('the stars are sitting in their cradles'), describes this blurred or hazy appearance of stars (Jetté and Jones 2000, 585). During the most extreme low temperatures the dimmest star in the cup of the Big Dipper (δ UMa), is obscured by atmospheric ice, which Paul Herbert observes as an index for the coldest type of weather. He said: "And when it's really cold that star right there [δ UMa], you can't see [it] when it's real cold, with the naked eye. That means it's really cold" (Figure 39).

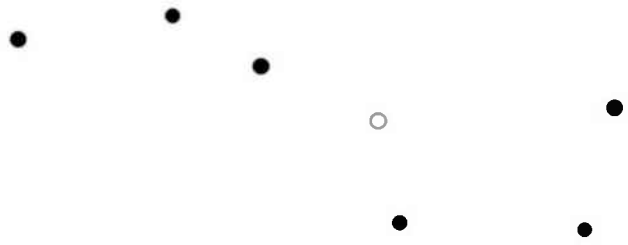

Figure 39. The star Megrez (δ UMa) in the cup of the Big Dipper indicates extreme low temperature when it is not visible.

[129] This is probably a reference to Mizar in the handle of the Big Dipper and its smaller companion star, Alcor.
[130] Driver (1939, 402) reports the same weather sign among the Mattole (Pacific Coast Dene).

Although the Northern Dene do not explicitly distinguished planets from stars, Jupiter is occasional referred to as the moon's dog given its position along the ecliptic either leading, trailing, or beside the moon.[131] The concept of the moon's dog is shared in Alaska by the Dena'ina, Holikachuck, Koyukon, Upper Kuskokwim, Lower Tanana, and Upper Tanana. Like seemingly all things in the Dene universe, the moon has a spirit or life force and is highly personified. The position of the dog relative to the moon is observed to predict different types of weather or to make other prognostications about the future, such as the abundance or scarcity of food. However, the signs interpreted from the dog's position around the moon are highly metaphorical and exhibit great variability within and across languages that often reflect personal experiences traveling with dogs. For example, one person may refer to the dog's position behind the moon as a sign of snow, given that the moon is breaking trail on snowshoes ahead of its dog. Alternatively, someone else may interpret the dog's position ahead of the moon as a sign of snow, given that the moon requires assistance traveling through deep snow as if on a dogsled. The position beside the moon (i.e., above or below it) is occasionally interpreted as a sign of cold weather, as if the moon is huddled with its dog to keep warm. Again, these signs are highly variable from one speaker to the next (Figure 40).

[131] Planets are simply referred to as "big stars" such as *są' choo*, *san' choh,* and *whǫ̀ cho* in Gwich'in, Upper Tanana, and Yellowknives Dene (Wıìlıìdeh dialect), respectively.

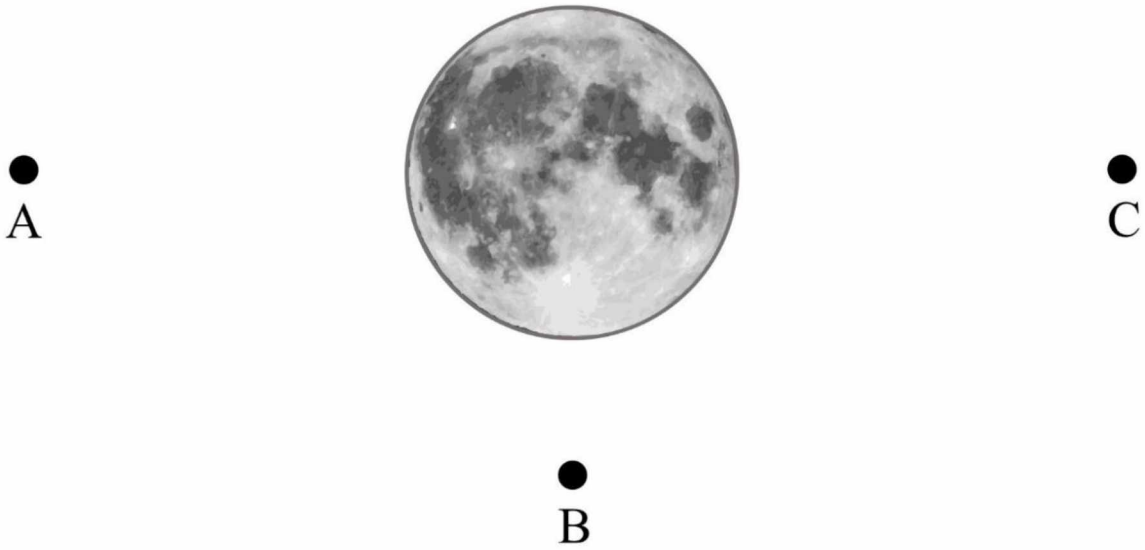

Figure 40. The moon's dog at positions: A) behind the moon, B) beside the moon, and C) ahead of the moon. The direction of the moon's travel is from left to right.

Helen Dick referred to Jupiter as *gheljay łik'a* ('moon's dog') and said, ". . . he has his dog right by him, that means it's gonna snow a lot. So, he's got a dog so he's not gonna be stuck."[132] When the moon's dog is ahead of the moon, Upper Kuskokwim elder, Jim Nikolai, referred to it as *dilega' dodeltanh* ('driving the dogs') as if being pulled on a sled. Jim explained:

> And that night moon, when that star's ahead of it there's going to be snow. . . they hook up their dog and [moon] pull himself up. . . Yeah, when the dog is ahead of it, pull himself up, it means it's going to be snow.

Conversely if the dog is trailing the moon Jim explained that that position indicates good weather. Ahtna elder, Fred Ewan referred to the dog's position behind the moon as *son' ucii saadetse'e'* ('the tip of the star is moving'), which he identified as a sign of cold weather. In contrast, Fred described the dog's position ahead of the moon as *ucet'ah* ('under its blanket'),

[132] Cf. Tenenbaum (1975, 67) who glosses *gheljayi lik'a* ('moon's dog') as "a bright star near the moon," whereas Kari (2007, 150) has *gheljay ch'naqa* ('moon's children') as "stars near the moon."

which is a sign of warm weather. The late Lower Tanana elder, Peter John of Minto, also explained that the moon places a blanket over its dog:

> If you really understand the Athabaskan way of how to observe the weather, you look at the moon, and if it has a star right next to it, then you know that cold weather is coming. The Athabaskan way to observe that is they say that the moon has a dog, and he covers that dog with a blanket (John and Krupa 1996, 21).

In her linguistic filed notes for Lower Tanana, Eliza Jones (1988) identifies the dog's position ahead of the moon as a sign of cold weather referred to as *deleege' nottha nee'eeltaanh* ('it puts its dog ahead of itself'). Although no weather signs are reported, the moon's dog is identified as *dalt'ol mileg* ('moon's dog') and *ch'aldzeek łįk* ('moon's dog') in Holikachuk and Upper Tanana, respectively (Kari, Alexander, and Deacon 1978, 25, John and Tlen 1997, 65). Finally, the Upper Kuskokwim and Koyukon also interpret the position of the moon's dog as a sign of scarcity or an abundance of game. Upper Kuskokwim elder, Bobby Esai stated: "Star in front of the moon, eh. That's sign of there's going to be starvation, hungry time. That star sitting right over, oh maybe peaceful time, maybe there's enough food, or starvation. It's awful hard for me to answer those [questions]." For the Upper Kuskokwim, Pulu and Pope (1981, 34) write:

> There is a star that is always close to the moon. The people believed that if the star was behind the moon in the evening, the people would be short on food. If the star was in front of the moon in the evening, the people would have food for that month.

The most detailed descriptions of the moon's dog appear in the Koyukon Athabaskan Dictionary. Jetté and Jones (2000, 550) gloss *dolt'ol leege* ('moon's dog') as "any star in close proximity to the moon" and state:

> . . . when the star is ahead of the moon (to the right of the observer), *dolt'ol deleege edek'ots'e gheltaał* 'the moon is letting his dog go ahead of him'. It is a sign of abundance of game; others take it as a sign of cold weather. When the star is behind the moon (i.e., to the left of the observer), *dolt'ol deleege edekk'e gheltaał* 'the moon is leading its dog' [letting him follow it]. It is a sign of scarcity of game, and starvation, because then the dog goes behind to pick up the remnants of food which the master has dropped, *dedon okko ent'aay deleege edekk'e gheltaał*, 'he leads his dog so it could pick up his remnants of food.' Others take it for a presage of warm weather. If the star happens to be under the moon, the presage is for cold weather.[133]

While the signs interpreted from the moon's dog may exhibit great variability, they are rationally situated in a wide spectrum of socio-cosmic relationships that constitute Northern Dene systems of thought and worldviews. I will return to the concept of the moon's dog in a section in the following chapter that addresses images on the face of the moon.

Chapter Five Conclusion

In this chapter I described the utility of stars in time-reckoning, weather forecasting, and wayfinding. I began with an overview of Northern Dene divisions of time and then described how the sun, Big Dipper, and morning star(s) combine as a self-adjusting system of devices for reckoning temporal periods in the day-night cycle. Notably, names for diurnal periods are most concentrated around morning and evening twilight, suggesting the most important times of the day for refined temporal reckoning. Next, I presented case studies from the Yellowknives Dene

[133] Cf. Jetté and Jones (2000, 388): "Some old folks assume the position of the *so leege'* as a sign of the coming weather: if it is 'ahead' of the moon, i.e., in the position to be soon in occultation, it presages bad weather; if it is 'alongside' of it, i.e., below or above, but not on the moon's path, it foretells cold: if it is 'behind' the moon, i.e., after occultation, it is a sign of a coming snowstorm."

and Alaskan Gwich'in to show how different uses for stars (wayfinding, time-reckoning, and weather forecasting) come together in real-life contexts when traveling in Subarctic landscapes. These examples are not only among the few detailed examples of indigenous stellar wayfinding reported for any inland culture, but they also underscore the role of socio-cultural factors in finding one's way across large-scale environments. A comparison of both systems is unique in that it shows two significantly different Northern Dene approaches for charting a course through two Subarctic landscapes that have a low legibility of landmarks.

In the final section, I discussed how atmospheric conditions affect the appearance of stars, rendering them useful as indicators of different types of weather. I concluded this chapter by presenting linguistic and cultural knowledge about a bright star or planet near the moon that is often referred to as the "moon's dog." The position of the moon's dog ahead, behind, or beside the moon is observed to predict different types of weather or to make other prognostications about the future. Although the signs interpreted from the positions of the moon's dog are highly variable from one speaker to the next, they are rationally situated in a wide spectrum of socio-cosmic relationships that constitute Northern Dene systems of thought and worldviews.

Chapter 6: The Sun, Moon, and Eclipses

[The sunwise direction is the] natural way and it's out of balance if you do it the opposite. Even eating, when you're serving food, you do it as the sun turns.

- Tanacross elder, Sally Hale

And I hear them say, 'Sing and then walk around and like you're in mourning.' And they said that to each other, and they make us do that too. And this was the moon [eclipse]. And they were all outside. They hitting drums and they were singing. And then it quit. I mean it [moon] came back out. And that was a long time ago. That was in Old Village.

- Upper Tanana elder, Avis Sam

The sun and moon are personified beings, time-referents, and conceptual models for behaviors and actions while also providing a wide array of signs and prognostications about weather and the future welfare and security of people. In this chapter I discuss the mythology of the sun and moon and explain how the apparent motions and appearance of these celestial bodies integrate with stories and other social facts and contexts to provide essential models to live by. Eclipses, however, are a sign that something has gone terribly awry with these celestial bodies as the result of something amiss in a given Dene society. The Dene responded to eclipses with mourning and the ritualization of proper behavior and actions to balance and restore socio-cosmic relationships that, in turn, restored the sun and moon to their proper state. Like other celestial objects and atmospheric phenomena, the sun and moon have a consummate presence as highly animate and communicative beings who are watchful over the lifeworld of the Dene.

The Sun

The sun is highly personified as a beneficent and autonomous being while it is also treated as an intrinsic object of the celestial sphere. Sahtúot'ı̨nę̨ speakers say, for example, "*sahdə́ sı̨ı Newehts'ıne nı̨ ǫt'e*" ('sunshine is the Creator's face').[134] Gwich'in terms and phrases for sunlight, *shreendee* ('the sun's eye'), and bright sunlight, *shreendee nint'aii* ('the sun's eye is strong'), similarly express this personification.[135] The sun is also said to "look back" or *shree k'iinjik neegwqą'in* ('the sun looks back again') when crepuscular rays shine through partial cloud cover on the evening horizon. An evening sunburst is similarly described in Witsuwit'en, Dakelh, Koyukon, and Lower Tanana as *sa k'inewinil'ë'n*, *sa nek'unaidutat'en*, *kk'enosoh~~u~~nel'aanh*, and *sro k'a noxwnel'anh* ('the sun looks back'), respectively (Hargus 1999, 109, Poser 2000, 130, Jetté and Jones 2000, 739, Kari 2020, 22).[136] The sun also responds to changing weather conditions by burning fires at its sides, bracing for winter storms with its walking sticks, dancing, or dressing itself in mittens, boots, a hat, earrings, earmuffs, or a fur ruff as perceived by sundogs, sun pillars, solar halos, and atmospheric refraction. The Ahtna phrase, *na'aaye tsaane'* ('the sun's excrement') refers to rusted metallic surfaces (Kari 1990, 73). The sun is also vulnerable to illness and near-death experiences as witnessed during a solar eclipse. It is also a measurer of time and indicates directions as described in the previous chapter (Figure 41).

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[134] With respect to the Mescalero Apache, Farrer (1991, 57) states: "Creator is first visible in the east with the appearance of Creator's physical representative, the Sun."

[135] A Dëne Sųłıné elder referred to the clockwise and counterclockwise directions as *sa naá k'ízı́* ('according to the sun's eye') and *sa naá t'áízı́* ('against the sun's eye'), respectively.

[136] In comparison, Fienup-Riordan and Rearden (2012, 63) quote a Central Yup'ik man who states: "When it's clear outside, just before the sun sets, [the horizon] becomes red. They say *kingyarluni akerta* [the sun is looking back] because it will be good the next day."

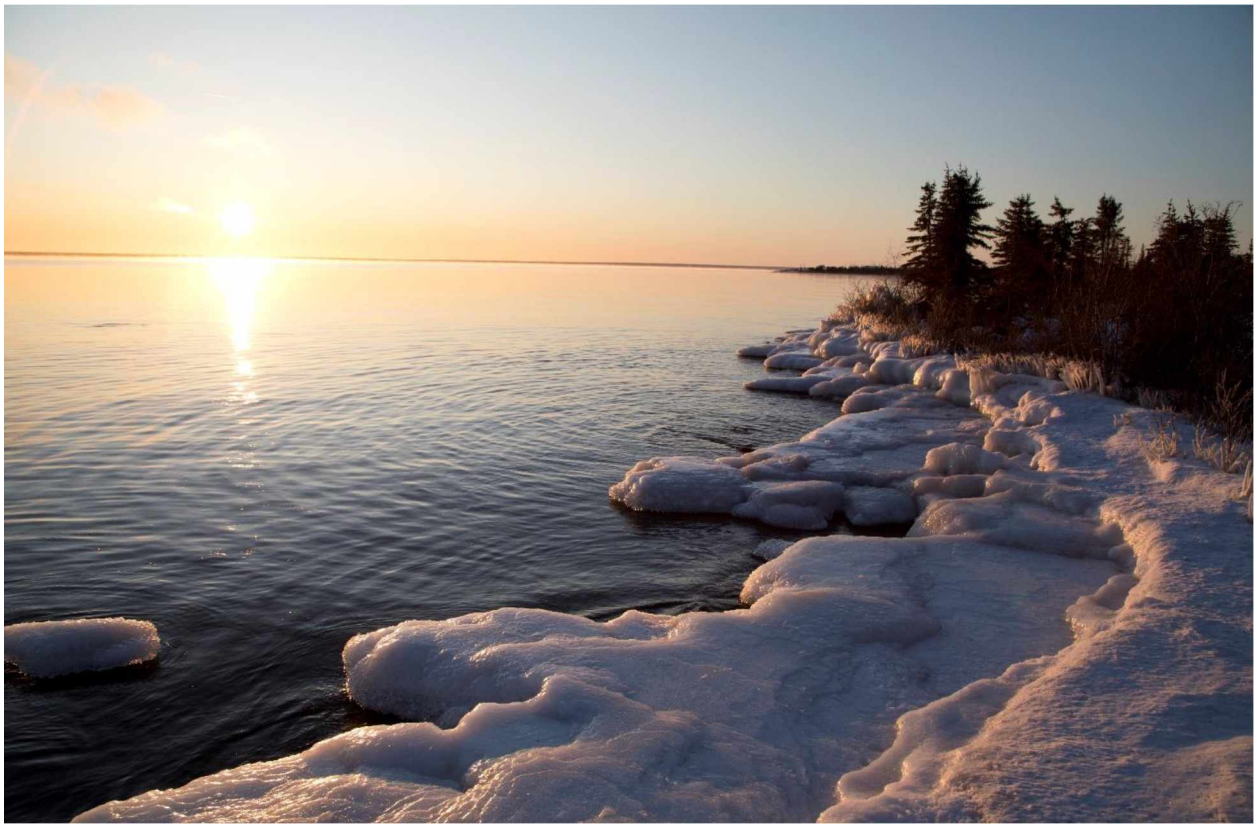

Figure 41. The sun reflecting on Great Bear Lake, N.W.T. in November 2019.

Perhaps nothing is more significant, however, than the sun's clockwise motion as a conceptual model for actions that relate to the maintenance and restoration of social and cosmic balance (cf. Goulet 1998, 226-228). Actions that follow a sunwise motion are in accord with the inherent or natural ways of the universe. Emulating the directional motion of the sun is both mundane and highly ritualized in Dene cultures. In contrast, actions performed against the sun's direction of travel invite disharmony and stochasticity that may lead to social and cosmic disaster, hardships, accidents, or misfortune.[137] In this respect, a Tanacross elder referred to the formal sunwise motion as *saa k'eh* ('following the sun') and said:

[137] In comparison to the Southern Dene, Farrer (1991, 65) states: "For Apaches, sunwise circuits yield properness; anitsunwise circuits yield chaos. . ." For the Navajo Griffin-Pierce (1992, 53) states: "Directionality is significant in Navajo symbolism, and movements during a ceremonial must occur in the 'sunwise circuit,' or from east to south to west to north, except in Evilway ceremonials."

[The sunwise direction is the] natural way and it's out of balance if you do it the opposite. Even eating, when you're serving food, you do it as the sun turns. Like in our community when they serve food in the community hall, they have to station kids or people, whoever. And it's young men and men that serve in general. Not ladies or young girls. The men serve. It's quite nice if men serve the ladies if you think about it that way. But it all has to do with the protocol and the proper way of eating. They start as the sun turns and they're usually one way on the side, and the community building is huge, so just one person can't do it all. So, they station a person [in] another spot, and another spot, and then when it's time to feed them, then they just start. And now the younger people have gotten used to that and serve that way.

I was in a group one time, and it was talking circle and they started backwards and we all, older ones, just hollered out and [said], 'No, it's wrong. You're giving it bad spirit and, you know, this is not going to go well if you do it.' And quickly they came back and started it as the sun turns. It's very important. It has to do with maintaining balance and the correct way of doing things.

With respect to sunwise actions, Lower Tanana elder, Andrew Jimmie said: "In public, follow the sun. Start from the left, go to the right. Like in potlatches, or anything, meetings. You always follow the sun, clockwise, you know." Ahtna terms for clockwise and counterclockwise motions are *c'a'aaldze* ('the direction the sun moves') and *c'ec'aadze* ('opposite of the direction the sun moves'), respectively.[138] Charlie Hubbard used the latter phrase to describe the situation

[138] In addition, Kari (1990, 73, 448) has *na'aay te'aasdze'* ('in the direction of the sun') for the clockwise direction and *sadiłgha* or *sadiłaa* ('against the direction of the sun) for counter-clockwise.

of a person who acts improperly and said: "When a person does wrong, you know, like he's out there abusing nature. You know, *c'ec'aadze*. You know, he is turning opposite of what he is supposed to be. His situation is opposite." Conversely, actions conducted in accord with the universe are described by the Ahtna phrase *ugheldze' k'edołta'* ('you are taking care well'). When asked about the importance of emulating the sun's motion, Lena Charlie of Chistochina said: "Just something [to] make it right. If going to be bad, OK, they make it right. Make it go away. . . You got to follow the sun. . . *Ugheldze' k'edołta'*, OK, keep it good." The conceptual model for social and cosmic order and balance embodied by the sunwise motion is underscored by the Yellowknives Dene terms, *ehkw'ı* ('right way,' clockwise) and *ehkw'ı-le* ('wrong way,' counter-clockwise), provided by Peter Sangris. Through an interpreter Peter said:

> Ever since I was young, I remember the elders telling me to always go in the direction of the sun, like this (sunwise). Always go like this. But if somebody's doing something, they're going the other way, say, 'Hey you're going the wrong way. You're doing it the wrong way, backup.' They say that to people. That's how the elders used to tell people. Always do everything like this (sunwise).

Performing sunwise actions are not restricted to formal events, activities, and rituals, but are engrained from childhood in mundane tasks and work. Failing to observe the sunwise motion when sewing a moccasin, for example, might result in a poor product or injury to the wearer. On learning to sew with the sun, a Tanacross elder said:

> We were semi-traditional raised when we were growing up. When we were coming of age as young ladies, so my mother cautioned us about things very, very strong. And I think that's why there were five sisters and we all have really strong work ethics and about sewing and things. And for myself, I was the youngest one.

So, I was a little bit spoiled. And so, my mother wasn't on me about learning certain things, but at some point in my life I had a dream that somebody talked to me about beadwork and sewing skin and things. And I just start sewing and nobody taught me. I watched people sew, but that's not like hands on. That came to me quickly.

But there was a lot of *injih* ('rules to live by') and stuff about even the sewing. You sew as the sun turns. You don't sew backwards. You sew with the sun. You know, especially on the moccasin. And I do it, even beadwork, I sew with the sun and the way the sun turns. That's really important. If you think about it mathematically, cause you have to count your beads and things, it works out much better doing it that way. Not only is it good luck, it's also practical.

Gwich'in elder, Trimble Gilbert, emphasized that even animals observe the sunwise motion and said, "*Shree needee'ak ts'ąįį gwik'ìt needąąh'àł*" ('the way the sun repeatedly moves, like that, animals also go'). To provide an example, he explained that caribou circle in a sunwise motion after entering caribou fences (*vadzaih tthal*) that were formerly used by the Gwich'in:

Well, even animal know that. They follow the sun. And like that caribou fence, we got lots of them around here (Arctic Village), old one. And that main trail coming from the northeast. And we got one up in the Old John Lake and other one is down other end, so it's facing this way, northeast. So, when that big herd come in and then all the men, old men, and old women, and kids, they all line up. And close up that doorway (the entrance to the caribou fence). And then the

caribou is always going around like clockwise; like this (sunwise). Never go backward. I don't think they'll do that.[139]

The significance of the sun's motion and its rising and setting positions are frequently discussed and described in Dene ethnography. Goulet (1998, 228) states:

> Dene Tha comment on the orientation to the rising sun as a distinctive feature not only in Dene Tha prayer but of Dene Tha life in general. This is especially true of elders: 'Everything they do, they pray and get their medicine on the bush, they all do it that way, looking at [where] the sun comes out. They say: 'When the sun will come out, it will light it; it will be the first thing it will see, and it will make your prayer strong.' That is why the people always do everything that way.' An orientation to the sun also shapes one's life at home: 'It's general knowledge. It is supposed to be that way. Like where we put our heads during the night, where we put the kids hats, and everything face that way.' As one healer noted, the sun teaches people a general attitude to life: 'The sun is setting an example we should follow. The path is its own, and the way it sleeps and gets up, we should be like the sun, we should pray to God like that. That is why they [the Elders] do everything that way.' The speaker went on to say, 'Old people say: *Tegeh anet'e*, 'be slow/quiet.' It is best to stop and really think about where you are going. Like the sun is really slow, rising and setting. We should be like that.'

[139] Jetté and Jones (2000, 739) provide a Koyukon example of a big-game animal observing the sunwise direction and state: "In a story by Chief Henry the calf was wounded and fell, its mother came back to it and nuzzled the wound as if it were drinking the blood, then circled the calf in the direction of the sun a few times. Then the calf got back up and ran away. In this way the mother performed the medicine on its young." Another example is the "Crane (*Deeł*) Story" that Tanacross elder, Larry Jonathon, told me where a mother crane produces a severe storm by circling in an anti-sunwise direction over a group of people who stole and abused a baby crane.

As noted in Chapter Two, the ancient Dene Traveler also characteristically journeyed in a sunwise direction while establishing order and balance in the world. With respect to the Mountain Dene or Shúhtaot'ıné, Andrews et al. (1998, 314) state:

> In Mountain Dene stories, *Yamǫ̀zhah* circles the globe travelling in an easterly direction, always facing the sun. His brother, travels in the opposite direction, always in darkness, and consequently there are no stories of his travels, until they meet. Interestingly, while *Yamǫ̀zhah* enacts 'good' deeds, his brother has often the opposite effect.

Robin Ridington has also commented extensively on the significance of the sunwise motion with respect to the ancient Traveler's journey and to Dane-zaa cultural experience (Ridington 1978, 1988, 1990, Ridington and Ridington 2006, 2013). On the relationship between the Dane-zaa Traveler (*Saya*), the vision quest, and ritual, Ridington (1978, 41) states:

> The image of an ordered and bounded world in which every creature knows its proper food and is sufficiently provided for dominates the complex of vision quest, creation and culture hero stories. The opposite of such a life-giving natural order is one in which savage monsters destroy life. The same opposition of life giving order and life destroying imbalance is perceived in social relations. The sun and moon in their daily, monthly and yearly passages across the sky represent an ordered perimeter of the natural world, while *Saya* through his human representative, the swan dreamer, translates that order into social terms.

In a subsequent passage from his ethnography about the Dane-zaa Prophet Dance, Ridington (1978, 46-47) sates:

> The dreamer's references to stories of the world's creation and destruction reflected the realities of a hunting people's relations to one another and to their environment. The mosaic of symbols used by the Dunne-za instructed them in establishing a secure relationship to the animals whose death gave them life. The cyclical movements of *Sa* [sun, moon] and swan appropriately represented the interlocking life cycles of people and animals. The dreamer, expressing in his own life experience the stories of swan and *Saya*, articulated the Dunne-za mosaic to the people and applied it to their everyday lives. The cycle continued to repeat itself as long as the terms of relationship between people and the natural environment remained substantially in balance. The prophet dance as a world renewal ceremony symbolized the Dunne-za awareness of their part in maintaining this balance.

The collective significance of the sunwise motion is not only symbolic, but it also frames and guides Northern Dene behaviors, actions, and relationships to the world and its inhabitants. While "left side" is generally considered bad in contrast to "right," counterclockwise directions that oppose the inherent motion of the universe are similarly equated with imbalance, stochasticity, and harm. A tenet underlying Northern Dene societies more broadly is that all thoughts and actions have effectual outcomes on social and cosmic order and balance.

Although the sun is a highly personified being it is also treated as an intrinsic object of the celestial sphere as described in stories about the theft of the sun and moon. Like other Northern Dene cosmological narratives, this mythology has a shamanistic theme. In most versions it is the grizzly bear who steals the sun and moon while it is the Raven who engages in a medicine fight to restore them. For example, in a version told by Koyukon elder, James Johnson

Jr, the Raven is compensated for his work with a gluttonous meal of salmon that he consumes before falling asleep to begin searching for the sun in his dreams. After arriving at the camp of a grizzly bear, the Raven uses the power of his mind to command a dog to break from its tether to steal fish from a drying rack which causes a loud diversion. This enables the Raven to secure the sun and moon that hang like glowing balls from the ceiling of the bear's home. The story ends when the Raven wakes up in the daylight back in his home suggesting that the entire medicine fight and restoration of the sun occurred in his dreams. James's version is provided below.

Dotson' Sekk ('Great Raven')
Told by James Johnson Jr. on April 27, 2017
Recorded by Chris Cannon

Now in that story of the Crow. That story you mentioned there when we first started, and I said *Dotson' Sekk* ('Great Raven') . . . pretty soon, anyway, it got dark. And all these people fished. So, Crow used to eat a lot, but he never worked and fished, I don't think. He just . . . did his work when he's sleeping, but you had to pay him first. And he did it, like they call medicine now. Some people, they say medicine people, but they did it like that.

And so anyway, he went to meet all these people. He went up and it got dark. No more sun. It come up and just dark. Some of the people now liked it, like the bear, the fox. They like to be in the dark. And some other people, they have like a meeting. They get together and say, the people, they can't work for it. You know, [work] for themselves in the dark. So, they say, 'OK, we'll get the Crow man here to do the work and see if he can help.'

So, they talk to him and sure enough he wanted all their salmon, and so much of this and so much of that dried salmon. So, they all chipped in and they

gave it to him and he eats everything up all at one time. You know he'd eat the whole thing up and then he'd go to sleep. He go to bed and he'd sleep for a week; four days, five days. While he's doing that and then he sleep, he went toward, I think, let's see, east. I think he went east from wherever he was. He flew east in his dream, and he went, and went, and went, and went. And finally, he start seeing daylight. But I don't know if you know when you're in a big plane and sometime you go down south or something, or you're coming north from California or something [and] you see twilight and dark behind you, whatever. It was like that for him. He say he can see the twilight way out there.

And then he kept on going. And then this twilight, you could see it bright, way up there just under the black [sky], you know. And it got brighter as he came closer. He flew and flew, and [it] got brighter. And all of a sudden, he came right out in the open. Just this one, like here (James points to a clearing out the window). Sun was shining bright and all these people were on this river and they had tents set up. And he see kids, you know, running around camp and playing. And people were, you know, dogs tied up and all that.

And so, he got there and he kept going and he'd know this person that took the sun. They told it was a big, big grizzly. You know, big grizzly bear whose there. He was the chief around there or something. You know, just like lion, you know, the strongest. Well, anyway, so he went and he went [until] he got to this one little village, like camp. It wasn't village, but big camp. And he knew where he [bear] lived. Because he can see things. And he was the Crow man. He was the head guy, you know, big.

So, he was the one [who] made the world, they say. I mean in this legend, you know, he's [the] one. So, he went there, and he found the [Bear] guy. He found his house. I mean, he was up there, and he knew where he was and he saw that sun. He went up there and he saw two [of] his dogs tied up, and people were down cutting fish. And this little baby was in the house, so he went in there and he talked to this guy. And he was talking to this bear guy, big chief guy. And he said he was wondering how he can get [the sun]. He see that sun tied up, up in the corner of that house. Right up high, you know where nobody [can] grab it. He see it hanging there and he knew that, you know, that it was the one.

He was trying to figure out how to get that guy out. And so, he said in his mind, 'I know,' he said. He thought in his mind and made that super vision and action in his mind. And he said, 'That's what I want them to do.' So, he said he was going to get one of those dogs to get loose down there. Everybody was outside running [around] and the fish is hanging. They [dogs] broke their line or something and pretty soon everybody's hollering, 'The dog is loose!' And they'd get in the fish, eating the fish. And everybody went out. Better run down there to get the dog. And finally, that big bear man, you know, the boss. He finally went out to see what going on too. While [he was doing] that, he (Raven) went boom! He went up there and he grabbed that sun, pulled it down and out the door. They almost got him, but he went. And he went back. He flew back and then he took that sun. As he went up, and he (James emulates the sound of something thrown into the air)! He slinged it up toward, let's see. If he went east, he was going like west or something, you know, westerly. And he threw it up in the air. He got [it],

but when he woke up it was [in the sky], you know. He finally woke up at where he was and then he had the sun. Nice sunshine. Everybody was happy. That's that Crow story.

. . . This story had all different parts. My dad used to go from one night, and next night. They used to call it *hunh'c'o' naadlegguts*. It's *hunh'c'o' naadlegguts* is, OK, 'I'm going to cut the story [off] until tomorrow night,' *hunh'c'o' naadlegguts*. That's, 'I'm going to quit for the night.' And then he'll start tomorrow night. Soon as we put out the lamp and we're all sleeping across in the tent on the floor, you know, he'd start the story from where he left off the night before.

Stories about Raven's restoration of the sun and moon are told throughout the Northern Dene region with analogues also known across the Inuit-Yupik-Unangan family (Rasmussen 1932, 217, Laugrand and Oosten 2016, 86-89) and among other peoples of the North Pacific Coast (Boas and Tate 1916, 60-62, Birket-Smith and de Laguna 1938, 251-252, 259-260, Lantis 1938, 152, de Laguna 1972, 796). Laugrand and Oosten (2016, 83) refer to the widespread Raven cycle as a "mythological complex" that extends "far into Siberia and North America." Although I did not regularly ask about Raven stories, I heard complete or fragmented versions of the theft of the sun and moon from Tanacross, Koyukon, Dena'ina, and Sahtúot'ı̨nę elders. Other Northern Dene versions and commentary appear in the following sources listed by language: Gwich'in (Camsell and Barbeau 1915, 250-254, McKennan 1965, 90-91, McGary 1984, 275-385, Gilbert, Russell, and Mishler 1986, Heine et al. 2007, 11), Hän (Schmitter 1910, 26, Osgood 1971, 122-123, Rooth 1971, 275-276), Koyukon, (Jetté 1908, 302-305, Semeken 1973, Nelson and Vanstone 1978, 58-60, Attla 1983, 87-106, de Laguna, Reynolds, and DeArmond 1995),

Upper Kuskokwim (Hosley 1966, 32), Deg Hit'an (Chapman 1914, 22-26, 109-115), Ahtna (de Laguna and Guédon 1968, de Laguna 1969, 18, Rooth 1971, 343-344), Dena'ina (Osgood 1937, 183-184, Rooth 1971, 82-83, Wassillie Sr. 1980, 25-29), Lower Tanana (Rooth 1971, 123-124, 184, 204-205), Tanacross (Rooth 1971, 231-238, 240-241, Brean 1975, 37-41, Thomas Sr. and Mishler 2005, 215), Upper Tanana (McKennan 1959, 190-191, Rooth 1971, 290, 305-308, Sam, Demit-Barnes, and Northway 2021, 55-62), Northern Tutchone (Legros and McGinty 1999, 89-103), Southern Tutchone (Sidney et al. 1977, 11-14, McClellan, Cruikshank, and Kernan 2007a, 18-22, 106-108, Workman 2010, 26-27, Kwanlin Dün First Nation 2020, 64-66), Kaska (Honigmann 1949, 215), Tagish (Sidney et al. 1977, 1-3, Cruikshank 1979, 59-60, 69-71, 78-83, Sidney and Cruikshank 1982, 12-15, McClellan et al. 1987, 254-257, Cruikshank 1990, 42-44, 179-183, McClellan, Cruikshank, and Kernan 2007b, 201-203, 258-260, 361-362), Tahltan (Emmons 1911, 117-118, Teit 1919, 204-205), Tsilhqot'in (Farrand 1900, 14-15, Lane 1953, 299), Dakelh (Jenness 1934, 212-213), North Slavey (Kulchyski 2018, 107-109), Tłı̨chǫ (Gautreau 1981, 10-15), and Dëne Sųłıné (Reynolds and Garr 1973, 4-11).

A comparative list of Northern Dene terms for "sun, moon, month" are shown below in Table 19. In most cases the sun and moon can be distinguished by including terms for "day" or "night," such as Ahtna *dzaen na'aaye'* ('day sun') and *tets na'aaye* ('night sun'). However, terms that exclusively denote the moon are also present in the Northern Dene lexicon, such as Ahtna *ghaldzaey*. These terms are listed in the following section.

Table 19. Northern Dene names for "sun, moon, month."

Name	Language (ISO-639-3) – dialect/region	Source
*sh^{w}-	Proto Dene	(Jetté and Jones 2000, 739)
shree	Gwich'in (gwi) - Alaska	(Peter 1979, 126)
sree, srii	Gwich'in (gwi) - Canada	(Montgomery et al. 2000, 8, GSCI and GLC 2003, 189)
sraa	Hän (gaa)	(Ritter and Paul 1980, 75)
sro	Lower Tanana (taa)	(Kari 2020, 431)
sro	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 101)
so, no'oy	Koyukon (koy)	(Jetté and Jones 2000, 53, 739)
na'oy	Holikachuk (hoi)	(Kari et al. 1978, 25)
no'oy	Deg Xinag (ing)	(Kari 1978, 45)
ni'i	Dena'ina (tfn) - Outer Inlet	(Kari 2007, 150)
n'uyi	Dena'ina (tfn) - Inland & Upper Cook Inlet	(Kari 2007, 150)
nu'uy	Dena'ina (tfn) - Upper Cook Inlet	(Kari 2007, 150)
na'aay, saa	Ahtna (aht)	(Kari 1990, 73, 448)
saa	Middle Tanana (taa)	(Kari 2019b, 216)
saa	Tanacross (tcb)	(Arnold et al. 2009, 258)
saa	Upper Tanana (tau)	(Lovick 2020, 541)
se	Northern Tutchone (ttm)	(Ritter 1976, 45, Ritter et al. 1977, 92)
sha	Southern Tutchone (xsl)	(Tlen 1993, 54)
sa	Dakelh (crx)	(Walker and Wilkinson 1974, 198-199)
sa	Witsuwit'en (bcr)	(Hargus 2007, 21)
sā, są	Kaska (kkz)	(KTC 1997, 392)
sa	Sekani (sek)	(Hargus 2000, 90)
saa	Dane-zaa (bea)	(Holdstock and Holdstock 1986, 37)
chat'agha	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
sa	North Slavey (scs)	(Rice 1989, 45)
sa	Tłı̨chǫ (dgr)	(Saxon and Siemons 1996, 88)
sa	Dene Tha' (xsl)	(Kaulback and Buckley 2008, 165)
sa	Dëne Sųłıné (chp)	(Cook 2004, 305)
shā	Tagish (tgx)	(Wren and Kemble 1994, 9)
sā	Tahltan (tht)	(Carter and Carlick 1994, 111)
sa	Tsilhqot'in (clc)	(Cook 2013, 17)
fa'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 14)

The Moon

Like the sun, the moon is personified, usually as the embodiment of a young man or boy. The image of this young man appeared in the darkened regions of the moon's surface (*lunar maria*) after he was disrespected by his people while becoming a medicine person. He also holds

a choice piece of food and occasionally has a bowl, cooking pot, backpack, and/or a dog beside him. As described in Chapter Five, his dog is also occasionally identified as Jupiter or any bright star near the moon. Waning and waxing crescent moons are also personifications of the boy. These depict his standing or reclining posture and are observed to predict different types of weather or to make prognostications about the abundance of food or game animals. The moon also becomes ill during lunar eclipses and dresses itself in anticipation of changing weather as observed by lunar halos. Like the sun, the moon provides a conceptual model that informs behavior, actions, and relationships while also informing the Dene of weather conditions, the passage of time, and how to prepare for the future (Figure 42).

Figure 42. A composite photo of the lunar phases observed in central-interior Alaska in winter, 2015.

The mythology of the "Boy in the Moon" (rarely a woman) is ubiquitous to the Northern Dene region. These are stories of morality, cosmology, and socialization while also recounting one boy's experience of becoming a medicine person. The stories typically begin when an old woman discovers an infant crying in the forest or beside a lake, suggesting that he either came from the sky or else was not born from human parents. For example, Mary Tyone's Upper Tanana version begins when a spear falls from a tree (Tyone and Kari 1996, 77-87). Tyone and Kari (ibid.) state: "In the opening episode, the spear falling from a tree refers to the Little Boy in the Moon standing up and then coming down to earth." Tyone (ibid.) clarifies: "The [moon's]

spirit turned into the baby." The child develops at an accelerated rate and exhibits extraordinary strength and prowess while also testing his grandmother's patience to ensure that she will treat him well and that her love is unconditional. Gwich'in versions describe the boy as a poor orphan while the Upper Tanana stories explain that he deliberately dresses in rags to appear destitute. The Upper Tanana and Tanacross versions are comparatively long as they humorously recount various incidences where the boy takes instructions literally to appear ignorant, when in fact, he is testing the generosity and respect of those around him. Some versions emphasize that the boy oversleeps and appears lazy to subtly imply that he is traveling in his dreams and becoming a medicine person.

The story pivots when the boy's people refuse to give him choice parts from the fattest caribou in return for telling them where to find the herd during a famine. In the Upper Tanana and Tanacross versions, the boy harvests all the caribou himself.[140] Although details vary, the boy takes revenge by either destroying those who disrespected him or else he makes medicine so that the harvested animals disappear and leave the people in famine once again. Near the end of the story, the boy characteristically teaches his adopted grandmother or grandparents how to survive off a single piece of caribou meat or he instructs his people to observe the moon for different signs about the future (see, for example, Fredson, Sapir, and Peter 1982, 72-76). In some versions the boy chants magic words while making medicine (see Tyone and Kari 1996, 85, Workman 2010, 59) or he leaves a song and instructions for the eclipse ritual before departing to the moon (Petitot 2005 [1891, 1893], Cass 1959, 9-10, McKennan 1965, 64, Workman 2010, 75).

[140] Cf. (Tyone and Kari 1996, 77-87, David and Lovick 2017, 116-127).

Versions from the Yellowknives Dene, Dëne Sųłiné, Tahltan, and Sekani, differ in the respect that it is usually the young man's wife or other family members who disrespected him by eating from his store of rendered beaver or moose fat or blood (cf. Lowie 1912, 184, Teit 1919, 229, Birket-Smith 1930, 88-89, Desgent and Lanoue 2005, 142-143). Nearly all versions commence with the boy's ascent to the moon, typically through the smoke-hole of a skin house which is highly evocative of shamanistic flight. The stories often explain that the boy lost a moccasin or tore his pants while his grandmother or wife reached for him as he rose through the smoke-hole, which explains why one of his feet or legs appears larger than the other when observing his image on the face of the moon.

Although the stories vary, I heard complete or fragmented versions of it from Gwich'in, Hän, Ahtna, Upper Tanana, Tanacross, Upper Kuskokwim, Sahtúot'ı̨nę, Dëne Sųłiné, and Yellowknives Dene elders. Other Northern Dene stories, descriptions, and interpretations of "The Boy in the Moon" appear in the following sources listed by language: Gwich'in (Gibbs et al. 1872, 318-319, Petitot 1876a, XLI, 1876b, 94-95, 1886, 66-69, 1887, 56-60, 1890, 117-119, 1976, 72-73, Petitot and Brymner 1878, 67, 273, Camsell and Barbeau 1915, 254-255, Osgood 1936, 155, Cass 1959, 7-10, Hadleigh-West 1963, 324-325, Keim 1964, 102-103, McKennan 1965, 146-147, Petitot and Savoie [ed.] 1970, 78, 162-165, Peter and March 1972, Salmon and March 1972, Netro 1973, 1-2, Mishler 1974, Fredson, Sapir, and Peter 1982, 72-76, McClellan et al. 1987, 230, 282, Gwich'in Renewable Resource Board 1997, 37-38, Vuntut Gwich'in First Nation and Smith 2009, 9-11, 67, Frey 2015, Horowitz, Andre, and Kritsch 2018, Mishler and Frank 2019, 368, 379-382), Hän (Schmitter 1910, 25, Osgood 1971, 121-122, Rooth 1971, 257-259, 264-265, 269-270, 279, de Reuse and Riddly 2006), Koyukon, (Jetté and Jones 2000, 550), Deg Hit'an (Osgood 1959, 54, 181), Ahtna (de Laguna and Guédon 1968), Dena'ina (Rooth

1971, 93-94, Nicolie and Kari 1976, Wassillie Sr. 1981), Tanacross (Rooth 1971, 241), Upper Tanana (McKennan 1959, 195-196, David and Milanowski 1975, Tyone and Kari 1996, 77-87, Guédon 2005, 260-265, Lovick 2010), Northern Tutchone (Legros and McGinty 1999, 204, 259), Southern Tutchone (McClellan 1975, 78, McClellan et al. 1987, 230, Workman 2010, 58-63, 71-75), Tagish (Sidney et al. 1977, 117), Tahltan (Teit 1919, 229), Tsilhqot'in (Lane 1953, 317-318), Dakelh (Morice 1889, 159-160, 1932a, 649, Jenness 1934, 99-114), Sekani (Desgent and Lanoue 2005, 142-143), North Slavey (Petitot 1876a, XLI, 1876b, 94-95, 1886, 187-196, 1890, 117-119, 1976, 44-46, Petitot and Brymner 1878, 67, 273, Osgood 1932, 88, Petitot and Savoie [ed.] 1970, 78, Hultkrantz 1973, 126), South Slavey (Honigmann 1946, 90), Tłı̨chǫ (Gautreau 1981, 47-51), and Dëne Sųłıné (Lowie 1912, 184, Lofthouse 1913, 44-45, Birket-Smith 1930, 81, 88-89, Reynolds and Garr 1973, 22-26).

The boy's image is often delineated by the dark spots on the right side of the moon (cf. Horowitz et al., 95). While the Alaskan Dene stories usually explain that the boy holds part of a caribou or moose, the Sahtúot'ı̨nę, Yellowknives Dene, and Dëne Sųłıné delineate the boy's figure with a bowl or container of beaver blood, grease, or water. The accompaniment of the boy's dog on the face of the moon is common throughout the Northern Dene region. Although there are many variations, several examples of the boy's image on the moon are shown below in Figures 43-49.

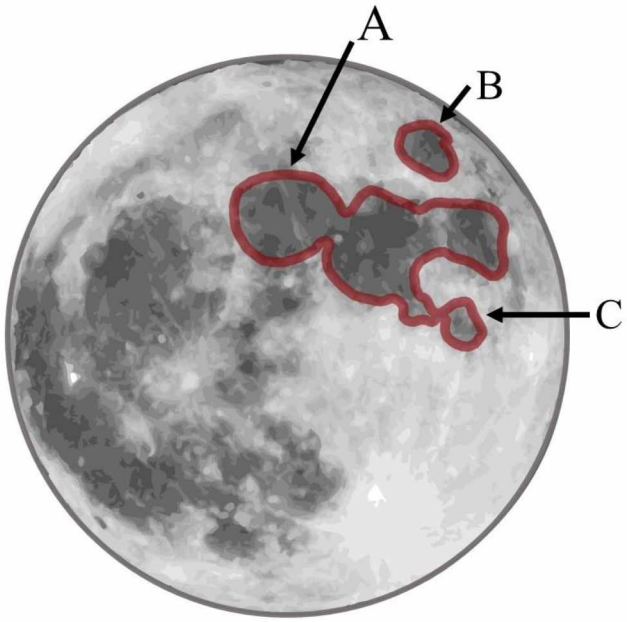

Figure 43. *Shree tsyaa tsal* ('little moon boy') or *Tǫǫ oozhrii zhìt tr'iinin dhidii* ('child is sitting in the moon'), the Boy in the Moon identified by elders from Arctic Village, Fort Yukon, and Old Crow: A) his head, B) his dog and/or caribou guts, and C) leg with torn pants.

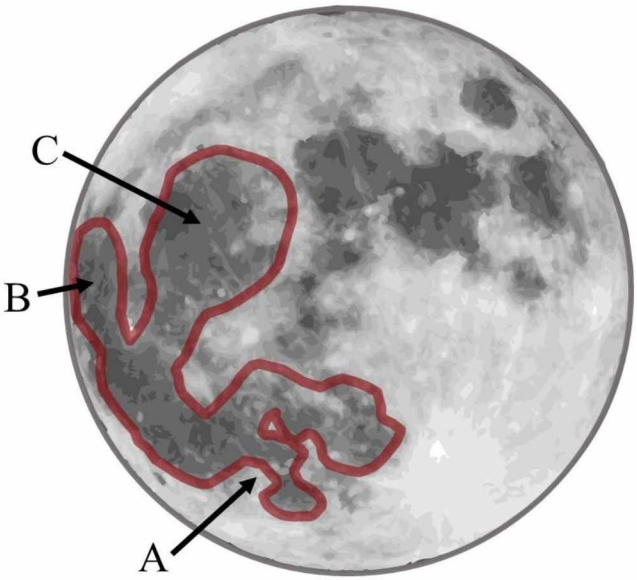

Figure 44. A Gwich'in variation of the Boy in the Moon identified by an elder in Fort Yukon: A) his legs with torn pants, B) his head, and C) a caribou quarter or a bowl of berries.[141]

[141] See Horowitz et al. (2018) for other Gwich'in variations.

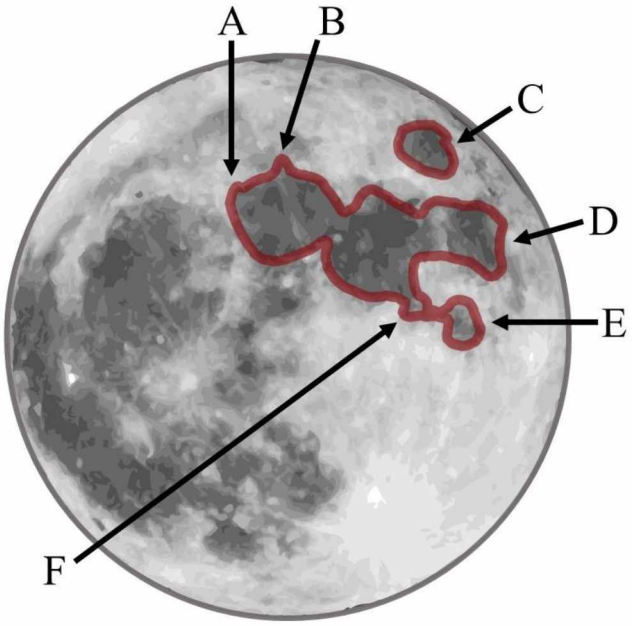

Figure 45. *Saídene*, the Boy/Man in the Moon identified by Sahtúot'ı̨nę elders from Dél̨ı̨nę, N.W.T.: A) his hat, B) his nose, C), his dog, D) his legs, E) *edelewecha* (boiled blood soup) held in a birch bowl, and F) his arm.

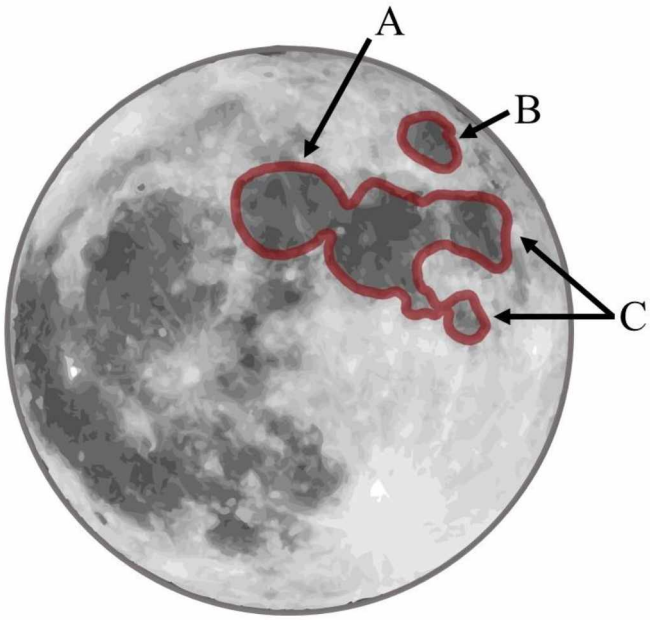

Figure 46. *Ası̨ı̨ nàyı̀ı̀htǫ* ('he is taking something in'), the Boy in the Moon identified by Yellowknives Dene elders in Dettah and Ndı̨lǫ: A) his head, B) container of beaver blood or water, and C) his legs.

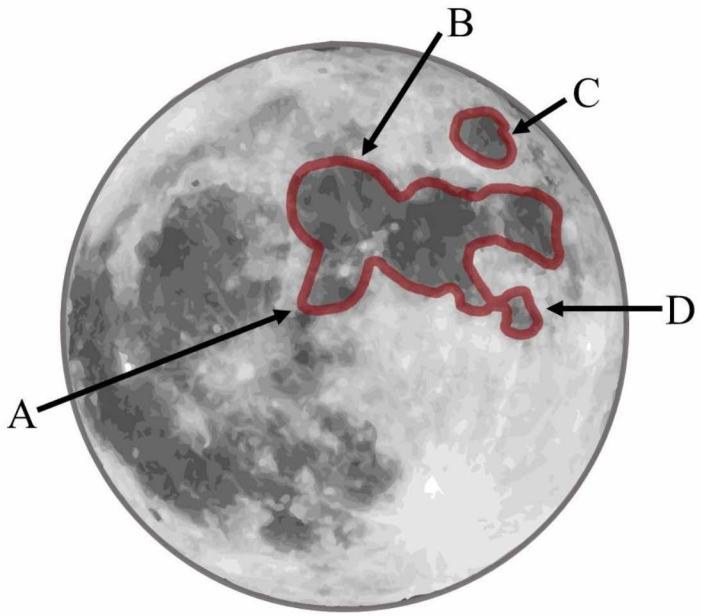

Figure 47. *Sa K'e Dëné* ('Man on the Moon'), identified by Dëne Sųłiné elders from Fort Smith, Black Lake, Fort Resolution, and Łútsël'é: A) container of beaver grease (*tsá tłezé*) or water, B) his head, C), his dog, and D) his foot with missing moccasin.

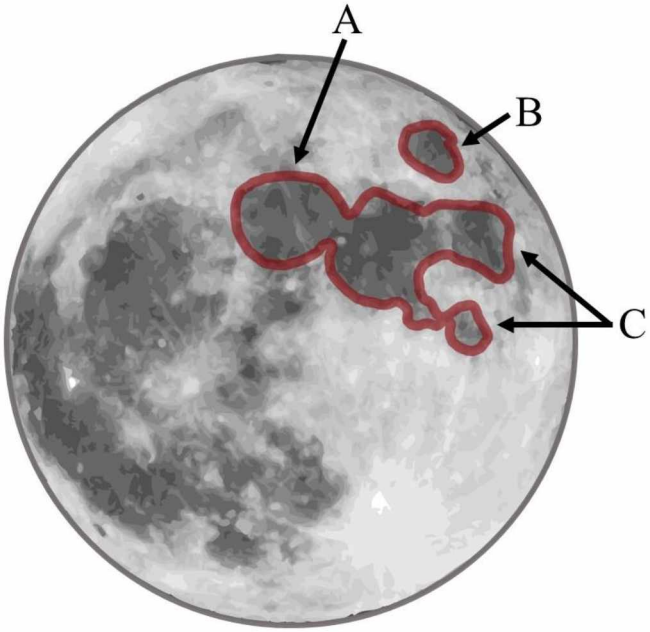

Figure 48. *Nesdzeek* ('noun-roundish is illuminated') or *Ts'iniin Telch'eegh* ('child went angrily'), the Boy in the Moon identified by elders from Tanacross: A) his head, B) moose fat or stuffed moose intestine, and C) his legs.

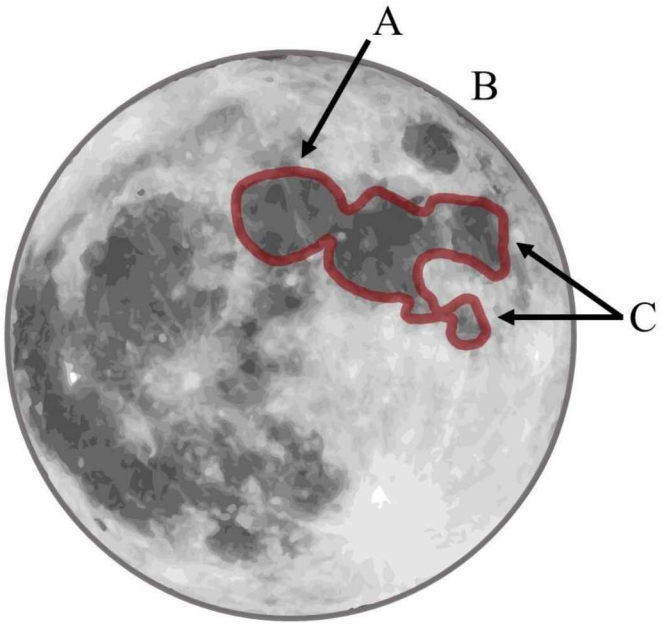

Figure 49. *Neldzeek, Nedzeegn* ('noun-roundish is illuminated'), or *Ts'iniin Telch'eegn* ('child went angrily'), the Boy in the Moon identified by elders in Northway and Tetlin: A) his head, B) *ch'inoht'iin* (a stuffed moose intestine or "sausage"), presumably the dark spot to the boy's upper left or lower right side, and C) his legs with caribou skin pants torn on one side.

In addition to providing signs about weather and the future abundance of food or game animals, the Boy in the Moon is occasionally tied to an eschatology that predicts that he will either tip upside down or return to earth at the end of the world. Regarding the Tahltan, James Teit (1919, 229) states:

> The figure of *Sa'kesada* may be seen now on the face of the moon as a dark shadow. The old people say he was straighter within their memory. He has been bending gradually for very many generations. Now he is at right angles, and therefore half the time has expired for the end of the earth to come.

After sharing an abbreviated version of the story, a Yellowknives Dene elder in Dettah said: "He [young man] became part of the moon, the land. And when the world's coming to an end, he will come back." These eschatologies are reminiscent of those tied to the Dene Traveler who is also predicted to return at the end of the world or provide another sign that the world is

ending, such as when the Traveler constellation becomes skewed beyond recognition. Given that the Traveler and the Boy in the Moon both provide large conceptual frameworks for behavior, relationships, and actions, it is not surpassing that the celestial locations where the spirits of these figures reside are occasionally swapped. For example, Robin Ridington learned that the Dane-zaa Traveler, *Saya/Yamadeya,* departed to the moon after completing his worldwide journey rather than incarnating in the stars. Ridington (1978, 18) states: "At the end of his [*Saya/Yamadeya*] cycle of transformation, he is said to have left the world and retreated to the moon, the sun's shadow. It is said he will return at the end of the world."

Although I only encountered one instance of this inversion, a Tanacross elder who told a detailed version of the story about *Nesdzeek* (usually associated with the Boy in the Moon) concluded that the young man incarnated in the stars as a large constellation. Like the Traveler constellations described in Chapter Two, this elder explained that only certain people who are destined to become leaders will discover his image in the stars. Again, the Tanacross version of this constellation is depicted as a large human figure who wears a traditional fringed garment and a quiver for arrows. He also holds an arrow in one hand and a bow in the other. The cognate Upper Tanana figure called *Neldzeek* or *Nedzeegn,* is, however, strongly associated with the Boy in the Moon (see, for example, David and Lovick 2017, 116-127). Although examples of this reversal are uncommon, it is fitting that the spirit of each of these archetypical medicine people, guardians, teachers, and messengers are embodied in the celestial sphere as consummate interlocuters between cosmic zones. With respect to the young man on the moon (*Sa K'e Dëné*), a Dëne Sųlıné elder said, *dëné ts'énı xa* ('he helps people'). The ability to read into the cosmos and see what other may not in the images of these figures and the signs that they provide is congruent with an animistic worldview and a shamanic cosmology. Although both figures are

described with a rich oral literature, the conceptual frameworks that they provide enable deeper personal understandings of these figures and the universe through the lived experiences that they inform and contextualize.

In addition to the images delineated on the surface of the moon, crescent moons are also personifications of the young man's embodied spirit. Crescent moons provide signs about the future abundance of food, luck, and changes in the weather depending on their vertical or reclined positions. For example, Paul Herbert explained that a reclined crescent moon called *t'eegwayiłchii* ('he's leaning back on his pack') indicates warm weather as if the moon is taking it easy while resting on a full packsack. Conversely, a vertical crescent moon called *gindataa'ęę* ('he's leaning forward') indicates cold weather given that the moon is hunched over with arms crossed as if shivering to keep warm. In both instances, these terms refer to the first appearance of a waxing crescent moon during any of the winter months, which predicts cold or warm weather for the entire lunation (Figure 50).

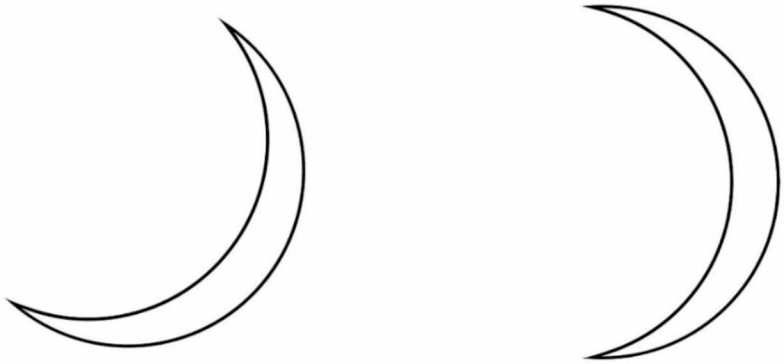

Figure 50. Crescent moons that indicate warm and cold weather: A) Gwich'in, *t'eeghwaayiłchii* ('he's leaning back on his pack'), a reclined crescent moon that indicates warm weather, and B) Gwich'in, *giindata'ęę* ('he's leaning forward'), a vertical crescent moon that indicates cold weather.

Dëne Sųłiné and Yellowknives Dene elders shared corroborating knowledge about cold and warm weather signs interpreted from vertical and reclined crescent moons. Likewise, for the Deg Hit'an, Cornelius Osgood (1959, 54) states:

> If the first quarter of the moon is vertical in the sky, it portends a good month of weather, whereas if the position is diagonal, the weather will be difficult. Such judgments as to the position of the moon apply only in the winter. . . It is also said that when one sees the moon man and his dog close together in the wintertime, cold weather may be expected.[142]

The moon is also associated with game animals, which may be linked to the Boy in the Moon who predicted and secured a huge store of food for his people, but then withdrew it when they acted improperly.[143] The boy's embodiment and perpetual watchfulness from the moon are part of a larger relational cosmos that requires proper social and moral actions in return for general well-being and assistance, including the security of food. Although these relationships are underscored by eclipse rituals discussed in the next section, a reclined crescent moon is also observed as a sign of plenty given that the moon is relaxing on a full packsack. In contrast, a vertical crescent moon indicates times of scarcity as if the moon is hunched over in hunger pains. In a summary of her work with Hän residents in Eagle, Alaska, Anna Birgitta Rooth (1971, 264) writes:

> ". . . they could tell from the moon if it was going to be good times or bad times. If the moon was kind of falling forward when it was first coming out, it meant that there was going to be starvation, because then it bent forward like people do

[142] The moon's dog referred to in this passage is presumably Jupiter or any bright star along the ecliptic (see Chapter Five). Kari (1978, 45) glosses the Deg Hit'an phrase, *yiggidivit dolt'ol* as an "uptilted crescent moon."
[143] Nelson (1899, 430-431) describes a strong association between the "Moon Man" and game animals among the Alaskan Inupiaq.

when they have pains in the stomach from hunger. If the new moon stands back, then it means good luck."

Koyukon elder, Josephine Roberts, quoted in Madison and Yarber (1983, 50), similarly states:

> One time Florence Albert and I were coming home late from something downtown, early fall, first snow on the ground. The moon was just coming up. She was looking at the moon and she said, 'The moon is leaning back. That shows it's going to be a good winter. The moon is leaning back on its packsack.' I forgot how she say it, it's a fancy word. Going to be plenty meat, a good winter. Then she said if it's leaning forward it's going to be a lean winter. Trapping wouldn't be too good and stuff like that.

In Ahtna, a vertical crescent moon that predicts "tragedy" is called *na'aay naghic'e't* ('moon is tilted downward'), whereas a reclined crescent that predicts times of "plenty" is called *na'aay neketsaatl idełtaen* ('moon became curved in the stomach') (Kari and Buck 1975, 88, Kari 1990, 125, 329).[144] Similar signs are also interpreted from the boy's figure delineated on the surface of the moon. For example, at the conclusion of John Fredson's (Fredson, Sapir, and Peter 1982, 75-76) Gwich'in story about *Tǫǫ Oozhrii Zhìt Tsyaa Tsal Dhidii* ('Young Man Sitting in the Moon'), he states:

> A long time after the boy had disappeared, the mother remembered something her son had told her. Her son said, 'I will just go into the sky. You will see me with the front quarter and the blood; I will be holding them there. If there is going to be (plenty of) food, I will always stand upright, and if there is going to be famine, I

[144] The latter phrase also applies to a full moon (Kari 1990, 370).

will be stooping over.' They looked upward, and in the moon was their son, standing and holding the front quarter and the sack of blood in his hand. To this very day, if there is going to be food, he stands up straight, but if there is going to be famine, his back is bent.

Although not overtly connected to the Boy in the Moon, Tanacross elder, Larry Jonathan, also explained that a reclined crescent moon called *stsaal'* ('my belly') is a sign of good luck or fortunate times:

> How they say the moon when it lean back with like a belly tuck in (a reclined crescent moon). That's how the shape of the moon is and the Native, our people call that *stsaal'*, they call it. And then the way the older people say about it is that it's like after you have eaten, you're satisfied with your food and you lean back like that, that's what it means. And it means like for good luck time, prosperous thing. They expect like good things to come your way like in trapping, anything, like money making, handwork, that kind of stuff.

Upper Tanana elders, Roy and Cora David, referred to any moon observed during a waxing phase as *hǫǫsu' ch'aldzeek taa'aał* ('the moon is going to be good') or *ch'aldzeek hǫǫsu' jį'ąą* ('a good moon is lying there'). In contrast, any moon observed during a waning phase is called *ch'aldzeek k'at'eey hǫǫsu' jį'aan* ('the moon is not going to be good'). Roy explained that a waxing moon is "good luck" because it is becoming fat (presumably with food and game animals) while also providing longer periods of moonlight to assist with subsistence activities, such as checking traps, hunting, or fishing. Conversely, a waning moon becomes skinnier each day and provides less light for traveling and procuring food from the land. A

Yellowknives Dene elder from Dettah similarly ascribed negative qualities to a wanning moon, which she called *kęzaá* ('wound/sickness moon').

In other instances, a crescent moon is observed like a container or bowl that holds and dumps food or weather depending on its reclined or vertical position. For example, a Koyukon elder described a reclined crescent moon as "good luck" because it holds food, whereas a vertical crescent is "bad luck" because it has spilled the food that it carries. The Dena'ina, Ahtna, and Upper Kuskokwim apply the same principle to weather forecasting. In Dena'ina, a reclined crescent moon is called *gheljay nzhah ghequł* ('moon is carrying snow') or *yes ghequli* ('the one holding snow'), which forecasts clear weather given that the moon catches snow like a bowl. Alternatively, a vertical crescent moon called *gheljay yank'dunełʼ* ('moon is dumping snow') indicates snowfall given that the moon has tilted upward to dump the snow that it has carried. Likewise, Upper Kuskokwim elder, Jim Nikolai, referred to a reclined crescent moon as *ch'oldrash noghe'o'dinh* ('the place the moon has gone down to'), whereas as a vertical crescent moon is *ch'oldrash dik'inodazdimit* ('the moon is laying on its belly'), which are signs of good weather and snow, respectively (Figure 51).[145]

[145] Signs from crescent moons are interpreted by cultures around the circumpolar north. For example, see MacDonald (1998, 133), Fienup-Riordan and Rearden (2012, 72), and Lavrillier and Gabyshev (2017, 182-185) for similar interpretations by the Inuit, Central Yup'ik, and Evenki, respectively.

Figure 51. Crescent moons that forecast clear and snowy weather: A) Dena'ina, *gheljay nzhah ghequł* ('moon is carrying snow') or *yes ghequłi* ('the one holding snow'), a reclined crescent moon that indicates clear weather, and B) Dena'ina, *gheljay yank'duneł* ('moon is dumping snow'), a vertical crescent moon that indicates snow.[146]

Although each of the lunar phases is closely observed in connection with weather forecasting and time-reckoning, names for them are highly idiosyncratic within and across languages compared to most other sky-related terminology. This variability suggests that rather than using a regular or standardized set of names for the phases of the moon, the Northern Dene system is based on describing what that moon looks like, where any valid description apparently suffices. Names for different phases of the moon in Gwich'in, Ahtna, Upper Tanana, and Dëne Sųłınė are shown below in Table 20, followed by a comparative list of Dene names that exclusively refer to the moon (Table 21).

[146] Cf. Tenenbaum (1975, 66), Kari (2007, 149), and Pulu and Pope (1981, 34).

Table 20. Names for phases of the moon in Gwich'in, Upper Tanana, Ahtna, and Dëne Sųłiné.

Name	Translation	Lunar Phase
Gwich'in		
shree k'eejit	young moon	new moon
shree in'ąįį	moon is in position	new moon
t'eeghwaayiiłchii	he is leaning on his pack	reclined waxing crescent
giindata'ęę	he is leaning forward	vertical waxing crescent
shree teetł'an	half moon	quarter moon
shree datthak	all of the moon	full moon
Upper Tanana		
ch'aldzeek na'it'ąą	moon returned (in darkness)	new moon
k'adu' ch'ee'ąą'	(moon is) appearing just now	new moon
hǫǫsu' ch'aldzeek taa'aał	the moon is going to be good	waxing moon
ch'aldzeek hǫǫsu' įį'ąą	a good moon is lying there	waxing moon
ch'aldzeek xa' įį'ąą	a little bit of moon lies there	crescent moon
ch'aldzeek gaay	little moon	crescent moon
saa/ch'aldzeek xąą'	half moon	quarter moon
ch'itöh tl'ädn k'eneldzeek	half illuminated over it	quarter moon
ch'itöh tl'ädn nineldzeek	half illuminated over it	quarter moon
ch'aldzeek k'eneldzeek	moon is fully illuminated	full moon
ch'aldzeek įį'ąą	moon is lying there	full moon
ch'aldzeek choh	big moon	full moon
ch'aldzeek k'at'eey hǫǫsu' įį'aan	the moon is not going to be good	waning moon
Ahtna		
ghaldzaey nay'ni'aan	moon moved across	new moon
tets na'aaye c'i'aan	night sun became new	new moon
ghaldzaey ts'aegge	narrow moon	crescent moon
benghaan' koley	that (moon) which is half	quarter moon
tetsna'aay ughaan' koley	half of moon is gone	quarter moon
k'e'ildzaey/kaldzaey	fully illuminated	full moon
na'aay natelts'et	moon falls	waning moon
ghaldzaey diłtsaek'e kudyaak	moon decreased	waning crescent moon
Dëne Sųłiné		
ʔełdzį hí́ʔą	beginning of a new moon	new moon
sa gódhé	new moon	new moon
k'eʔane ʔełdzį neghá ne	moon is getting bigger	waxing moon
naneye	it (moon) is growing	waxing moon
tëdhe zaá dánéłʔą	full moon/night sun	full moon
k'eníɪshą	it (moon) is fully grown	full moon
ʔeyun degháré néyą	it has finished growing according to the ghost (reference is enigmatic)	full moon
k'áʔú ʔanı	it (moon) is decreasing	waning moon

Table 21. Northern Dene names that exclusively refer to the moon.

Name	Language (ISO-639-3) – dialect/region	Source
tǫǫ oozhrii	Gwich'in (gwi) - Alaska	(Peter 1979, 83)
too oozrii	Gwich'in (gwi) - Vuntut & Teetł'it	(Montgomery et al. 2000, 70, GSCI and GLC 2003, 127)
tadh oozree	Gwich'in (gwi) - Gwichyah	(GSCI and GLC 2003, 127)
tǫǫ zraa/zrák	Hän (gaa)	(Ritter and Paul 1980, 73)
ch'ädrëk	Hän (gaa)	(YNLC 1998, 21)
teth gheldrayi	Lower Tanana (taa)	(Kari pers. comm. July 5, 2021)
dołt'oli	Lower Tanana (taa)	(Kari 2020, 322)
noch'eldray'	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 64)
dołt'ol, dołtole	Koyukon (koy)	(Jetté and Jones 2000, 550)
dałt'ol	Holikachuk (hoi)	(Kari et al. 1978, 25)
dołt'ol	Deg Xinag (ing)	(Kari 1978, 45)
gheljay, ghelja	Dena'ina (tfn)	(Kari 2007, 148)
ghaldzaey	Ahtna (aht)	(Kari 1990, 170)
gheldzeey	Tanacross (tcb)	(Arnold et al. 2009, 176)
ch'aldzeek	Upper Tanana (tau)	(Milanowski and John 1979, 61)
edzaze	Northern Tutchone (ttm)	(Ritter 1976, 44)
äzinzha	Southern Tutchone (xsl)	(Tlen 1993, 53)
'ulhdzis 'ooza'	Dakelh (crx)	(Walker and Wilkinson 1974, 53)
tl'ët uze'	Witsuwit'en (bcr)	(Hargus 1999, 109)
asdze'e	Kaska (kkz)	(YNLC 1987, 36)
ǫ̀dą	Sekani (sek)	(KTC 1997, 386)
yinagha[147]	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
ʔadzee	North Slavey (scs)	(Rice 1989, 35)
adzęzaà, adzezah	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 189)
ǫdzı̨za, ǫdze	Dene Tha' (xsl)	(Kaulback and Buckley 2008, 164)
ʔełdzı, eldzı	Dëne Sųłné (chp)	(Kaulback et al. 2012, 325)
āshjē'e	Tagish (tgx)	(Wren and Kemble 1994, 9)
ihtl'ēge diza'e	Tahltan (tht)	(Carter and Carlick 1994, 70)
ʔaeldzı	Tsilhqot'in (clc)	(Andrews 1988, 123)

To provide a few additional examples of the variability of names for lunar phases, Kari elicited the Ahtna names: *tsighaa nighiltsaas* ('it is a strand of hair wide'), *na'aay taak'i nighiltsaas* ('the moon is three fingers in diameter'), and *na'aay neketsaatl'iideltaen* ('the moon became round in the stomach'), which refer to a thin crescent, nearly full, and full moon, respectively (Kari and Buck 1975, 95, Kari 1990, 370, 371). For Dena'ina, Kari (2007, 148-149)

[147] Based on the stem *-nagha* ('eye').

has: *k'ighazken* ('curved'), *venudnutk'el* ('it tore downward'), *n'uyi nishqugh dedghidlut'* ('moon cracked in the middle'), *q'analyun* ('it is full grown') which correspond to a crescent, quarter/half moon, and full moon, respectively. Again, a sufficient description of the moon's appearance is presumably used in place of a formalized lexicon for the lunar phases. These can be perused in the various dictionaries of Northern Dene languages, such as those cited in this dissertation.

Eclipses

Eclipses were associated with an illness or tragedy of the sun or moon as the result of something that had gone awry in a given Dene society. The Dene responded to eclipses with mourning and the ritualization of proper behavior and actions to restore socio-cosmic relationships that, in turn, restored the sun and moon to their proper state. If left unheeded, an eclipse could lead to a food shortage, sickness, war, disaster, or bad luck more generally. Hurlburt (1962, 65) and Hara (1980, 228) note that the K'áshogot'ıne (North Slavey) of Fort Good Hope observed protocols for lunar eclipses into at least the early 1960's. In comparison, I worked with more than a half dozen elders in central-eastern Alaska who shared their memories of the last eclipse rituals practiced in 1943 when they were children or young adults. Elders who provided information about eclipses in other areas often commented that these practices became dormant before their time.

Lunar eclipses, which are longer and occur more frequently than solar eclipses, are usually associated with protocols tied to the story about the Boy in the Moon. Émile Petitot's (2005 [1891, 1893], 289-291) early documentation of eclipse rituals throughout the Mackenzie Valley explains that the first part of the ritual centered on preparing a type of intestinal sausage stuffed with meat, fat, and the partially digested contents from a caribou rumen. These intestinal

"sausages" were each placed in a game bag and then carried by able hunters who convened around a central fire in the "chief's tent" while acting fatigued as if having packed heavy loads over a long distance. Women and children remained in their tents while the others who had gathered stood and sang the eclipse song while looking at the moon through the smoke-hole of the tent. Afterwards, the hunters left the "assembly lodge" and formed a processional around the camp, stopping at each tent to eat and rest. The procession from tent to tent periodically halted to repeat the eclipse song. The ritual lasted for the duration of the eclipse and emulated a mourning procession. Petitot (2005 [1891, 1893], 289-290) writes:

> . . . before the eclipse in each lodge, the Danite women started to mince some frozen caribou meat. Young people dug holes in the ground, threw in a quantity of rocks heated white-hot in the hearths, and on these heated rocks placed pillow-like sausages made from caribou bellies stuffed with minced meat mixed with bits of fat. They added to this a little of the slightly sour dung slime contained in the caribou's belly which had not been entirely digested. Then they covered all this and left it to cook by steaming. The Dènè call this food *épié-edhttè* or wild pudding.
>
> The cooked meat was placed in as many gamebags as there were puddings. The adults able to hunt caribou loaded them on their backs. In this particular ceremony, I think the minced meat is a symbol of caribou abundance that the Dènè ask from their moon god. It is the symbol of proliferation. This done, each one girded his loins, took up a stick, and gathered in the chief's tent where they placed themselves around a central fire in the posture of people wearied by a long walk. As for the women and children, they stayed in their own

tents. As soon as the eclipse of the moon began, the Indians got up one after the other. Leaning on a stick, looking at the moon through the top opening in the lodge, the wind hole, they began to sing in turn: '*Énékhew*! How heavy it is! *Klô-da-tsolè* (Shrew), *nnè-kla téh,* across the entrails of the earth, *nas'inkhin*! You carried me! *Ttsou-chuiw* Wooded Mountain, *yenghè*! Come!'

Having said this, they left in procession from the assembly lodge, bent over double as if they were collapsing under the weight of their burden. They snaked their way from tent to tent, stopping at intervals to offer in turn the same refrain regarding the moon, which was going into eclipse. While the eclipse lasted, the lugubrious procession continued its winding march, entering all of the lodges. They sat down and put down their gamebags, and people quickly ate the contents, as if hiding from an invisible enemy. Then, the *épié-edhttè* was replaced on their backs and they continued their funeral march from tent to tent, singing to the moon. That is why the Hareskins call this unusual ceremony *Tpa-na-é^{c}éli-tsatèli*, Funeral March between the Lodges While Shaking Rattles. Today, however, the Dènè do not make or shake rattles in their ceremonies any more, and I even doubt that the new moon ceremony that I described here is celebrated elsewhere than on the desolate steppes of Great Bear Lake. But in 1867 this ceremony was still in such widespread use among the various Danite tribes that, having looked into this, I discovered no less than seven versions of the moon song.

. . . a Hareskin who was at Fort Norman that same spring and who accompanied me to the Indian camp, told me that the invocation of the lunar

shrew varies from tribe to tribe. His parents, people from great Bear Lake attached to Fort Good Hope, sang, he said: '*Éda-tsolé*, Shrew, *nnè klà tpèh*, across the land, *nas'éttinhé*! You have brought me back! *Ttsou-chiw*, Wooded Mountain, *yenghé*, come *ni-na-ttchiré-dinzèg*! Tear us from the ground with a hook!' This is an allusion to the beaver that the hunter pulls out of his den with the help of a wooden hook called a *sa-kozèg*.

The eclipse practices reported by Petitot suggests a ritualization of communal sharing after a successful hunt to restore an imbalanced socio-cosmic relationship contextualized by the widespread Dene story of the Boy in the Moon. Eclipse rituals emphasize Dene values such as humility, respect, reciprocity, family, and community while also mourning for the moon's embodied spirit and the potential consequences of its loss. Notably, the young man who ascended to the moon through the smoke-hole of a skin house left earth because his people refused to share the game animals that he located during a famine. As such, a relationship to the boy's embodied spirit in the moon, which suffers during an eclipse, is restored through ritualized communal sharing and overt expressions of humility, mourning, and proper social and moral actions. These practices not only restore social and cosmic order but also secure the opportunity and conditions for an adequate future supply of fish and game animals.[148] Eclipse rituals are not only conducted in accordance with the instructions left by the Boy in the Moon, but the eclipse itself is another way that the Boy's embodied spirit communicates with the Dene by providing signs about their future welfare, security, and social state.

In addition to the North Slavey, the Southern Tutchone, Hän, Upper Tanana, and Gwich'in eclipse rituals are strongly associated with the Boy in the Moon and contain a specific

[148] Petitot (Petitot and Brymner 1878, 274-275) states that the same ritual was conducted at the time of a new moon during the spring equinox.

eclipse song (see Petitot and Brymner 1878, 274-275, 2005 [1891, 1893], 289-290, Osgood 1932, 86-88, Cass 1959, Hurlburt 1962, 65, Hadleigh-West 1963, 324-325, Keim 1964, 102-103, McKennan 1965, 64, 146-147, Petitot and Savoie [ed.] 1970, 165-166, Peter and March 1972, Mishler 1974, Hara 1980, 228, de Reuse and Riddly 2006, Workman 2010, 71-75).[149] With respect to the Gwich'in eclipse ritual, Trimble Gilbert said:

> So, they sing and then they dance just like moon [during an eclipse]. *Aaha'* ('yes'), moon. They dance certain way and then I think that real oldest person was leading them. And they go around to each house and they sing about the moon. And the moon. . . *Shree gwit'ii'aii ginyaa* ('lunar eclipse, they say'). . . That *dịhch'ì'* ('old man') David [Salmon] is the oldest one I think; last one [to have participated in an eclipse ritual], and he sing. They all sing. And they go in each family [house]. And that's for something they're doing that. . . they have the story about that Boy in the Moon too, you know. So that little Boy in the Moon was holding that; something, eh. I think that's some kind of part of a caribou, eh. . . he holding something that's part of a caribou meat, I think. *Shree tsyaatsal reh ginyaa* ('that is the moon boy, they say'). He's a young guy, *tsyaatsal*, on the moon. . . I think they doing that [eclipse ritual] for good luck. So, they know it's doing something for good luck. They had long story about that little Boy in the Moon. So, they doing that for good reason. . . more food maybe, good luck.

The Upper Tanana Dene observed similar eclipse protocols that were last practiced in Tetlin and Northway during a total solar eclipse on February 5, 1943 followed by a partial lunar

[149] For the Tsilhqot'in, Morice states: "On such occasions [eclipses] the Chillɪχotins neither danced nor sung; but among them men and women having their clothes tucked up as when they travel and leaning on a staff as if heavily laden, they walked in a circle till the end of the eclipse."

eclipse on the twentieth of the same month. The construction and completion of the Alaskan-Canadian highway brought major changes to the Upper Tanana region throughout the 1940's. The construction project connected Tetlin and Northway to the road system and increased the regional population by approximately 4,000 people between 1942 and 1943 (Easton 2005, 216). Nabesna or "Old Village" also relocated across the river to its current site, now known as Northway, and airstrips were built in both communities. Changing social dynamics and increased pressure on subsistence resources no doubt factored into the reduced maintenance of some traditional events and practices such as eclipse rituals.

The oldest generation of elders in Tetlin and Northway, however, shared vivid memories of eclipse protocols that they observed as children in 1943. These elders described eclipses as scary events that were interpreted as a warning that protocols and rules to live by had been broken or that something was awry in the community. With respect to the lunar eclipses, the late Northway elder, Oscar Jimmie, said:

> Yeah, they all big dance, Indian dance and big *ch'aheldzüü* ('they were dancing') . . . Yeah, when they cry, *dzeexelshyayh* ('they dance the mourning dance'). *Dzeexelshyayh*, cry. . . Like somebody die and stuff like that. They cry. That, they call *dzeexelshyayh* [in] our language. Like bad, sorry, worry. . . They call [eclipse], *tidach'įį'ąą* . . . old time people say boy, some boy lost on top hold his pack up, that one on top [*Neldzeek*/*Neldzeegn*, the Boy in the Moon]. That's what they say.

Cora David, of Tetlin, recalled that people dressed in old clothes, presumably to appear pitiful and to humble themselves to the event. She explained that the village dogs howled while

the adults packed fish and other food on their backs in a procession around the community while making noise by hitting dishpans like drums:

> They get dressed in funny way and make noise, like drum or dog. Whole village dog bark because they get scared of the people. . .Yeah, they carry around pike fish, everything, behind in pack sack . . .They go around. Not in the house, they go around village. We get scared of them. We had something strange. Mom tell us not [to get] scared because people just do that for moon go under, *ch'aldzeek tida'įį'ąą* ('the moon is in a bad way,' eclipse) . . . Yeah, we see them in the old days. We scare . . .We were just about this big (Cora makes a hand gesture to show how tall she was when the eclipse occurred), maybe six, seven, eight.

Cora's husband, Roy David, remembers that his father, Titus David, sang the eclipse song and that people packed food on their backs around the community while using a cane or walking stick as if old or tired. Roy explained that these practices were scary and emulated mourning:

> They put [in] packsack, some kind, and tea, sugar, teapot, just so they offering it. Just like offering, you know. Athabascan language say old people told them, *nach'atshyeek nah'ogn* ('you all go carry something outside'). *Natätjat-teey tl'aan dzi'alshyee*! ('you all carry a stick and do the mourning dance!'). That mean make sorry song, and cry, weeping, they get help. I don't know how people heard that. It start coming out, getting brighter, getting brighter, pretty soon they start see. They feel a lot better.

With respect to signs interpreted from lunar eclipses, Roy said:

> . . . it going to be warning sign. Moon tell you what kind of sign it going to give you. Maybe next hundred years, or maybe two hundred years, we don't know. But we do know that he give us warning. That warning that you never see that kind around moon. But people see it and wise man say *tina' udaa'aał*, that mean bad sign.

Upper Tanana speakers refer to eclipses as *ch'aldzeek tida'įį'ąą* ('the moon is in a bad way'), *ch'aldzeek ut'ayh kol* ('the moon is weak/absent') and *nan' dign tta'aa'aał* ('the earth is floating upward'). The word for moon (*ch'aldzeek*) that appears in the first two phrases is replaced by the word for sun/moon (*saa*) when referring to a solar eclipse. Elders also distinguish several stages of a lunar eclipse: *ch'aldzeek umaagn ch'ineldzeek* '(the edge of the moon is illuminated,' partial eclipse'), *dał k'eltsiin* ('it looks like blood,' total eclipse), and *xasaat'ąą* ('sun/moon comes out,' end of an eclipse). In comparison, Ahtna and Dena'ina speakers refer to totality as *c'eghaan naa* and *k'eghun nu* ('war moon'), respectively, which portends bloodshed, tragedy, or a food shortage (Figure 52).[150]

Figure 52. A composite photo of a total lunar eclipse sequence taken near Fairbanks, Alaska on January 31, 2018.

[150] Cf. Kari (1990, 205, 2007, 149).

Northway elder, Avis Sam, shared similar memories of the pair eclipses that occurred in 1943. Avis was in the Ladue area with her brothers during the solar eclipse while her parents were away on another trapline. She witnessed the lunar eclipse with the rest of her community at the old village site located across the Nabesna River from Northway. Avis said:

> I was on trapline when it happened to the sun, sun eclipse. And then at the Old Village [Nabesna] before the flood there was a – something was going on. I was just a little kid. Something was going on [a lunar eclipse] and I hear people talking, adult. I don't know who they were. They're from the village anyway. They said, 'Go outside and put something in your pack.' They didn't say what. [They] say, 'Put something in your pack and go. Go take a walk outside. And go to those people over there.' They say, 'Over there where they gather outside.' And they said, 'You sing with them.' And little kids, they told them to put headscarf on and old clothes on like adult clothes to make themselves look like old people. And they were packing their pack, just out there I think, because I didn't see them go anywhere.
>
> And I hear them say, 'Sing and then walk around and like you're in mourning.' And they said that to each other, and they make us do that too. And this was the moon [eclipse]. And they were all outside. They hitting drums and they were singing. And then it quit. I mean it [moon] came back out. And that was a long, long time ago. That was in Old Village.
>
> And then the next one that I saw was up on trapline. We were up in Ladue. And that was really funny too. That was sun. I mean it was the sun [eclipse]. We were playing around inside. We were playing cards, just a fun game with my

brothers. It was daylight and then it start getting dark. Couldn't believe what was going on. And nobody knew. We don't know nothing about that. I know I was scared. They told me to light a candle. And our candle, our light was made out of grease and a piece of rags, like you twist around and make round like a rope. And you put that in a grease and it make light. I'm running around trying to make light and they – I don't know what they're thinking but I think they were scared. I was scared. I never see this before. We didn't do anything, it was just my family (laughs). I don't think it meant anything to me. I was just too young. And I don't remember what my brothers said or did. I don't think they did anything. You know, I think my mom and dad were up on the other [trap] line and we stayed home. That's all I remember about that.

In July 2014 Caleb Brucks and I also met with Sherry Demit-Barnes to record her experience of the 1943 lunar eclipses. Caleb was living in Northway that summer to work with Upper Tanana speakers for his graduate research at the University of Regina under co-committee chair, Olga Lovick (see Brucks 2015). Sherry had spoken to all of us about eclipses the previous year at Roy and Avis Sam's house and invited us over to her place make a more detailed recording in her Native language. Sherry began with an introduction in English:

Ch'aldzeek Tida'įį'ąą: Lunar Eclipse
Told by Sherry Demit-Barnes
Recorded by Chris Cannon and Caleb Brucks in Northway, Alaska
on July 21, 2014
Transcribed and Translated by Olga Lovick and Caleb Brucks
with annotations by Chris Cannon

About moon eclipse there was villagers there, like elders.

Frank Sam, Walter Northway, Stephen Northway, my dad Joe Demit,

and Peter Charlie, that's Rosa's father.

and there were three more others there.

And the elders, mom and them, they told us *ch'aldzeek tida'įį'ąą* ('the moon is bad').

We have to be quiet and stay inside,

the elders are gonna go and do something about it.

They were gathering the kids, as much as they can get

and across the river, that sand dune [sandbar], there's another river [channel] way

across beside this one over here.

And [now] that [is] all nothing but brush if you look across from the back there.

You know how it is, huh? Caleb?

It was just a sand dune then.

From across the village

we went all the way down the village to the last cabin and went down to river and

we went around the river.

Well, that sand dune there, and we went around, just make a circle and back into

the village

We come up to Frank Sam's cabin, I think,

which is close to, next door to my dad.

Ch'aldzeek tida'įį'ąą.
The moon is bad.

Ts'iikeey iin ts'įįłiin eh, Shyah didhaltth'ii, neehenih.
When we were children, 'Stay at home,' they told us.

Ay tl'aan adogn hihǫǫheey.
And up there they were talking to each other.

Shyah shyiit ts'änh tth'aak ushyiit kiich'eltsiil, naa'ay choh, tth'aak ushyiit kiich'eltsiil, t'eey natihłeek.

From inside the house they would carry around plates, dishpans, big buckets, dishpans.

K'ahts'äł įį'eh tah.
Spoons also.

So, we all - not me, I am too small, the rest of them. I think we did, I am not sure. They all started off down the village with, umm, making all that [noise].

Hada' tah haadäł tuuniign k'it nts'ą'.
They were going towards downstream on the river [to a sandbar].

Ahda' saa niign k'eh t'eey nakihdeedeeł.[151]
Downstream they went the way of the sun.

Da' tah haadäl.
To downstream they went around.

Shyah tah la' shyah tah haadäł dą'.
They were going downstream in front of the houses.

Jah anegn' shyah ee'ąą.
There, upland there were houses.

Ts'ehłegn shyah ahdaa' Bertha ushyah.
The last house downstream was Bertha's house.

Bertha and Elijah Demit's house.

Ishyiit ts'änh noshyiign hihdįjdeeł.
From there they went down.

Tuuniign k'it naan' haadäł.
They were walking to the other side on the river.

Tl'aan hanaat nakiihaal naat taanuu kitl'ahįjdeeł tl'aan naan', naan' tah haadäł tl'aan.
And then they were going across and they went ashore on the island and they were walking across.

Ay ch'aldzeek ch'elmǫǫn k'eh t'eey nahihdeldeeł jah ch'aldzeek k'eh k'eh hiihohtsayh.[152]
They walked around in a circle like the moon. They made it like the moon.

[151] Comment added post recording.
[152] Phrase revised post recording.

Huk'e ch'aldzeek k'e hihohtsayh niign ha'aadäł.
Like it, like the moon they make it as they walk.

Ch'aldzeek niign k'eh ha'aadaał.[153]
The image of the moon they [are] walking.

Duugn ch'ihehxał tth'aak hishyiit kiich'ehtsiil ịị'eh tah.
There they were drumming with the dishpans.[154]

Hiiyehxał tl'aan ch'ihdeh'ąh chih.
They were drumming and singing too.

Ch'ihdeh'ąą chih.
They would sing too.

K'ahts'äl ịị'eh tah jah tth'aak ịị'eh itth'ät.
They would pound the dishes with spoons and other silverware.

Itt'ät nts'ą' ha'aadał.
They drummed as they were going.

Shyaheh'ąą tah hits'ą' ch'aldzeek k'eh hultsiin k'e haadäł.
They were making a lot of noise and they would walk in the shape of the moon.

Daat niihatdeel eh degn', Frank Sam *shyah tah niihatdeeł.*
They would go up to the place downriver, they would go up to Frank Sam's house.

Ch'ihdeh'ąą chih.
They would sing too.

Dii ch'ihdeh'ąą ts'ą' t'eey k'a hi'agnnayh.
I don't remember what they were singing.

Ay tl'aan, Shyah daanatdeeł, ishyiit sọ' dhahtiat!
And then, 'Go home and go to sleep!'

Ts'iikeey iin, Daa'atdäł tl'aan dhahtiat!
[They said to] the children, 'Go home and go to sleep!'

That's what happened, so I don't know what happened after that.

---

[153] Comment added post recording.
[154] Sherry commented: "And they had dishpan and a big bucket, bigger bucket than those [big steal tub], what could make noise and silverware tied together, just jingling that. And I'm pretty sure Frank Sam or somebody, they sing a song, some kind of [mourning] song."

. . .

And I'm not sure, but the elders could have something,

could throw it [a votive offering of food] off somewhere, I can't remember.

That one [eclipses], I never got into it after that.

Never did ask again, I was just seeing what we did

. . . it was scary the way the elders was talking, you know,

'*Ch'aldzeek tida'įį'ąą, idzii', tidhahdąy*!'
'The moon is in a bad way [eclipse], scary, behave yourself!'

They go and they make you kind of scary, you know, they don't realize it,

I'm pretty sure.

After recording her narrative, Sherry walked with us to the Nabesna River to show us the small island sandbar on the opposite side of the river near the old village site where the eclipse procession circled in 1943. Sherry noted that people walked in single file during the procession from the village to the island sandbar and back (Figure 53).

Figure 53. View of the island sandbar across the main channel of the Nabesna River where the eclipse procession circled in 1943. The island sandbar located in the center left of the photo is now overgrown and was reached by crossing the narrow channel to the right of the island.

Circling in a sunwise direction during an eclipse not only restores balance and order but, in some areas, the procession from the village to the river and back was done to guide fish and game animals back to the community after an eclipse. With respect to the Deg Hit'an eclipse procession, Osgood (1958, 65-66) states:

> The day after the eclipse has occurred all men gather in the kashim, each with a packsack full of food. A man tries to include fish of each kind and also a piece of meat. When all are present, the man with the 'moon-song' leads them to the down-river end of the village. From there they set out in a body to go sunwise in a circle well outside the village. This means that at 'Anvik-mouth' the people start out through the woods and return on the river ice, if in the winter. Besides food, the men carry all of their weapons.

> After encircling the village, the men return to the kashim with their food packs and empty the contents onto the floor. Two fellows will cut the fish and meat into small pieces and pass them around for each person to eat. This performance is carried out at any eclipse of the moon or the sun, as any Ingalik knows, in order to lead back the animals and fish which may have been drawn up into the sky on such unfortunate occasions.

Also, regarding the Deg Hit'an eclipse ritual, Parsons (1921, 66) writes:

> The following morning [after a lunar eclipse] all form a long line, the shaman in the lead. They circle the village, forming an arc starting from the river and ending at the river, and, as I said before, taking in a half mile of woods above the village and half a mile below. They drum and sing and go through certain motions, each having a bundle of fish on his back.[155]

Although Jetté's (1911, 249-250) description of a Koyukon eclipse ritual does not include a procession, it similarly focuses on securing an adequate future supply of fish and game animals while also having a specific eclipse song. In one excerpt, Jetté (ibid., 249) states:

> The eclipse of the moon is an omen, but people have to secure, so to speak, the omen, and must not let it pass unheeded; otherwise it would become void. To secure this omen the Ten'a of the upper tribe lay a row of dried fish on the river . . . and they shoot at these from the bank, singing meanwhile the eclipse-song, proper to the circumstance. This ensures good hunting and fishing, for a year or so after the event.

[155] In a footnote, Parsons (1921, 66) states: "It was Moon who told Crow that they were to carry salmon on their backs to preclude famine."

Solar eclipse protocols were usually observed individually or in small groups given that their short duration (approximately 1-7 minutes) did not provide sufficient time to organize a larger community ritual.[156] Each person acted with great care, they prayed, drummed, whistled at the sun, made light with a candle, lantern, or fire, and occasionally sang an eclipse song. Tanacross elder, Emma Northway, referred to a solar eclipse as *saa t'aghii'ąą* and said that people sang to *Stsųų Kelahdzeey* ('my grandmother spider'). Emma attempted to sing the eclipse song for us when James Kari and I stayed with her and her daughter, Charlene, in July 2014. However, she could not remember the rest of song after singing the opening words, *Stsųų Kelahdzeey*. Again, *Stsųų Kelahdzeey* is a beneficent spider woman in the sky who once lowered a girl to earth and is usually regarded as the one who makes rainbows or *saamįįl'* ('sun snare') to snare thunderstorms (see Chapter 7).

Roy David explained that the Upper Tanana people prayed, whistled, drummed, and sang during an eclipse and interpreted the event as a warning that people were not following traditional rules established by the Traveler, *Yamaagn Teeshyaay*. Roy said:

> And this guy, these people crying because they can't see each other. They realize that they not telling the truth [i.e., not following rules to live by]. So *Yamaagn Teeshyaay* kind of straighten it out, everything. We don't have to be [in a] sun clip. It don't have to be sun clip. That's what they talk about. That's what sky man [*Yamaagn Teeshyaay*] try telling story about, whole *nan' choh* ('world').

Roy also shared his memories of the 1943 solar eclipse in his Native language. Roy transition to English at the end of the text and emphasizes that the light emitted from ignited matches or a flashlight has little effect during an eclipse.

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[156] An exception is the Deg Hit'an ritual, which was held the day after a solar or lunar eclipse (Parsons 1921, 66, Osgood 1958, 65-66).

Saa Tida'įį'ąą: Solar Eclipse
Told by Roy David on 7-22-2014 in Tetlin, Alaska
Recorded by Chris Cannon and Caleb Brucks
Transcribed and Translated by Chris Cannon with Avis and Roy Sam
Edited by Olga Lovick

Jah du' saa hasadįh'aan
Right here, the sun is shining/moving

tadn t'eey hǫǫłįį mbeh
even with it (sun), it is night

tadn t'eey hǫǫłįį
it is even night

ahdugn
right here

k'at'eey dii hutnah'iil
you all cannot see anything

dindeey iin tiheejuh hisiił
these poor people holler

hesał
they holler

ndee k'inihtaadał?
where can they go?

jah k'eh t'eey k'at'eey hutnah'iil
like even here you all could not see

tadn
nighttime

edlih chih hǫǫłek
it would get cold too

nił hi'ut-si' xah nił xah nihetdak
they get together (walk for each other) because they call each other by name

heek'ia hedeek
they pray as a group

k'adįį de'
in a little while

hiixah jih'aak
they would sing for it

hiixah jih'aak tl'aan
they would sing for it then

ch'ihehxiił
they would drum

hugn
there

ch'ihexiil nts'ą' t'eey
while they are drumming

hasa'e'aak
the sun rises (returns)

hasa'e'aak tl'aan
the sun rises and

hǫǫ't'eey k'eh tad elt'eek tl'aan
still it remains like night and then

ishyiit nan' ha' gaay nideltthayh
the earth moves slowly/with care, again

saa
the sun,

hasadįh'aak tsin'įį
they are thankful the sun is rising (returns).

. . .

It mean like when sun clip, earth go between

and it really pitch dark.

It really pitch dark. Everybody start holler for help.

They don't know where [they are].

It really pitch dark, they can't see each other.

No[t] even flashlight help.

Nothing, nothing help.

Even if you strike matches,

you know it's a strike matches, but you can't see nothing.

That's how much dark it is because clip (eclipse).

Really clip.

Roy's statement about diminished light emitted from ignited matches or a flashlight during a solar eclipse was also emphasized by a Dëne Sųłiné speaker who links the source of light and fire to the sun:

. . . people got scared [during a solar eclipse] and it was cold. It got cold and everyone, like, got really sacred. So, they got a whole bunch of firewood. They made a fire and even the fire went down. So, the fire went really small and then the sun started to come back again, started to see the rays of the sun hit the fire. The fire grew again. So, the people believe the fire that we have here is the same. You know, the sun gives it life. So that's how we have fire here.

Tagish solar eclipse rituals featured symbolic snaring of the sun, a song, and a display of valuable objects to entice the sun to return. McClellan (1975, 77) writes:

> When there was an eclipse of the sun, the Tagish at least used to bring out all of their fine furs, button blankets, or anything else of great value and hang them on lines. They also tied bunches of gopher snares to their walking sticks, as though they were going to snare the sun. Some women waved the sticks about and others shook the blankets while they all sang a song enticing the sun to 'come back for these pretty things.' The words were in both Tagish and Tlingit.

Eclipse protocols observed and practiced by the Upper Kuskokwim Dene in Nikolai, Alaska are different in that they contain elements also found in Central Yup'ik and Iñupiaq cosmology, which personifies the moon and sun as sister and brother. According to a Yup'ik story recorded by Edward Nelson (1899, 481), the sun is a boy who attempted to have an incestuous relationship with his sister. She eventually fled and became the moon while he followed her and became the sun.[157] Nelson (ibid.) states: "The boy has pursued her ever since, becoming the sun, and sometimes overtakes and embraces her, thus causing and eclipse of the moon." In another version from the Lower Yukon River, the brother assaulted his sister in the dark while she slept (ibid., 482). As a result, his sister severed one of her breasts and served it to him in a dish and told him: "You wanted me last night, so I have given you my breast. If you desire me, eat it (ibid.)." The boy refused the dish and pursued his sister to the sky where they became the sun and moon. Although Upper Kuskokwim elder, Bobby Esai, did not connect eclipses to the stories quoted above, he said:

> "One time when I was young, sun, moon, they call *yot'ich'oldray'* ('eclipse'). *Yot'ich'oldray', yot'ich'oldray',* they say the sun and the moon were brothers, they were brothers and sisters. They suffered long time. They tell us don't lay

[157] In other versions the sister becomes the sun and the brother becomes the moon (see, for example, Giddings 1961, 65-66).

down [during an eclipse]. Nighttime moon and sun eclipse. They tell us, 'Don't sleep,' they told us. They wake us up because moon and sun were brother and sister, they suffer right now. They tell us don't lay down to sleep. They get us out of bed in old days. That's all I know about it.

Bobby added:

They watch it [eclipse]. They said, 'We are sorry, sorry for what happened.' So, they told us 'don't sleep.' They told us to chew on something, eat something, little bit. Chew on something. So, that's all I know. . . I don't know why they do this. Don't sleep, eat a little something. I don't know why.

Although eclipse rituals are no longer practiced as large social events, aspects of these rituals were maintained into more recent times at an individual or family level. For example, Ahtna elder, Fred Ewan, explained that he loaded his dog with a pack and made a circle around his house during an eclipse, perhaps in 1963. Fred said:

"*Yat'ay'ghi'aan* ('eclipse'), you know. I don't know why the moon goes under the world or something. Anyway *yat'ay'ghi'aan*. . .Yeah, we pack up the dog. You get pack, dog pack ready, your dog out there. You pack right around the corner, you know. Yeah [get] ready to move. 'Oh, where's my pack at! I never see my dog pack or anything, too dark [from eclipse]!' Pretty soon, you know. Maybe the Lord think this poor man need eye [light to see] or something, you know. But we fool him, you know (Fred laughs). Pretty soon light is coming back. They would just sit, want the light coming back out.

. . .

You know, you pack up your dog [with food] and everything, you know (laughs). Go around the building. Big pack. 'Oh boy, I get tired,' you know [pretending to be tired and showing humility so the light will return].

Fred's small ritual is a fragment of the larger Ahtna ritual practiced in former times, which closely aligned with the eclipse practices described by elders in the Upper Tanana region (cf. de Laguna 1958, de Laguna and McClellan 1960). Sahtúot'ı̨nę elder, Charlie Neyelle recalls that eclipses were announced on the bush radio and that people were simply told to stay put and remain quiet until they passed. Charlie said:

When it goes like that [eclipses] everybody has to be quiet. And even though when we're traveling in the bush anywhere, and sometime talk on the radio; bush radio. They said it's going to get dark, *adzə ʔełtaít'a* ('lunar eclipse'). They said just stay put until it finish.[158]

A Dena'ina elder shared that she and a few others gathered to write prayers on pieces of paper that they placed in a fire during a lunar eclipse that occurred within the last decade. With respect to former eclipse practices this elder said:

. . . I don't know how they know. But it always – when sun clipping, they say not to walk around and make noise. You have to just pray. Because they say that when the sun is clipping that, you know, *Naq'dełtani nach' dghinih htunih, dazelts'i ha dadudenlnix, nał dghini* ('They won't tell us what *Naq'dełtani* is going to say about what happens in the future, they would tell us you sit down and pray'). So, they did that. So, they say *Naq'dełtani*, they gonna talk to the people, so. But the old folks know. Us, us young kids don't know. But old folks know it.

[158] Cf. Blondin (1990, 155).

So, I always heard my grandmother, or grandpa always tell my dad. So, I would listen to him. So, they say we have to pray, you know, it's going to happen. Or if the moon has a big blood, then it's a war. Or the sun will clip, [sun and moon] will be close together and they might bump each other, so. Cause they don't know. So, they were always - they always used to pray.[159]

In summary, eclipse rituals underscore one of the many ways in which Northern Dene peoples seek and maintain balance with the universe in which they live. It is through the maintenance of socio-cosmic relationships that inform and contextualize essential Dene concepts and practices relating to the sky and its contents. To conclude this section, a comparative list of northern Dene names for eclipses is provided below in Table 22.

[159] Cf. (Rooth 1971, 82-83, Znamenski 2003, 93).

Table 22. Northern Dene names for lunar and/or solar eclipse.

Name	Language (ISO-639-3) – dialect/region	Source
shree gwit'in'ąįį	Gwich'in (gwi) - Alaska	Fieldnotes
shree gwat'a'ak	Gwich'in (gwi) - Alaska	(Peter 1979, 47)
sree gwit'aii'ęįį	Gwich'in (gwi) - Canada	(GSCI and GLC 1999, 39)
sree niht'ąįį'èh	Gwich'in (gwi) - Canada	(GSCI and GLC 2003, 63)
srii t'ąįį'aii	Gwich'in (gwi) - Canada	(GSCI and GLC 2003, 63)
srii t'anaiida'aih	Gwich'in (gwi) - Canada	(GSCI and GLC 2003, 63)
sraa tl'aa nìjë̀'ąh	Hän (gaa)	(de Reuse 2015, 51)
yot'ich'oldray'	Upper Kuskokwim (kuu)	Fieldnotes
yok'ichaldrash	Upper Kuskokwim (kuu)	Fieldnotes
yot'e k'edegheełt'onh	Koyukon (koy)	(Jetté and Jones 2000, 550)
yot'r k'egheetlaatl	Koyukon (koy)	(Jetté and Jones 2000, 696)
yot'i gighe'on'	Deg Xinag (ing)	(Kari 1976a, 39)
yut'e k'ghi'un	Dena'ina (tfn)	(Kari 2007, 148)
yat'ay'ghi'aan	Ahtna (aht)	(Kari 1990, 73)
saa nałighi'aa	Ahtna (aht)	Fieldnotes
ghaldzaey nałighi'aa	Ahtna (aht)	Fieldnotes
tadasaghin'ąą	Tanacross (tcb)	(Arnold et al. 2009, 108)
saa t'aghii'ąą	Tanacross (tcb)	Fieldnotes
saa tida'įį'ąą	Upper Tanana (tau)	Fieldnotes
ch'aldzeek tida'įį'ąą	Upper Tanana (tau)	Fieldnotes
saa tadach'įį'ąą	Upper Tanana (tau)	Fieldnotes
ch'aldzeek tadach'įį'ąą	Upper Tanana (tau)	Fieldnotes
saa stà'įį'ąą	Upper Tanana (tau) - Scottie Cr.	(John and Tlen 1997, 64)
ch'aldzêek stà'įį'ąą	Upper Tanana (tau) - Scottie Cr.	(John and Tlen 1997, 64)
se k'ayínthät	Northern Tutchone (ttm) - Mayo	(Ritter n.d., 25)
se t'ín'en	Southern Tutchone (xsl) - Selkirk	(Ritter et al. 1977, 91)
yati'ai	Dakelh (crx)	(Poser 2000, 205)
sa iht'en'ay	Witsuwit'en (bcr)	(Hargus 1999, 110)
sā ti'ą̄	Kaska (kkz) - Ross River	(KTC 1997, 384)
sā kwɪ'ōn	Kaska (kkz) - Liard & Pelly	(KTC 1997, 384)
gudenetl'ets	Kaska (kkz) - Good Hope Lake	(KTC 1997, 384)
ch'at'agha tasitsa	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
yinagha tasitsa	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
adzə łet'áįʔǫ	North Slavey (scs) - Shúhtaot'įnę	(SDEC n.d.-b)
sa łet'áįʔǫ	North Slavey (scs) - Shúhtaot'įnę	(SDEC n.d.-b)
ʔadzə ʔeleht'ą́ híhɔa	North Slavey (scs) - K'áshogot'įnę	(SDEC n.d.-a, 57)
sa ʔeleht'á híhɔa	North Slavey (scs) - K'áshogot'įnę	(SDEC n.d.-a, 57)
adzə ełet'áįʔǫ	North Slavey (scs) - Sahtúot'įnę	(Modeste and Tatti 2012)
sa ełet'áįʔǫ	North Slavey (scs) - Sahtúot'įnę	(Modeste and Tatti 2012)
adzə ʔełtaít'a	North Slavey (scs) - Sahtúot'įnę	Fieldnotes
sa ʔeht'áréht'ǫ	North Slavey (scs) - Sahtúot'įnę	Fieldnotes

Table 22. Continued

sa yet'árít'ǫ	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
sa t'aı̨'ǫ́	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 88)
sa eht'ǫ̀rèʔaa	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 88)
sa ʔeɬet'àaʔà	Tlı̨chǫ (dgr) - Wıìlıìdeh	Fieldnotes
sa t'àaʔà	Tlı̨chǫ (dgr) - Wıìlıìdeh	Fieldnotes
sa ɬet'àıʔa	Tlı̨chǫ (dgr) - Wıìlıìdeh	Fieldnotes
sa et'áhíʔáh	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 162)
sa taʔáh	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 162)
sa'ınhíínií'áh	Dene Tha' (xsl)	(Moore et al. 1980, 69)
sa'ınht'aheedee'ah	Dene Tha' (xsl)	(Moore et al. 1980)
sa/ʔeɬdzı ʔeɬt'aít'a	Dëne Sųłıné (chp)	(Kaulback et al. 2012, 47)
sa yeht'át'a	Dëne Sųłıné (chp)	Fieldnotes
sa yeɬt'át'a	Dëne Sųłıné (chp)	Fieldnotes
sa ʔet'áıt'á	Dëne Sųłıné (chp) - Tetsǫ̨t'ıné	Fieldnotes
këł ʔeɬdzı ʔetɬ'áıt'a	Dëne Sųłıné (chp) - Tetsǫ̨t'ıné	Fieldnotes
dzı̨hezaá yet'áʔáı	Dëne Sųłıné (chp) - Tetsǫ̨t'ıné	(Cardinal et al. 2021, 242)
tëdhezaá yet'áʔáı	Dëne Sųłıné (chp) - Tetsǫ̨t'ıné	(Cardinal et al. 2021, 242)
sa-ya-nare'an	Tsilhqot'in (clc)	(Morice 1890, 133)
allsîyanore'an	Tsilhqot'in (clc)	(Morice 1890, 133)

Chapter Six Conclusion

In this chapter I explained that the sun and moon are personified beings and that their motions and changing appearances integrate with stories and other social facts and contexts to provide signs, prognostications, and conceptual models for Northern Dene behavior and actions. While the sunwise direction is highly symbolic as a metaphor and model for proper behaviors and actions, the moon provides a similar model and layer of moral and relational teachings primarily known and expressed though the mythology of the Boy in the Moon. Eclipses, however, are a sign that something has gone awry in the socio-cosmic relationships between the Dene and these celestial beings (sun and moon) which embody and model balance, order, and morality. The Dene responded to eclipses with rituals that may be interpreted as an effort to

restore the socio-cosmic relationship between the Dene and the sun or moon which, in turn, restored these celestial bodies to their normal state.

Like other celestial objects and atmospheric phenomena, the sun and moon have a consummate presence as highly animate and communicative beings who are watchful over the lifeworld of the Dene. It is through the maintenance of socio-cosmic relationships such as those established with the Traveler constellation, stars, sun, and moon, for example that underlie and contextualize essential Dene concepts and practices relating to the sky and its contents. Dene relationships with a diverse host of other beings and forces of nature are further described in the following chapter on atmospheric phenomena.

Chapter 7: Atmospheric Phenomena

You see everything in space, even the northern lights, all of them are living, living things.

- Sahtúot'ı̨nę elder, Alphonse Takazo

The thunder smells what's cooking and it goes to it. . .[our] ancestors used to tell us don't cook an open fire when it's thundering out.

- Yellowknives Dene elder, Madeleine Beaulieu

The atmospheric phenomena described in this chapter underscore an array of socio-cosmic relationships between the Dene and a host of powerful beings and forces of nature that bridge the divide between the upper cosmos and the lived world of humans. Although this chapter is primarily descriptive, the emphasis is on the roles, practices, experiences, and situations in which Northern Dene peoples participate in these relationships. I begin with a section about the northern lights which outlines a diverse range of knowledge, concepts, and practices relating to this phenomenon throughout the Northern Dene region. The northern lights may be dangerous or harmful in one moment and beneficent in another. In all cases, however, proper personal conduct is instrumental in mitigating these relationships.

Next, I discuss meteors which are often regarded as the feces of stars or flying medicine people. Meteors are also used in forecasting weather and provide different signs pertaining to luck. A subsequent section on atmospheric halos, sundogs, and sun pillars emphasizes the continuity in which Northern Dene peoples carefully observe, interpret, and relate to these phenomena as weather signs and extensions of the personification of the sun and moon. These atmospheric phenomena are the sun's and moon's way of telling the Dene to emulate their behavior and actions so that they are also prepared for the upcoming weather that they forecast.

This section is followed by a related section on rainbows, which are widely regarded as the sun's or grandmother spider's snare which catches thunderstorms.

Next, I discuss the widespread, although not universal, concept of the thunderbird as the embodiment and source of thunder and lightning. In some instance the thunderbird is a unique being in and of itself, whereas in other instances it is tied to a particular bird species. I describe several places where thunderbirds reside and note special practices for deterring thunder while on the land. This section segues into a related overview of strategies employed to deter unfavorable weather. Because weather has sentience and a human-like agency it is also responsive to different behaviors, methods, and techniques employed to coerce, attract, or divert it. This chapter concludes with a short section about interpreting different colors of the sky which are primarily observed in conjunction with weather forecasting but are also contextualized in Northern Dene mythology.

Northern Lights

Northern Dene knowledge, concepts, and practices relating to the northern lights (aurora borealis) exhibit both continuity and regional specificity across the Subarctic. Like nearly all other things in the Dene universe, the northern lights have an embodied spirit or life force or are otherwise regarded as dancing spirits of deceased ancestors. In this respect, a Sahtúot'ı̨nę́ elder, stated, ". . .you see everything in space, even the northern lights, all of them are living, living things." He added: "This northern light, and among other things, they're all living things. It's like they're alive. They take care of themselves according to the elders, even the snow, and the rain, and the lightning." Although origin stories about the northern lights are uncommon, knowledge, concepts, and practices relating to them are extensive. These can be grouped according to six general themes: 1) relationships to caribou, 2) colors and formations, 3) sounds

and smells, 4) attracting and deterring, 5) embodied beings and ancestors, and 6) injury or abduction.

An association between the northern lights and electrostatic sparks emitted from caribou that brush against one another as they travel at night is common to Dene groups in the northern Subarctic. According to this interpretation, a bright display of northern lights is indicative of a large caribou herd moving on the ground beneath the phenomenon or else it is regarded as a celestial caribou herd in and of itself. In a summary of Samuel Hearne's (1958 [1795], 221-222) travels from Hudson Bay to the Arctic Ocean in 1769-1772, he wrote: "The Northern Indians call the Aurora Borealis, *Ed-thin* [*ʔetthɛ̄́n*]; that is, Deer: and when that meteor is very bright, they say that deer is plentiful in that part of the atmosphere. . ."[160] In a footnote, Hearne (ibid., 222) continues:

> Their ideas in this respect are founded on a principle one would not imagine. Experience has shewn them, that when a hairy deer-skin is briskly stroked with the hand in a dark night, it will emit many sparks of electrical fire, as the back of a cat will. The idea which the Southern Indians have of this meteor is equally romantic, though more pleasing, as they believe it to be the spirits of their departed friends dancing in the clouds; and when the *Aurora Borealis* is remarkably bright, at which time they vary most in colour, form, and situation, they say, their deceased friends are very merry.[161]

[160] Hearne's reference to caribou as *Ed-thin* [*ʔetthɛ̄́n*] suggests that he is speaking about the Dëne Sųłiné or Yellowknives Dene.

[161] Regarding the Dëne Sųłiné, Birket-Smith states: "The aurora borealis is taken to be caribou. Hearne gives the rationalistic but not improbable explanation that it is because they have seen caribou skin sparkle when stroked with the hand."

More than a hundred years after Hearne completed his journey to the Arctic Ocean for the Hudson Bay Company, Emile Petitot (1890, 78, Petitot and Savoie [ed.] 1970, 91-92) wrote:

> As for the celestial fire or polar light, the aurora borealis, those same Dènè-dindjié call it *éthen-kponé*, 'reindeer fire'. They assume that the northern lights are made up of myriads of electric sparks escaping from the fur of the celestial white reindeers, when these animals, pursued by spirits, rush and rub against one another as they head back towards some other point in space.

In 2013 Gwich'in elder, Trimble Gilbert, described an analogous relationship between the northern lights (*Yakaih*) and caribou:

> Many times, I go out trapping, spend maybe two, three days out in the tents. And sometimes it's so bright because the northern light. And that northern light, that's a gas, I think. But when there's a lot of caribou on that area, sometimes the northern light is above that caribou. You know if you put caribou skin, dry caribou skin on the floor and if you turn your light off and then you rub it, you could see the spark. You know about it? If you do that it just flame, just like propane. It's like flame. Like this (Trimble makes a hand gesture that emulates a flame). It's just like gunpowder. *Dink'ee kwan* ('gunpowder'), just like gunpowder. In some way that northern light help the animal to keep warm. Not only caribou, but all the animal. . . maybe some other time we should put that caribou skin on the flat place and we rubbed it, and then you could see that. And so, it worked with the animal, that's what they said, that northern light (Figures 54 and 55).[162]

[162] The late Gwich'in elder, Simon Francis Sr., referred to "friction light" (electrostatic sparks) as *yakaih kon* ('northern lights fire').

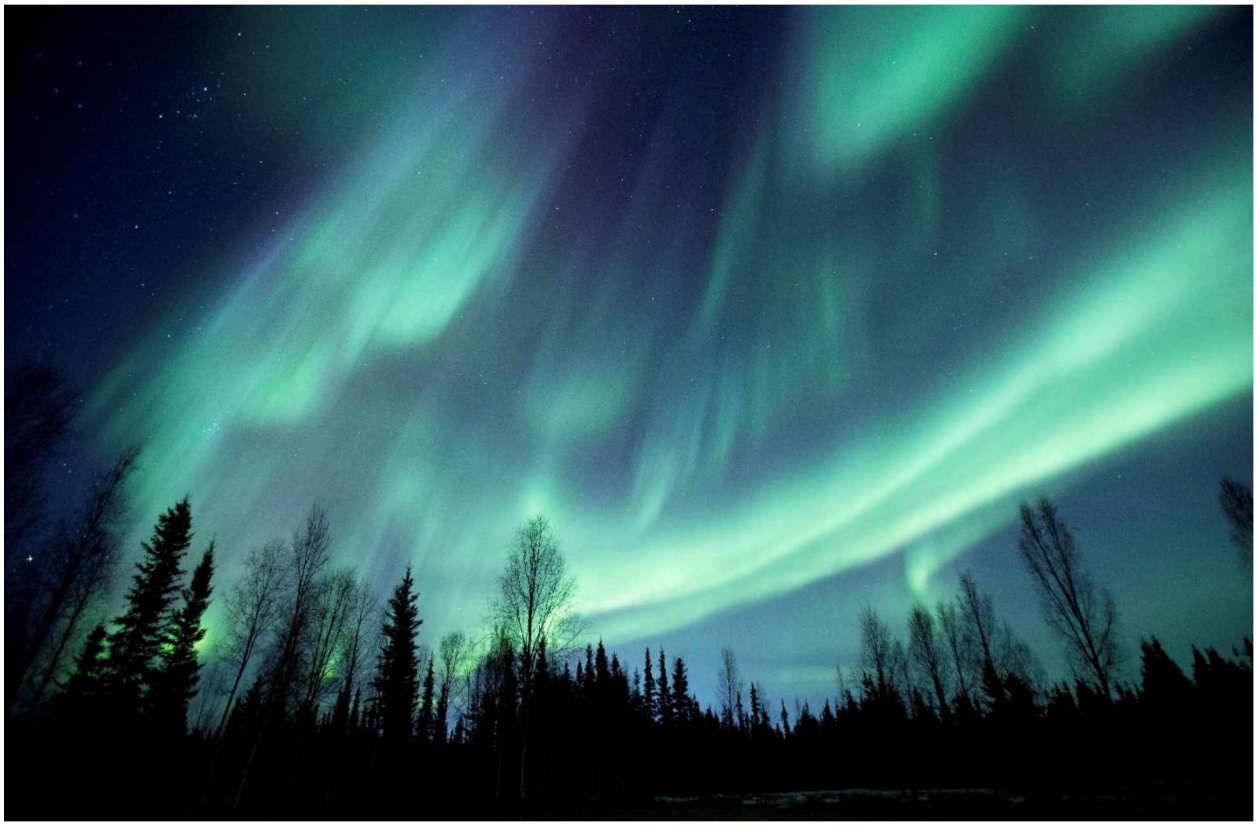

Figure 54. Northern lights in central-interior Alaska.

Figure 55. Caribou in central-interior Alaska.

Koyukon elder, Johnson Moses, corroborated knowledge of the same relationship and noted that the aurora makes an audible sound like that of caribou brushing against one another as they travel:

> If caribou, whole bunch one place, they touch each other, that's when the [northern] light get better. They touch each other with their fur. And they make - northern light make noise too, the way the caribou or animals touch each other. . . Down here [beneath the northern lights], there's caribou around here touching each other, you know. That's how that northern light, they move around. You could tell they touch each other, northern lights, you know. There's caribou down here yet, give it [light] like that, you know.[163]

The relationship between the aurora and caribou is also contextualized by a Koyukon story about a legendary figure called *Yo Yekkoyh Denaa* ('Northern Lights Man') who broke his bow while shooting caribou (see Attla 1996, 279-313). Regarding this legend, Nelson (1983, 39) writes:

> The northern lights came from the spirit of a man who lived in the Distant Time. He broke his bow while shooting at caribou, and the stories say he eventually burned up in a fire. When the aurora runs in brilliant curtains across the night sky, trembling and flashing with glow that illuminates the landscape, it is Northern Lights Man (*Yoyakkoyh Dinaa*) shooting his arrows into the heavens (Jetté 1913, 649).[164] If this happens in the fall, it is a sign that many caribou will come during

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[163] Johnson Moses, quoted in Jetté and Jones (2000, 333), states: "In the evening when the northern lights start, people go out and note the direction it is moving. Sometimes it is really low and you can hear it. They ask an old person to look at it. When the northern lights are low they say it is moving toward the animals, toward the caribou. They tell the kids not to make any noise, or to come back inside. Grandpa say that when the caribou touch each other's fur, that makes the sound in the northern lights. Some say they could whistle to bring the northern lights down low."

[164] Reference is misquoted by Nelson as Jetté (1911, 649).

winter. In past times shamans used the spirit power of the northern lights in making medicine.

With respect to keeping animals warm, a Yellowknives Dene elder explained: "[There is] static on caribou hide. They don't freeze when the animals are in the bush because their fur is static (i.e., discharges electrostatic sparks), it gives them heat. That's why they don't freeze under the northern lights." A Dëne Sųłiné elder also noted that caribou are found beneath bright displays of northern lights and said: "You know, the electrical energy, static, and then the hooves, the antlers [of caribou], and things like that moving, and if you see great northern lights that's where the caribou are going to be."

The most frequent comments made by Dene elders about the northern lights, however, is that they are attracted to certain sounds which make them descend and rapidly move about. In addition to whistling, noises that emulate the clicking of tendons in caribou feet particularly attract the northern lights which further underscores the relationship between caribou and this phenomenon. Other sounds, such as loud clapping, are effective at deterring and driving off the northern lights as if spooked like a wild animal. Through an interpreter, Yellowknives Dene elder, Madeleine Beaulieu explained:

> "It [northern lights] hovers over the caribou and hunters won't be able to see it [the caribou herd], they say. Because of the hooves, it makes a noise and goes so low. It illuminates the area, kind of like hides the caribou, I guess. . . She says they whistle. They [are] just like calling for the northern lights [if] they whistle. . . it's not good . . . It's just like it roams around looking for noise. As soon as it hears something it goes that direction and it hovers around like investigating. . .

She said *dzéret'a*, it flies around; *kël nákath dzéret'a* ('northern lights fly around').

Fred Sangris also commented on Yellowknives Dene knowledge about caribou and the northern lights. He described different sounds that attract and deter the phenomenon while also noting that caribou have a distinctive glow that is only visible when in close proximity to a caribou herd at night.

> . . . the northern lights too, they play a big part of our life here. I used to experience northern lights a lot here in my younger days when I travelled north. And because the dogs are huffing and puffing and the tracks are making a lot of noise, northern lights sometime, they come right down to you. And the whole forest and the whole area will be just bright. Especially further north close to the tundra. And you can almost smell it, you know. It has that odor, that smell. And that's what we use.
>
> People whistle. I have people, young people traveling with me whistling. You know, trying to make that come down. I don't like it. I tell them not to whistle. So, what we do (Fred claps five times), we clap our hand. Going back up again. So, we use the whistle and clapping. But it's attracted by something from the sled dogs or by noise. Especially if there's thousands and thousands of caribou in that forest on the hill, there'll be northern lights. [It] will be right there. Just bright, right above them.
>
> So, when we go hunting in the olden days we watch for northern lights where it's the brightest on the hill or in that country. Then we know there's thousands of herds in there. Cause all that noise and movement kind of attract the

> northern lights, eh. Right to it. . . all the animals are together. And sometime if you pay attention to the caribou, I can tell you that there's some kind of light on caribou too, from the hair at night. It's amazing, but not a lot of biologists and not a lot of people see that. You have to be right with the herds at night in the forest, you'll see that too. Especially when they're all together, moving.

Dëne Sųłné and Yellowknives Dene elders explained that rubbing one's fingernails together or *nela gäné ʔeɬéredı* ('rubbing fingernails together') makes a sound like caribou hooves or *ʔetthën ké lát'ı* ('just like caribou hooves'), which attracts the northern lights. One method is to scratch one's thumbnail against the nail on the middle or ring finger of the same hand, which emulates the rustling or rushing sound of the aurora. The other method is to stroke the top of the nails of each hand across one another in a repeated back and forth motion, which emulates the clicking sound of tendons in caribou feet. However, the aurora is a powerful and sometimes dangerous entity that should not be intentionally provoked or disturbed by noises that attract it. In the following passage, Yellowknives Dene elder, Peter Sangris, comments on a variety of topics about the northern lights including, sounds, smells, and traveling practices, while also noting how dangerous the northern lights can be if disturbed. Through an interpreter, Peter said:

> . . .when you see the northern lights like that [a bright display], sometimes they get close to the ground, to the earth. He said you can smell it. They can smell it. It [also] makes that kind of sound when it gets close to the earth [Peter made a scraping sound like, tssk, tssk, tssk]. And he said it has a really, like a bad smell. Some people say it smells like after you light a match, the sulfur. It smells like that, some of it. *Nàtso* he says. Something like poop [*wıtsı nàtso dìì* 'it has a really strong smell'].

When he was younger, he used to use his dog team to go hunting and for trapping and all that. And when they're traveling in the evening at night like this and they see these northern lights they said they don't use their whip, like on the ice. Like to make the dog team go faster. They don't use their whip, they stay quiet. They don't talk to the dogs, or they don't even bother with this. They just keep on traveling because it sort of gives them a glow on the land and on the lake to find their way.

He said there's some people, I guess they're just curious, so they rub their fingernails like this [the interpreter demonstrates by scratching her thumbnail against the nail on the middle finger of the same hand]. And then I guess that it affects them somehow. . . It brings them closer. He says if you don't bother it, or you don't do anything it stays further away from you. But if you start, like making noise [it comes down lower] . . . Yeah, attracted towards the noise.

He said that my elder, when I was young, I used to be out on the land a lot. And sometimes the elders used to tell me when you're traveling alone and you see the northern lights, they said, don't try to make it come to you, because you are alone. And they said there is a story from one of the old timers a long time ago, our ancestors. There's a story that those kind of things killed a person. Because the person was bothering it, curious, bothering it and that. And it went right down to where the person was, and that guy died. He [northern lights] killed him.

He said sometimes even for himself. He said for himself sometimes when I used to travel at nighttime when these northern lights are out – [when] coming back from hunting or coming back from somewhere, he said sometimes he used to

get really close and then I would go in the sleigh. He said, 'I would sit in the sleigh, cover up with canvas or blanket. Just cover myself up like that,' he said because it's getting too low. Too low towards him and his dog team. So, he would cover up in the sleigh and then wait, I don't know how long. And then after that he'll peek to see if they were gone. And if they were further up in the sky he would get out of the sleigh and keep on going. But his dogs in the meantime would be going with him in the sleigh.

He said that the dogs we used in our dog team would find their way home. They always knew where to go, the dogs, yeah. They always knew where their camp was, where their log houses were, where their little village is, the dogs always knew. They were really smart. He said the dogs that we used back in those days, the leader of the dog team was the one he really trusted in because he would go from somewhere out towards the east back home in a blizzard. He would find his way all the time. He said you really had to put your trust in the lead dogs so that you would always find your way.

Madeleine Beaulieu of Dettah also noted that people can hear, smell, and even taste the northern lights. Through an interpreter she said:

When you're traveling around at nighttime on the road, the northern lights [are attracted to sounds on the road] . . . She says you could hear it. When it comes really low it gives some kind of zig, zig, zig kind of noise she said . . . She says she hasn't experienced [it] herself, but when she was young, hunters coming back from the land, they say that this [northern lights] will come really low and it gives off a stench, she said. She said hunters would come back and say 'Oh, *betsį́ má*

dúé ('its stink is very bad'),' they would say. They smell it and they hear it. And they could taste it too she said, but they can't explain what it smells like [Madeleine later described this as a sulphury odor like burning matches].

Sahtúot'ı̨nę elder, Alphonse Takazo, also noted that the northern lights emit a sulphury odor (*kǫ́tsı́*) and that they are attracted to whistling and sounds made by dog teams, whereas clapping and the sound of noisy engines causes them to retreat. Through an interpreter, Alphonse said:

> *Kǫ́tsı́. Kǫ́tsı́*, that's the smell of the match, like when you – after you burn it, that's how it smells, *kǫ́tsı́*. And he says when you whistle at it, it will come close. And when there's a dog team going on the ice and the sled is sliding on that ice and the bells of the dogs, it would come close. And then when you clap it would go away. And engines, sounds of engines, metal engines or *satsǫ́né* ('sun's excrement'), metal, like I think it will go away.

Whistling at the northern lights is something that children throughout the Northern Dene region were taught to abstain from, which causes them to descend, rapidly move about, and even injure or abduct the person who is responsible for the disturbance.[165] For example, a Koyukon elder said that the aurora had recently knocked a person to the ground in her community, whereas Upper Tanana and Tanacross speakers recalled that their elders warned them that the northern lights could cut or blind a person who disturbs or looks at the phenomenon too often. With respect to abduction, a Dëne Sųłıné speaker explained:

[165] In comparison, Inuit elder, George Kappianaq, told MacDonald: "We were forbidden to make fun of the *aqsarniit* [northern lights]. We were told that we should never whistle at them to make them closer because there was a possibility that they might take us up to the skies, which they are capable of when they get too close to the ground. When they came close we would [drive them off] with sounds made by rubbing our finger nails together. By doing so the *aqsarniit* would go higher up in the sky. I personally took on this habit and found it effective."

> Well, according to my elders, yeah, when elders don't come back from hunting trips [when] we don't know what happened to them, that's what they will say, '*Ka náagäs hílchú* ('the northern lights took him').' Because there's no signs of anything. How some of the trails, and stuff like that, how they disappear. Well, some people, just, they're gone and that's what elders say, *ka náagäs hílchú*, the northern lights took him.

A Tanacross elder said:

> About the northern lights, they always told us not to really go out and look at it and holler or whistle at it. Because they said that it'll affect your eyesight. You get poor eyesight. And because of that we never really focus on it. It's just in later years that I enjoy the dancing of the lights up there. But they say it's the dead people that are dancing around. And that's the one thing I heard is that it's prominent people that have passed. And they're up there. Their spirit is marching around and dancing up there when the northern lights is very active.

Several elders shared that they are afraid of the northern lights and are cautious about doing certain chores when the aurora is visible, such as filling lantern kerosine which may ignite under a bright auroral display. Nonetheless, Dene speakers regularly commented that as children they tested their parents' warnings and experimented with whistling at the northern lights. A Gwich'in speaker, who I met during a trip on the Porcupine River, laughed as he recalled childhood memories of wrapping his arms tightly around a tree before whistling at the aurora so that it would not carry him away. Hän elder, Ruth Ridley said, *yäjìbaa dökshùr* ('I whistle at the northern lights') and commented:

> When we were growing up and we'd be playing outside or sledding, and the moon would be shinning bright too while that northern lights be just dancing back and forth, or whatever they call. And you could hear it do [Ruth makes a whisking sound], like that. And if you whistle, it would just move faster and, like that. And it used to be just bright and like it's right over the river and you could just reach out and touch it like; it felt like.

Avis Sam of Northway recalled a similar childhood experience:

> They [northern lights] come down. They start moving and they come down towards you. I don't know what to expect of that. We tried it [whistling]. We didn't want to get hurt so we just took off for home [laughs]. And it move. It start moving when you do that and then it gets lower. That's all I know. They're just like, you know, so many things you take for granted. So, they told you [don't whistle]. So, it's that way.

The sound of the northern lights is frequently described as a crackling noise like that of electrostatic sparks or the rushing sound of wind or caribou fur or cloth rubbed together. In Ahtna, the crackling and popping sounds of the aurora are called *deltatl'* (onomatopoeic) and *delghos* ('chattering/talking'), respectively. In Dena'ina, the crackling of the aurora is similarly called *delchetl'* (onomatopoeic), whereas *qen denix* refers to 'sensing or hearing fire/northern lights.' In addition, Kari (2019a, 477) elicited the Dena'ina phrase, *tsit dełch'ex* ('simmering embers') which refers to a "simmering" sound of the northern lights like burning coals.

The aurora is also widely interpreted as a sign of cold clear weather. Red northern lights are, however, more specifically associated with extreme cold temperatures, in which they "burn" hotter in response to the cold weather. Ahtna elder, Markle Pete, referred to red northern lights as

yaykaas dik'aan ('northern lights are burning'), whereas Kari (1990, 163) elicited the similar phrase, *dlii nadełk'ani* ('that which is burning the cold'). Regarding the distinction between red and green northern lights, Ahtna elder, Lena Charley said: "When it get red half, this mean cold weather in wintertime. [If] it plain green, blue, that's OK. Sometime it just break up weather. . . *Yadibaey* ('northern lights') we call it." A Dëne Sųłiné elder also said that red northern lights burn hotter than green northern lights. In comparison, Upper Kuskokwim elder, Philip Esai, noted that it is white northern lights that indicate extreme cold temperatures. Other elders, such as Cora David, more generally interpret any bright display of northern lights as a cold weather sign. In this respect, Cora said, "*K'at'eey hǫǫs'u utaat'el heniik* ('it [weather] is not going to be good, they say)."[166]

Red northern lights are also widely interpreted as a premonition of conflict, disaster, or war. Koyukon elder, James Johnson Jr. explained:

> My folks used to tell me of the wars. You know, if there's gonna be a war or something. They used to go out at night and they'd look at the northern lights. And if it got all sort of mixed reddish, reddish colors in it. Just, you know, they say it was sign of war. War someplace. . . Yeah, so my dad used to go out and say *yoyekkoyh k'ets'e denhdaa* ('the northern lights are different'). *K'ets'e denhdaa* is it's different. . . You know, the moon, the stars, and the sky, you know, that was what told lot of stuff. So, the northern lights had lots, lots to tell them about what was happening in the world, and war. And you know, something bad going on.

Gwich'in elder, Trimble Gilbert, said:

[166] Cf. Le Goff (1916, 98), Osgood (1959, 54), Walker and Wilkinson (1974, 261), and Arnold et al. (2003, 22).

> It's telling the people there's going to be the war. So, they expect that war. So, they more watching for that. And that's a red *yakaih* ('northern lights') . . .like blood, eh. They show you the bloods. . . *yakaih daatsik* ('red northern lights').

Dena'ina elders also interpret red northern lights as a sign of war or bloodshed and had heard that there was a red aurora when Pearl Harbor was bombed during the Second World War.[167] Alternatively, red northern lights may also presage the fate of an individual or prominent person. While working with the Dene Tha, Goulet (1998, xxvii-xxviii) observed: "When an exceptionally bright red northern lights were seen in the sky, Dene Tha said they were because their leading prophet had lost much blood in the course of an operation undergone in the hospital at the time." With respect to the Southern Tutchone, Tagish, and Inland Tlingit, Catharine McClellan (1975, 79) writes:

> The magnificent northern lights (*k'e q'u dat'ci*, Tutchone; *gis'uk*, Tlingit) which often flare in the autumn and winter skies of southern Yukon are sometimes feared by natives of all three tribes, since those which have a red colour are thought to presage war and death. Lights which form a ring are also an omen of disaster.
>
> The Tagish and Inland Tlingit believe that the lights themselves are people who met violent deaths. Now they play in the sky and their fate is actually superior to the fate of those who die of illness. 'The ones killed had a way far better time than just the common people!' Tagish who see a circle of northern lights say that the spirit of someone who has been murdered is going to the world above.

[167] Fienup-Riordan and Rearden (2012, 69) note that the Central Yup'ik also interpret red northern lights as a sign of bloodshed and cold weather.

. . .

> The Tagish sometimes try to avert disaster by blowing at the strongly coloured northern lights, particularly the red ones. They pretend to push them away in the air with their hands, shouting a war cry, 'Hu! Hu!' They also think it efficacious to pinch the ear of a bitch until she yelps.[168] However, on the whole it is safest to stay indoors during a display of the ominous type.
>
> People usually ignore pale blue or green lights as being harmless, although in all tribes an aurora which moves about a great deal is said to mean a change in the weather.

Sahtúot'ı̨nę, Dëne Sųłiné, and Tanacross speakers described the northern lights as the dancing spirits of their deceased ancestors which is also reported among the Tlı̨chǫ (Whitney 1896, 129-130) and Dane-zaa (Ridington 1988, 226, 290). Several Gwich'in speakers explained that the aurora become brighter when someone dies and a Tanacross elder commented that there was a brilliant auroral display after the highly respected and prominent leader, Chief Andrew Isaac, passed away. Gwich'in, Tanacross, and Dëne Sųłiné phrases that refer to the dancing motion of the northern lights are *yakaih ch'adzaa* ('northern lights are dancing'), *yadimeey ch'eldzes* ('northern lights are dancing'), and *ʔeyuné dahdíle* ('the spirits are dancing'), respectively. In the Lower Tanana language, Siri Tuttle (2009, 144), elicited the phrase, *yoyekoyh yodegu ch'eldzes* ('the northern lights are dancing up there'). In comparison, the Yellowknives Dene phrases *nàka k'eɔa* ('northern lights are walking around') and *këł nákath dzéret'a* ('northern lights fly around') refer to walking and flying motions. The Koyukon

[168] The Sinkyone (Pacific Coast Dene), Koyukon, and Deg Hit'an perform similar practices to deter thunderstorms (see Driver 1939, 401, Jetté 1911, 252, Osgood 1959, 50).

phrases, *kk'oyekkoyhdeelghaanh* ('the northern lights shine here and there') and *yoodeggu hʉʉnetone beelohge kk'aant'aaye nenonodetsultl* ('from an arch above, rope-like things are twirling about') also describe auroral activity (Jetté and Jones 2000, 333). A comparative list of Northern Dene names for the northern lights is shown below in Table 23.

Table 23. Northern Dene names for the Northern Lights.

Name	Language (ISO-639-3) – dialect/region	Source
*yayqa·x^{y}	Proto Dene	(Kari pers. comm. July 5, 2021)
yakaih, zheekaih	Gwich'in (gwi) - Alaska	(Peter 1979, 87)
yukaih	Gwich'in (gwi) - Canada	(Montgomery et al. 2000, 70)
yikaih	Gwich'in (gwi) - Canada	(GSCI and GLC 2003, 14)
yuhke	Hän (gaa)	(YNLC 1998, 20)
yäjèbaa, yäjìbaa	Hän (gaa)	(Ritter and Paul 1980, 73)
yoyekoyh	Lower Tanana (taa)	(Kari 2020, 201, 404)
yoykosh	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 68)
yoyekkoyh	Koyukon (koy)	(Jetté and Jones 2000, 78)
h~~u~~maah	Koyukon (koy) - Lower	(Jetté and Jones 2000, 78)
yayqoyh	Holikachuk (hoi)	(Kari et al. 1978, 26)
yoqoyh	Deg Xinag (ing)	(Kari 1978, 45)
yuyqush, yuyqux	Dena'ina (tfn)	(Kari 2007, 149)
yaykaas	Ahtna (aht)	(Kari 1990, 230)
yandebaey	Ahtna (aht)	(Kari 1990, 97)
yadebaey, yadibaey	Ahtna (aht)	(Kari 1990, 97, 420)
yaadiibeey, yaanebeey	Middle Tanana (taa)	(Kari 2019b, 19)
yadíimeey	Tanacross (tcb)	(Arnold et al. 2009, 48)
yaadiibeegn	Upper Tanana (tau) - Northway	(Milanowski 2011, 13)
yaadimbeey	Upper Tanana (tau) - Tetlin	Fieldnotes
yaámí', raámí'	Northern Tutchone (ttm) - Mayo	(Ritter 1976, 44)
yémbí'	Northern Tutchone (ttm) - Selkrik	(Ritter et al. 1977, 91)
yat'äy dä̀k'ä̀n	Southern Tutchone (xsl)	(Tlen 1993, 57)
yawhudoos	Dakelh (crx) - Stoney Cr.	(Poser 2000, 205)
nohabi-indi	Dakelh (crx) - Stuart & Trembleur Lake	(Poser 1996, 64)
yewidus	Witsuwit'en (bcr)	(Hargus 1999, 109)
nididekh dïdikh	Witsuwit'en (bcr)	(Hargus 1999, 109)
yúkā, yúką̄	Kaska (kkz)	(KTC 1997, 387)
ya t'ah wudusk'ohje	Sekani (sek)	(Hargus 2000, 67)
ya diskwonchi	Dane-zaa (bea)	(Ridington 1988, 228)
ʔisduwa tadilsh	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
ʔikoholtadilsh	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
ráyuka	North Slavey (scs) - K'ashógot'ı̨nę	(Rice 1978)
naoka	North Slavey (scs) - Sahtúot'ı̨nę	(Modeste and Tatti 2012)
naka, nàaka	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 74)
naakah	Dene Tha' (xsl) - Fort Simpson	(Monus and Isaiah 1977, 78)
yaka nágës	Dëne Sųłıné (chp)	(Kaulbak et al. 2012, 87)
kë nagás	Dëne Sųłıné (chp) - Łútsëlk'é	(Kaulback et al. 2014, 124)
nalkaı nagás	Dëne Sųłıné (chp) - Łútsëlk'é	(Kaulback et al. 2014, 124)
këł nákas, këł nákath	Dëne Sųłıné (chp) - Tetsǫ́t'ıné	Fieldnotes
ketth'o<u>k</u>	Tahltan (tht)	(Leer 1985)
yɛ-wo·ka'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 11)

In addition to caribou and the spirits of deceased ancestors, there are a host of other regionally specific beings embodied in the northern lights. Among these is an enigmatic woman known by few Gwich'in as *Yakaih Tr'ik* or *Zheekaih Tr'ik* ('northern lights female'). This "northern lights female" is described as a stunning beauty who appears only for certain people as a guardian helper or "angel." This is presumably the wife of the ancient Traveler figure who Petitot variously refers to as *Yakkray-ttsieg* [*Yakaih Tr'ik*] and *Yékkpay-ttségœ* ('boreal lights woman') (Petitot 1886, 16-29, 1887, 9-22Petitot, 1878 #344, Petitot and Habgood 1970, 94-101). In a story that Petitot recorded about the ancient Gwich'in Traveler brothers, *Yékkpay-ttségœ* is described as a beautiful invisible woman who pursued and married the youngest brother (Petitot 1886, 16-29, 1887, 9-22, Petitot and Habgood 1970, 94-101, Petitot and Savoie [ed.] 1970, 124-135). The story, titled *Etpœ-Tchokpen* (the navigator), concludes by stating that *Yékkpay-ttségœ* is the "true wife" of the youngest Traveler brother and the mother of the Gwich'in people. Petitot (1886, 91, 1887, 21-22, Petitot and Habgood 1970, 101, Petitot and Savoie [ed.] 1970, 128, 134-135) writes:[169]

> When she [*Yékkpay-ttségœ*] arrived at the bivouac, *Dindjie* was getting ready to leave. Already he had put on one of his snowshoes and was busy fastening the other when the unhappy woman ran up to him: 'Why are you abandoning me,' she said. 'Do you want to leave without me?' So saying, she seized him by the legs, held on to his knees and threw onto him the children that she was carrying.
>
> Then *Dindjie* took pity on her. He [the youngest of the Traveler brothers] took back his wife and never again left her; he followed her, and Morning Woman

[169] Petitot recorded this story in December 1870 from Gwich'in speaker, Sylvain Vitoedh. Petitot states that *Yékkpay-ttségœ* and her sister, *Rdha- ttsègœ* ('Evening Woman') are the moon's daughters.

became his true wife and also the mother of the *Dindjie* (Loucheux). Those were our ancestors, it is said.

Although I only worked with two Gwich'in elders who spoke about *Yakaih Tr'ik*, a connection to the Traveler is also corroborated in Ahtna cosmology. Recall that Charlie Hubbard identified *U'aa Uk'etayaal* ('his wife will walk after him') as the early dawn light and the wife of the Ahtna Traveler constellation, *Nek'eltaeni*. Trimble Gilbert did not describe this connection but commented:

> And another story about that *yakaih* ('northern lights') is, I don't know. That [is] from the way back, *yakaih*. *Yakaih Tr'ik ginyaa* ('northern lights female, they say'). *Yakaih Tr'ik* mean that northern light female. They said, you know, there's lot of beautiful young girls and the old people said, 'Wow!' She's like that, *Yakaih Tr'ik*. That's maybe, I don't know when they saw that female, young female. Beautiful, *Yakaih Tr'ik*.
>
> Well, when I heard that when I was [a] kid, until last few years back, and I try to figure it out. And there's no one I can ask. So, there's lot of people, but they're not old enough. They didn't know that story. Well, I thought maybe they probably saw that woman some way long time ago, and beautiful woman, pretty. And well, I thought maybe later on we don't even know that angel, you know. And they didn't tell us how they know that *Yakaih Tr'ik*. So maybe later on I thought about maybe that that [is an] angel they're talking about. And well, they probably dream about it and they probably saw them real, our medicine people. I don't know. So that's – I could hear that all the time that it's a beautiful nice-

looking girl, and they saw [her]. And just like I say, 'Wow!' She's just like [that], *Yakaih Tr'ik*, they said. I remember that [laughs].

Another regionally specific being embodied in the northern lights is a white puppy that appears on the ground when the Upper Kuskokwim Dene whistle at the northern lights, which also causes a cold wind. Although I asked elders if the white puppy is associated with the moon's dog (see Chapter 5) or has other socio-cosmic significance, additional insight about this phenomenon remained enigmatic. Bobby Esai said:

> *Yoykosh* ['northern lights']. *Yoykosh,* northern light. There's story about northern light. Old days when I hear [about it]. They told us northern lights, they got [some]time. Some humans whistle [Bobby demonstrates by whistling] at the northern lights, getting brighter, brighter. Northern lights come closer and then there's little white dog in there. White dog in there. White one. They whistle at it. Little white dog in there lying down. So, in my young days our neighbor whistle to those northern lights. They tell us, they said it cause a strong wind, whoosh! [Bobby imitates the sound of wind]. Then that little white dog appear right here [i.e., beside the person who whistles]. So, your grandpa [Bobby is speaking to Debbie Esai] tell us don't whistle at the northern lights. Even now, us right now, we say northern lights, when I grow up, we whistle and it's moving. You've seen it."

When I asked Bobby if he knew why a white dog appears beside the person who whistles, he said: "I don't know. All I know is strong wind come when somebody whistle at the northern light. And there's always white dog right there. I don't know what happen. All I know it just appeared, I guess." Jim Nikolai similarly commented: "My dad used to tell me that when

you whistle to that *yoykosh*, puppy just come down from that. . . When you whistle to that, just wind come down. They used to say that." Pulu and Pope (1981, 44), who worked with Bobby Esai and Miska Deaphon in the early 1980's write:

> Long ago the old people whistled at the Northern Lights. The Northern Lights would come down close to the ground. If they hit the ground, the people would see small white dogs all over the place. After a while, the little dogs disappeared. When the Northern Lights did that, the people knew it would be very windy. Windy weather also came when the Northern Lights moved all over the sky. Sometimes the Northern Lights appear as bands of alternating darker and lighter colors. If the top layers of the bands were red, then a warmer weather spell was expected. This warm weather spell usually lasted for two or three weeks.

Sahtúot'ı̨nę, Yellowknives Dene, and Tanacross elders said that the wolverine received its white stripes from the northern lights. Fred Sangris explained the origin of these stripes in the context of the story about two girls who married stars (cf. Chapter 4):

> A wolverine, a star wolverine was traveling around. And they [two sisters who married stars] talked to the wolverine and said, 'We want to go back to the earth. We want to go back to where we came from. We are stars. We are made stars. We want to go home.' They were begging the wolverine. And then the wolverine, you know, reach up into the sky and helped them; helped bring them back to earth.[170]

The association of a wolverine's stripes with the northern lights is also reported by the Upper Tanana Dene. Mary Tyone (Tyone and Kari 1996, 76) said:

---

[170] In comparison to the Sekani, Desgent and Lanoue (2005, 132) write: "Its [wolverine's] back is streaked with yellow lines because it once packed the rainbow. But some people say that these yellow stripes are its snares for catching groundhog and other game."

Wolverine has white fur below his back part. That's the picture of the northern lights. And when the northern lights start lighting up, it means the wolverine is walking around at night all over the place. That's why northern lights are on when the wolverine moves around.

Nahtsiqh yaadiimeey dehk'än' tädn tah.
The wolverine makes the northern lights burn at night.

Yaadiimeey dihk'aak ts'ą'
He sets the northern lights on fire and

yaadiimeey dehk'än' tah, nahtsiqh iin nahtel'üh.
whenever he makes the northern lights burn, wolverine people are walking around.

Nahtsiqh nahtel'üh tädn tah.
That's the wolverine walking around at night.

Other beings of less permanence may also appear in the northern as a sign or premonition. For example, Upper Tanana elder, Roy David, explained that the aurora may provide an image or sign that foretells good hunting luck, which he referred to as *shaa nijulthii* ('something should come quickly to me'). Alternatively, the image of a bird, particularly a flying eagle, that appears in the northern lights in March signifies the beginning of spring and warm weather. Roy said:

> It show up here [in the northern lights], what kind of sign you see. If you see bird, any kind of summer bird, winter bird, ptarmigan, spruce hen, all, it show. You know, it start [to] come out next day, how good. . . *Ch'ishyaan naat'ah* ('golden eagle is flying'), short time, it show them. [If] it show in March, you know it's spring.[171]

[171] Roy David also used the phrase *yaadimbeey ładn* ('northern lights smoke') to describe the hazy greenish appearance that is regularly seen hanging in the sky following an active display of northern lights.

The Alaskan Gwich'in also observed different auroral formations for signs and premonitions (*gwindit*). In particular, a large corona formation that radiates from the magnetic zenith is conceptualized as a massive skin house (*niivyaa zheh*) or domed structure for smoking hides (*zheh gwidruu*) that is arched over the world. Bright streaks of auroral light that compose the formation are conceptualized as the poles of the shelter. As the corona formation shifts overhead, people watch for a small opening or doorway (*gehdeiinvyaa*) to appear which indicates the direction to travel to find game animals. Paul Herbert refers to corona formations as *zheh gwidruu gwahtsii* ('it [northern lights] is making a smokehouse for hides') and said that it's also a sign of warm weather. Trimble Gilbert commented on the significance of the doorway with respect to locating game animals during a famine:

> And then sometime it's different shape too. It make different shape. Just like *niivyaa zheh* [a domed skin house], like this. And they know that the *yakaih* ('northern lights') shape is, they show them which side, which, north, east, south, west. In the direction there's a door. . . I think they'd go that way. . . I think they even move that way too [i.e., travel in the direction where the doorway appears]. And about when they're [in] trouble, like without food, and then they gotta go that way I think. So, there's lot of other way they talk about that [northern lights].

With respect to corona formations and other Gwich'in concepts about the northern lights, Hadleigh-West (1963, 324) writes:

> A red aurora *yE kai dat tzik* [*yakaih daatsik*], meant war. When the auroral lights move rapidly with a whipping motion ("curtains") it meant that caribou are under that place. *YIk kai* [*yakaih*] is making a snare to catch them.

When the aurora first shows in the fall, it means there will be no more rain and it will turn cold. When the aurora forms a peak (corona) overhead, in some direction there will be a dark opening. That will be a good direction in which to go for hunting. When the aurora whips back and forth it emits a whistling noise (Figure 56).

Figure 56. A corona formation or *niivyaa zheh* (a domed skin house) in the northern lights seen in central-interior Alaska.

The Yellowknives Dene tell a story about children playing a ball game in the northern lights which has an obvious analogue in Inuit culture (MacDonald 1998, 153-155). Fred Sangris shared the following story:

Here with the Yellowknives here in Northwest Territory there's a story about a lot of children in the village with teepees. And they say this whole place would be full of teepees here. And children in the late fall, September, October; late fall.

They will be playing ball, playing soccer, whatever they're doing. They used to make a ball, you know, out of moose hide sewn together. It was soccer. It was a favorite game. And the young people in olden days used to play that all night. And the older people would be yelling at those guys, 'Go to sleep!' You know, 'It's late at night, don't make lots of noise.' But they would continue to play throughout the night.

And one night this light came down. All this light just came down [Fred emulates the sound of the northern lights]. Came down on all those children, and then the bright light took all those children. They disappeared. They disappeared and then the lights went into the sky, the northern lights like this [Fred refers to a picture of the northern lights]. And to this day the elders' story about northern lights is that those children don't realize they were missing. The lights just came and took them into the sky and to this day they're still playing. Playing soccer, playing ball in the sky. That's them right there. That's the story (Figure 57).

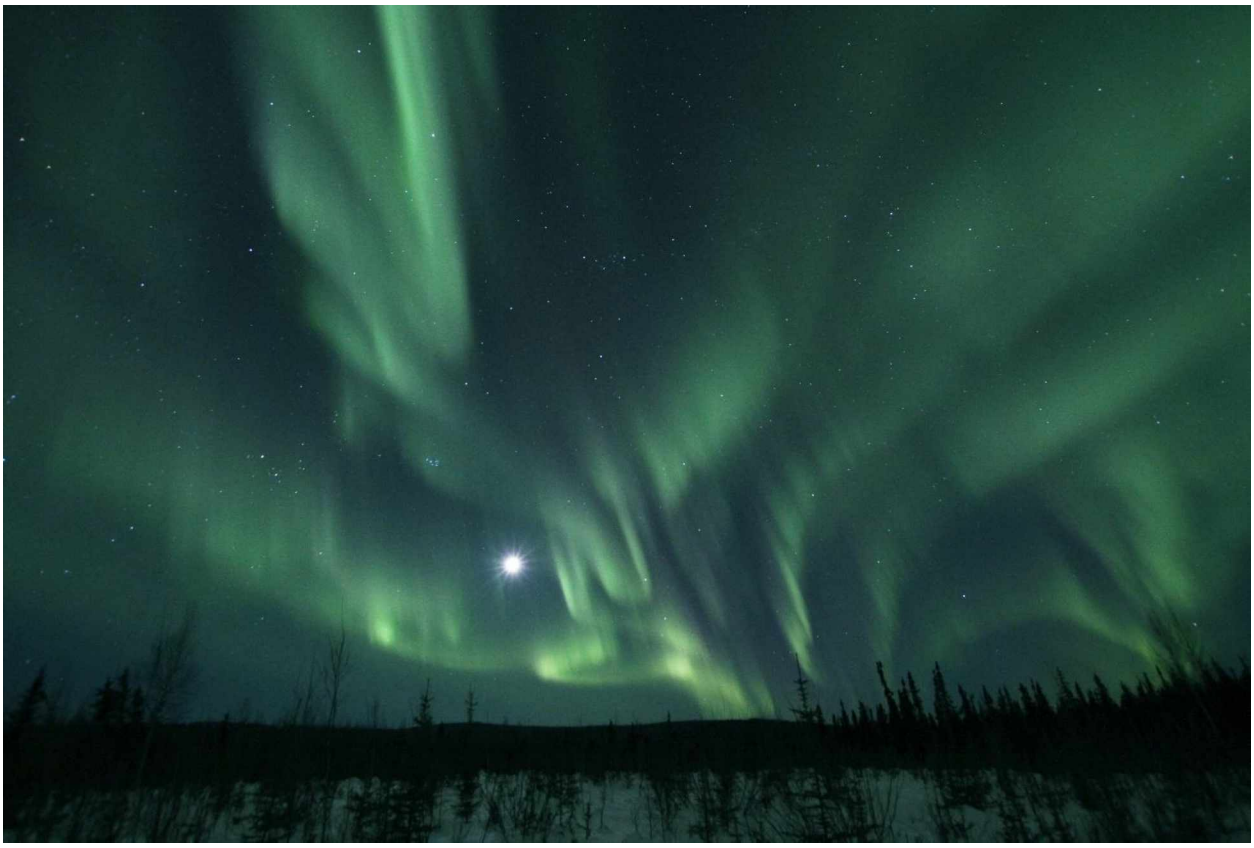

Figure 57. A display of northern lights in central-interior Alaska.

In summary, the Northern Dene have diverse knowledge, practices, and ways of relating to the northern lights. Themes oriented around sounds, colors, whistling, and the embodiment of caribou or the spirits of deceased ancestors are especially widespread, whereas themes relating to auroral formations and particular incarnations such as the "northern lights female" and "white puppy" are regionally specific. Other conceptualizations, such as children playing a ball game, have clear analogues in Inuit culture. However, in whatever form or embodiment, the aurora has agency and power and shares in a communicative relationship with people and the other inhabitants of the world. These relationships are mediated through socially defined protocols and personal behaviors and actions.

Meteors

The Northern Dene refer to meteors as either star excrement or a star that falls or fell. The former designation is more common in the Alaska Dene languages and has widespread usage among Inuit-Yup'ik speaking peoples (MacDonald 1998, 142-144).[172] Although Northern Dene names for meteors are somewhat underrepresented in the linguistic documentation, variants in Koyukon are *nokkun'nodegges* ('a streak of fire extended down'), *nokkun'dolnenh* ('a spark dropped'), and *tloon' k'etek'aayh* ('the stars are shooting arrows') (Jetté and Jones 2000, 209, 342, 585). Alternative designations in the Lower and Middle Tanana languages are *kwn dakwth* ('fire spear shaft') and *niludee'iin needletos* ('cousins collided,' meteors collided), respectively (Kari 2019b, 152, 2020, 207). Variant names in Ahtna are *son' deltatl'* ('star explodes') and *son' teldes* ('stars are being shot [like an arrow]'). A comparative list of names that refer to meteors as star excrement is shown below in Table 24 followed by a companion list of names that refer to meteors as stars that fall or fell (Table 25). Note that a variety of languages use both designations.

[172] In comparison, the Eyak refer to meteors as *laɁχc'ł səceɁq'ł* ('a star urinated') and *laɁχc'ł qid disɬiqahɢł* ('star fell down') (Krauss 1970).

Table 24. Northern Dene names that refer to a meteor as "star excrement."

Name	**Language (ISO-639-3) – dialect/region**	**Source**
są' neehiitryą'	Gwich'in (gwi) - Alaska	Fieldnotes
sen' trona'[173]	Lower Tanana (taa)	(Kari 2020, 345)
tloon' tsone'	Koyukon (koy)	(Jetté and Jones 2000, 585)
sin chuna	Dena'ina (tfn)	(Kari 2007, 150)
sem chuna	Dena'ina (tfn)	(Kari 2007, 150)
son' tsaane'	Ahtna (aht)	(Kari 1990, 369)
sén' tsáan'	Tanacross (tcb)	(Arnold et al. 2009, 114)
sän' tsaan'	Upper Tanana (tau)	Fieldnotes
son' tsaan'	Upper Tanana (tau)	Fieldnotes
thyán' tsáán'	Northern Tutchone (ttm)	(Ritter et al. 1977, 92)
sro pfra	Ts'ets'aut (txc)	(Boas and Goddard 1924, 13)
srɔ pfra nde'łe· (pl.)	Ts'ets'aut (txc)	(Boas and Goddard 1924, 13)

[173] This phrase also refers to "coal".

Table 25. Northern Dene names that refer to a meteor as a star that "falls" or "fell."

Name	Language (ISO-639-3) – dialect/region	Source
są' nahaadhak	Gwich'in (gwi) - Alaska	Fieldnotes
san' nadaadhak	Gwich'in (gwi) - Teetł'it	(GSCI and GLC 2003, 124)
so' nadàadhàk	Gwich'in (gwi) - Vuntut	(Montgomery et al. 2000, 140)
sän näjeh	Hän (gaa)	(Ritter and Paul 1980, 74)
swn' noghitalna	Upper Kuskokwim (kuu)	Fieldnotes
tthen' notitl'ningh	Deg Xinag (ing)	(Kari 1996a, 86)
tthen' ni'idałiy	Deg Xinag (ing)	(Kari 1996a, 86)
sem nudul'ah	Dena'ina (tfn)	Fieldnotes
sem nul'ah (pl.)	Dena'ina (tfn)	Fieldnotes
son' nadaldza'	Ahtna (aht)	(Kari 1990, 169)
son' naghałts'et	Ahtna (aht)	Fieldnotes
son' naghelts'et	Ahtna (aht)	Fieldnotes
son' nadedox	Ahtna (aht)	Fieldnotes
san' nadalnąy	Upper Tanana (tau)	Fieldnotes
thęl nàkädätl'ùr	Southern Tutchone (xsl)	(Tlen 1993, 58)
s̲əm təlsək	Dakelh (crx)	(Poser 1996, 73)
s̲əm ʔəntiłts'ət	Dakelh (crx)	(Poser 1996, 73)
whę́ náretłé	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
whę́ táderéhwé	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
whǫ̀ hodàdeèhwhòo	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 118)
whǫ̀ hodàèhkw'o	Tlı̨chǫ (dgr) - Wıìlıìdeh	Fieldnotes
then ndáádéhtthidi	Dene Tha' (xsl	(Moore et al. 1980, 79)
thę nadedehdhe	Dene Tha' (xsl) - Fort Simpson	(Monus and Isaiah 1977, 78)
thę́ gohdádedéhdhé	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 162)
ʔetthe̋n náltth'ër	Dëne Sųłıné (chp)	(Kaulback et al. 2012, 49)
tthe̋n nałtth'ı	Dëne Sųłıné (chp)	Fieldnotes
tthe̋n nátł'í	Dëne Sųłıné (chp)	Fieldnotes

Meteors are observed to forecast weather and provide various signs with respect to luck. The Koyukon, (Jetté 1911, 248), Ahtna, and Tanacross Dene observe falling stars as predictors of cold weather.[174] Tanacross elder, Emma Northway, said:

> *Sén' tsáan* ('star excrement'). *Sén'* ('star'), there's lots, at nighttime he come out.
>
> . . And when it's going to be cold, just like he poo, poo. He's coming down. Little

[174] With respect to the Upper Kuskokwim Dene, Pulu and Pope (1981, 30) state: "If shooting stars were seen in the evening, they showed that the weather would not be cold."

bright one shooting down. . . he do that when it [is] going to be too cold. [At] that time, he [is] coming down.

Meteors are also said to forecast wind from the direction that they fall. Dena'ina elder, Pauline Hobson, explained: "If it falls from the east, then it's going to be east wind. Whatever direction it's going, that's the way wind is going to blow." Yellowknives Dene elders, Eddy Sikyua and Madeleine Beaulieu, distinguish different types of wind depending on the trajectory of the meteor relative to the observer. A meteor that travels from the back to the front of the observer forecasts a cold wind from the same direction. Conversely, a chinook is predicted when a meteor travels from the front to the back of the observer. Changes in wind direction and temperature are expected to be less extreme the closer the meteor falls to one of the observer's sides. Madeleine and Eddy referred to meteors as *ʔetthën nálttth'ër* ('star fell') and *tthën nátł'í* ('star falls'), respectively. Through an interpreter, Eddy explained:

> . . .when it [meteor] comes in front [i.e., travels from back to front], it's going to be cold wind from the back. And when it falls from the back [i.e., travels from front to back], it's going to be a warm wind, chinook wind. Something like that. . . So, both sides, this side going to be warm, warmer, and cold, and mild cold, like that. So, that's what the falling stars would indicate and which direction it falls. So, by that they would travel the next day. [It] depends on what's going to blow and whether they should stay put.[175]

In addition, Madeleine recalled an experience watching a bright fireball break up over the ice on Great Slave Lake when she was a young girl. She referred to the fireball as *kún ʔɻt'ı* ('line

[175] In comparison to the Inland Tlingit, McClellan (1975, 84) states: "If a shooting star moves from north to south, it will be cold, while the reverse movement foretells warm weather. These movements of shooting stars also indicate changes in the way the wind will blow."

of fire behind it') and noted that it was as a sign of warmer weather. Through an interpreter Madeline said:

> She said that she was over here [near Dettah] when she was a young girl fishing with her old lady. And she went to go fetch water and it was nighttime and she said she saw a star ever bright, she said. 'Oh, it was ever bright,' she said. . . She says it just made a really bright [trail] and behind it is a long - it's like there's fire behind it, dragging a fire. She just said *kún ʔɣt'ı* ('line of fire behind it'), a long line of fire behind it. . . And all the elders, the old lady that she was with, her too, I guess, thought it was a falling star. She just told that it's calling for warm weather. This was nighttime and it just became daytime, she said. She was on the ice getting water.

Exceptionally bright meteors or fireballs are also interpreted as a medicine fight or traveling medicine people. Dena'ina elder, Walter Johnson (2004, 57-64) referred to fireballs as *elekna daz'a* ('medicine men's fire') and published a short narrative about witnessing this phenomenon at Lake Illiamna on four occasions between 1932 and 1946. With respect to the Upper Kuskokwim Dene, Edward Hosley (1966, 30) wrote: "Because at night falling stars marked the passage of flying 'medicine' it was known that shamans were always at work causing evil among their enemies." A Sahtúot'ıné elder similarly described meteors or *whę́ táderéhwé* ('star fell') as an Inuit medicine fight. Through an interpreter he explained:

> He says those twinkle in the stars means that star is falling or something. And the reason why it's falling is because the Inuit, a long time ago they use medicine power a long time ago to fight with each other. And when they do that, that's when this thing happens. . . So you see that, and he says it's falling star,

táderéhwé. Whę́ táderéhwé. . . he says the Inuit are chasing one another. And sometimes they would camp out and wait for one another, those falling stars. So, this really happens he says. It's a fact. It's a historical fact.

A related practice described by Ahtna and Tanacross elders is to wipe a hand across one's eyes from right to left after witnessing a meteor. Charlie Hubbard explained that this practice was conducted to wipe away what that person had just witnessed given that meteors are interpreted as traveling medicine people. A Tanacross elder noted that the same practice is conducted after witnessing lightning. Comets, which usually have the same name as meteors, are also occasionally interpreted as flying medicine or medicine people.[176] However, Charlie Hubbard explained that because comets are such an uncommon phenomenon they were always interpreted as a bad omen.

Upper Tanana elder, Roy David, used the phrase *sän' łat* ('star's smoke') to refer to the trail of sparks behind a bright meteor or fireball and said that these become new stars. The length of a meteor's trail of light is also observed as a sign of luck. Sahtúot'ı̨nę elder, Charlie Neyelle said: "When you see star fall, if you see it for a long time, it make a good sign for you. When it's so short, it's a bad sign." A Dëne Sųłıné elder said: "You wish when you see the light [from a meteor]. Before the light goes out, you make a wish. It will come true." Richard Nelson (1983, 39) reported that the Koyukon interpret bright meteors that break up at the end of their trajectory (*nokk'un dagheeghał*) as a sign of bad luck. With respect to the Deg Hit'an, Cornelius Osgood (1959, 110, 183) writes: ". . . it is believed that falling stars called literally 'sun sends you something down,' [*noʔoiniċuunegeteλta·n*] are animals presented by the sun for men to kill."

[176] Throughout this research I only elicited one name for comets that differs from those names also given for meteors. This is the Yellowknives Dene phrase, *whǫ̀ wecheè nındè* ('when the star has a tail').

Other significant meanings and relationships to meteors are derived from personal experiences. Through an interpreter, Yellowknives Dene elder, Peter Sangris, told the following narrative about a dog team that became remarkable fast by chasing falling stars:

> Ben Noel, his father had a dog team and one time he was traveling, and that old man there seen a falling star. And where the star was falling, his dog team follow it really fast. The dog team went after it to see where it falls or where it went. And since that time the guy, Ben Noel's father, had a really fast dog team. He just really fast. And they would travel all over the place. And this old man there would travel all over the place and he had a really fast dog team. So other men asked him, 'How come your dogs are so fast? Like all of a sudden you got really fast dogs. What happened to your dogs or what happened to everything around you?' And then the old man, he told these people, these guys, 'Well, I seen a falling star and me and my dogs we followed it. So that's how my dog team [is] really fast.'
>
> Old timer story. 'That's how my dogs became really fast, cause they followed a falling star.' So, I don't know, like if you see a falling star that way and you're going that way, you see them going that way, he went after it. To see where it would fall. So, I don't know, there's something behind there.

Atmospheric Halos, Sundogs, and Sun Pillars

Halo phenomena are extensions of the personification of the sun and moon in which they get dressed, build fires, or otherwise respond in various ways to changing weather. As such, different permutations of halo phenomena with respect to size, shape, and color are carefully observed and interpreted as indicators of specific types of weather, its onset, duration, and intensity. In the broadest sense, halo phenomena indicate a change in the weather and are the

sun's and moon's way of telling the Dene to emulate their behavior and actions so that they are also prepared for the upcoming weather that they forecast.

Although halos and related phenomena can occur during any season, they are most often seen on cold winter days when the density of suspended atmospheric ice is relatively high. The three main types of halo phenomena distinguished in the Northern Dene lexicon are lunar and solar halos, sundogs (parhelia), and sun pillars. Of these, sundogs exhibit the greatest variety of permutations and fine-grained differences in the types of weather that they forecast. With respect to the close attention in which Northern Dene peoples scrutinize variations in halo displays, Richard Nelson (1973, 196-197) states: "Some of these differences [in halo displays] are so subtle that only the old men can recognize them." Although names for atmospheric halos and sundogs are an endangered part of the lexicon their use in weather prediction is still common in contemporary Dene communities.

Sundogs or parhelia, which appear as one or more bright spots around the sun, are often interpreted as an indicator of cold weather when seen in winter. The sun's behavioral response to an upcoming period of colder temperatures is denoted by a host of Northern Dene names for sundogs that suggest that the sun is dressing itself in warm clothing. The Dena'ina phrases for double sundogs, *nuhudastl'ini* ('the one who got dressed up') and *nilegh k'uch'en didalnik* ('wearing gloves on either side') (Kari 2007, 150), aptly describe the sun's intuition or reaction to an imminent cold spell. The number of sundogs or bright spots around the sun is often correlated with the severity of cold weather where more sundogs equate to more clothing. Dena'ina elder, Helen Dick, explained that a sundog above and below the sun are its hat and warm boots, whereas sundogs at the sides of the sun are its mittens. Helen said: "And then when sundogs are all these kind [multiple bright spots around the sun], they say it's gonna turn cold.

So, got his hat on, mittens and boots on. . . he dress up."[177] Helen added that when lenticular clouds form over summits, the mountains are similarly donning their hats in preparation for wind.

In Kaska, double sundogs are also referred to as *sā delabā̀t t'ā̀t desat'ah* ('the sun is putting on its mittens') (Yukon Native Language Centre 2015, 14). Regarding the Deg Hit'an, Osgood (1959, 54) writes: "In winter, red spots at the sides of the sun, which show that the sun man has put on his mittens, mean cold weather is coming." In comparison, a Gwich'in elder referred to double sundogs in English as the "sun's earmuffs," whereas other variations suggest that the sun has adorned itself with earrings. Examples of the latter name in Dena'ina and Kaska are *jegh ninuk'nalyun* ('one wearing earrings') and *sā dedzǐ nā̀nala* ('the sun is putting on its earrings'), respectively (Kari 2007, 150, Yukon Native Language Centre 2015, 14) (Figure 58).[178]

Figure 58. Rainbow-colored parhelia seen in central-interior Alaska on January 24, 2015.

Another broad category of names refers to parhelia as the sun's burning cheeks or ears, as if flushed from the cold. Ahtna elders, Fred Ewan and Charlie Hubbard, referred to these as

[177] Among other names for parhelia, Petitot (1876a, 265) recorded the North Slavey phrase, *sa nakkpaɳé nétli* ('le soleil se pare pour la guerre' ['the sun is dressed for war']).
[178] In comparison, the Alutiiq terms *kulunguak* ('earrings') and *cinguruuq a'icirtuq* ('the sun has its mittens with it') refer to sundogs (Leer 2011), whereas the Eyak phrase, *ʒəx̣ k'uliƛ'ihł* ('it is wearing earrings') apparently refers to a solar halo (Krauss 1970).

bentl'aa hwdelk'an' ('it is burning at its [sun's] cheeks') and *udzii nahwdezk'aan* ('fire is burning down its ears'), respectively. These terms especially apply to red-colored sundogs seen on cold winter days. Fred explained:

> It [double sundogs] means cold weather gonna start, you know. You see sundog. When sundogs come in sunshine, it means it's going to be 50 below zero, you know. . . *bentl'aa hwdelk'an'* ('it is burning at its [sun's] cheeks'), it means just bad, you know. . . you've got to get ready [for cold weather]. . . Everybody get ready. Just get lots of wood and everything (Figure 59).

Figure 59. Red-colored parhelia seen from the University of Alaska, Fairbanks on November 29, 2010.

Upper Kuskokwim, Koyukon, and Dena'ina elders similarly referred to parhelia as *dzey hwnohwdolk'onh* ('it is burning in its [sun]s ears'), *bedzey n~~t~~'~~t~~nh~~t~~daatlkk'onh* ('it [the sun] has fire burning down its ears'), and *jeghch'en qen hdalq'en* ('fire is burning at its [sun's] ears'), respectively. Other examples appearing in the literature are: Dena'ina, *jegh nqendghalq'un* 'burning ears' (Kari 2007, 150); Koyukon, *so dedzey k'edeelkk'aas* 'the sun reddened its ears' and *so dedzey n~~t~~'~~t~~nh~~t~~daatlkk'onh* 'the sun has fire burning down its ears' (Jetté and Jones 2000,

358, 364); Lower Tanana, *dedzieyi noxwdalk'onh* 'it is burning in his own ears' (Kari 2020, 220); Southern Tutchone, *sha zā̃y däk'ə̀n* 'sun's ears are burning' (Tlen 1993, 58); Kaska, *sā dedzigi nédéhk'an* 'the sun's ears are burning' (Yukon Native Language Centre 2015, 14); and Tahltan, *dzē nidādehk'ān* (Leer 1985). Koyukon elder, James Johnson Jr. commented:

> Yeah, I remember these [double sundogs] were very true. And they still are today if you notice them. I even come out wintertime and like on a clear day and you see [them]. . . Sundogs they call them. They say that this is the ear of the sun. They'll say both side. They used to say *dedzegh nu'unhudaatlkk'onh*. *Bedzey nu'unhudaatlkk'onh* is burning down by his ear there. There's cold weather coming. Yeah, *bedzey nu'unhudaatlkk'onh*. *Bedzey* [is] ear. Burning down [is] *nu'unhudaatlkk'onh*. That's what mom used to say. They used to always see that. So I'd go out there and look, and sure enough. Yeah, couple days, next day, and that brings cold weather. And still today I sort of trust it.

James continued by describing how his parents used sundogs when traveling by dog team when he was young:

> This [sundogs] would be like a cold weather coming. If you had to move, like I'd say [if] we're at mouth of Novi [Nowitna River] and we're going up to the Mud River, that's overland, and you'd leave on nice warm day. Like a little overcast, a little sky, clouds here and there. Maybe sort of mild weather. But you're looking into like tomorrow or next day it'll be getting colder.
>
> Because you're living in a tent, camping out, or camp along the way. And back then they'd have me and my sister in the sled tied in and all day sitting there in blanket, you know. All you hear is runners going over the snow [James imitates

the sound of sled runners on snow] and dogs howling. So yeah, they'd look at this [sundogs]. They'd say, 'Oh, maybe we'll wait a few days.' You know, they wouldn't go that day. They'd wait and see how it get. Back then you're looking at sixty below; 55, 60 below, or just 62 below zero. Not anymore, but that was cold. So, they look at this [sundog] and they'd wait awhile.

Gwich'in speakers regularly describe sundogs as the sun's fires. In this respect, the sun responds to cold weather and wind by building fires in different locations around itself to keep warm. For example, sundogs located on both sides of the sun are called *shree kheetsįį gwîilk'à'* ('burning fires on both sides away from the sun') and *nihts'ii gwîilk'à'* ('fire burning on both sides'), which predict cold weather. Alternatively, a lone sundog on the right side of the sun (from the observer's perspective) is called *shreets'ąįį gwîilk'à'* ('fire burning at its right side'), whereas a sundog to the left of the sun is called *tł'ǫhts'ąįį gwîilk'à'* ('fire burning at its left side'). A lone sundog on either side of the sun forecasts wind from the direction where the sundog appears. This formation is personified as the sun's attempt to stay warm by building a fire to its windward side. I observed this formation with Paul Herbert while traveling up the Porcupine River in September 2015. As predicted, the sundog that we observed to the right (north) of the sun (*shreets'ąįį gwîilk'à'*) was accompanied by a chilly north wind (Figure 60).

Figure 60. A lone sundog seen on the right (north) side of the sun while traveling up the Porcupine River on September 16, 2015. This sundog was aptly accompanied by a chilly north wind (note the choppy river water).

With respect to interpreting sundogs, Paul Herbert said:

> *Nilee gàagwîilk'à'* is sundog. Like when you're looking at it there's sundog. If it's on this side [to the north or right of the sun] that means north wind, eh. And if you're looking at it left hand [to the left or south of the sun] it's south wind . . . And then [in] wintertime when it's [a] really bright sundog on both sides, then that means cold; cold weather coming.

Cornelius Osgood (1936, 99) similarly writes:

> When the sun is setting a red spot to the left indicates that the wind will be from the west: if the spot is to the right, the wind will come from the north; if the spots appear on both sides, they expect cold weather.

The late Simon Francis Sr. of Fort Yukon interpreted sundogs in the same way while also noting that large food caches or “pushups” made on the ice by muskrats are a complementary weather sign. Simon explained:

> Sometime this side sundog. That mean wind this way [wind blows from the direction of the lone or brighter sundog], cold wind. On this side, the north side, then cold wind too. That’s the worst one, north side. So, even animal know it. When muskrat now come out, pitch a house, push out and make a house good, bigger, they know the cold weather [is] coming.

The Koyukon also forecast cold weather from bright red sundogs and similarly note that wind blows from the direction of a lone sundog appearing on either side of the sun. The late Johnson Moses of Allakaket explained that the latter formation has an elongated or “spread out” appearance:

> When it cold weather it [sundogs] have that red on it. You know, when it’s cold weather. When wind blow, you’ll see it’s spread out all around [sundogs are elongated], when it’s wind blowing. . . They call it right side and left side; *tl’eghests’ene’* (‘left side’) and *nełneyhts’ene’* (‘right side’). *Tl’eghests’ene’* is this side, left side, and *nełneyhts’ene’* is this side. . . That’s really something. That, I never see for a long time. But when my grandpa was living, he tell me all about those.

Yellowknives Dene elders referred to sundogs as *sa kún* (‘sun’s sticks/firewood’), *sa bą́łk’ëth kún hela* (‘sticks/firewood are sitting on both sides of the sun’), and *sa níıʔa* (‘sun sticking in the ground’). In all cases, speakers interpreted sundogs that appear on both sides of the sun as a sign of cold weather and/or wind. This is the sun’s way of informing the Dene to

gather firewood in preparation for cold weather or to brace for wind as if holding walking sticks.[179] Through an interpreter, Alfred Baillargeon stated: "They (sundogs) are sun sticks and right away they know what this means. He said [when] he sees this, it's going to be really cold weather."

Dëne Sųłıné speakers referred to sundogs and solar halos as *sa hélghäth* ('the sun is afraid'), *dzıne zaá hélghäth* ('the day sun is afraid'), and *sa k'ädhe* ('cold sun'), in which case the sun is afraid of the cold weather. Variants of these names also appear in the early documentation. For example, Petitot (1876a, 184, 265) recorded the names *sa-t'elpèdh* ('the sun is afraid') and *sa-elpœdh* ('the sun is shaking') for a parhelion, whereas Le Goff (1916, 573, 761) elicited the name, *sa ᶜte ᶜlǫezh* ('the sun is afraid') for both a parhelion and a solar halo.

In at least a couple languages a parhelion is also regarded as the sun's dog. Examples are Dena'ina, *denedi belik'a* 'his (sun's) shiny dog' (Kari 2007, 150), and Koyukon *deleege dekkaa' enaa'etlkeł* 'it (the sun) has its dog tied to its feet' (Jetté and Jones 2000, 291). In comparison, Catharine McClellan (1975, 80) notes that the Tagish refer to parhelia as the "sun's little children" which is an apparent borrowing from Tlingit.[180] She writes:

> Dog bows, or sun dogs, which appear as small sections of rainbow on one or both sides of the sun on very cold days, are called 'sun's little child' (*gAganx'AnyAdi*, Tlingit) by the Tagish. They say that a dog bow on the north side of the sun means that the south wind will blow, while rainbow circles about the moon portend snow.

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[179] MacDonald (1998, 158) writes: "For Inuit around Point Barrow, Alaska, a mock sun–particularly the 'vertical bar in a parhelion'–was called the 'sun's walking stick' (Nelson 1899, 449), an image evidently linked to the stormy weather said to be predicted by the phenomenon. In this vein, Jenness (1922, 179) explains that at Barrow 'two mock suns, one on each side of the real sun, are said to be its walking sticks, *aiyopiak* (*ajauppiak*, 'crutches'). The sun holds them out to steady itself when a gale is imminent.'" The Central Yup'ik similarly refer to a sun pillar as *akertem ayarua* ('the sun's walking stick') (Jacobson 2012, 79).

[180] Swanton (1901) elicited the Tlingit phrase *gągā'n yątqíî* ('sun's children') for a mock sun or sundog.

Elders occasionally emphasize subtle differences in the appearance of sundogs and the corresponding weather that they forecast. One of these is a barely perceptible gray margin on the inner side of rainbow-colored parhelia. Although one Gwich'in elder suggested that this display indicates a prolonged period of cold weather, Richard Nelson (1973, 197) learned that it forecasts wind with snow. While there are no doubt numerous variations with respect to interpreting parhelia in different regions of the Subarctic, elders often explain that weather forecasts are most accurate when considering a host of environmental signs learned from experience and practice. With respect to the Gwich'in, Nelson (ibid., 198) similarly states:

> In general sundogs are most reliable as a weather indicator during the coldest midwinter months, but even then miscues are not uncommon. It is always best to look for a number of weather signs occurring together, since forecasts based on one sign are often incorrect.

A comparative list of Northern Dene names for parhelia is shown below in Table 26. This nomenclature illustrates both continuity and language specific differences, in which most names are based on stems for "fire" or "burn."

Table 26. Northern Dene names for sundog(s).

Name	Language (ISO-639-3) – dialect/region	Source
shree kheetsi̱i̱ gwiilk'a'	Gwich'in (gwi) - Alaska	(Leer and Peter 1999, 97)
shree khaiitsi' gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
nilee gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
nilee gàagwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
shree gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
shreets'a̱i̱i̱ gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
tł'o̱hts'a̱i̱i̱ gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
nihts'ii nilee gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
shree nilkat	Gwich'in (gwi) - Alaska	Fieldnotes
khèechiigwijiłk'a'	Gwich'in (gwi) - Vuntut	(VGFN and Smith 2009, 331)
sraa tl'ähk'öö jèk'ån'	Hän (gaa)	(Ritter 1983, 75)
dedzieyi noxwdalk'onh	Lower Tanana (taa)	(Kari 2020, 220)
sro dedzeyi nonwxdadlk'wnh	Lower Tanana (taa)	(Kari 2020, 431)
didzich'izdlo	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 101)
dzey hwnohwdolk'onh	Upper Kuskokwim (kuu)	Fieldnotes
so dedzey nu̶'u̶nhu̶daatlkk'onh	Koyukon (koy)	(Jetté and Jones 2000, 364)
bedzey nu̶'u̶nhu̶daatlkk'onh	Koyukon (koy) - Allakaket	Fieldnotes
so dedzey k'edeełkk'aas	Koyukon (koy) - Lower	(Jetté and Jones 2000, 171)
deleege dekkaa' enaa'etlkeł	Koyukon (koy)	(Jetté and Jones 2000, 291)
didziy niginelo	Holikachuk (hoi)	(Kari et al. 1978, 25)
gisr ye ditl'ineg	Deg Xinag (ing)	(Kari 1978, 45)
no'oy leg	Deg Xinag (ing)	(Kari 1976b, 39)
niłegh k'uch'en didalnik	Dena'ina (tfn) - Lime Village	(Kari 2007, 150)
jegh ninuk'nalyun	Dena'ina (tfn) - Lime Village	(Kari 2007, 150)
jegh enhendalq'un	Dena'ina (tfn) - Inland	(Kari 2007, 150)
jegh nqendghalq'un	Dena'ina (tfn) - Inland	(Kari 2007, 150)
jeghch'en qen hdalq'en	Dena'ina (tfn) - Inland	Fieldnotes
nuhudastl'ini	Dena'ina (tfn) - Inland	(Kari 2007, 150)
java nudiłt'a	Dena'ina (tfn) - Inland	(Tenenbaum 1975, 68)
denedi belik'a	Dena'ina (tfn) - Upper Cook Inlet	(Kari 2007, 150)
gheljay belik'a	Dena'ina (tfn) - Upper Cook Inlet	(Kari 2007, 150)
udzii nahwdezk'aan	Ahtna (aht)	Fieldnotes
bentl'aa hwdezk'an'	Ahtna (aht)	(Kari 1990, 358)
bentl'aa hwdelk'an'	Ahtna (aht)	Fieldnotes
dentl'aa hwdelk'an'	Ahtna (aht)	(Kari 1990, 249)
saa k'entl'aa hwtnelk'an'	Ahtna (aht) - Mentasta	(Kari 1990, 249)
saa dintl'ak'eddh kó̱n' dehké̱n'	Tanacross (tcb)	(Arnold et al. 2009, 258)
tl'ahk'ûü dèhk'ån'	Upper Tanana (tau) - Scottie Cr.	(John and Tlen 1997, 67)
se dekek'o kwán' dink'en	Northern Tutchone - Selkirk	(Ritter et al. 1977, 92)

Table 26. Continued

se dehunk'a hedék'án'	Northern Tutchone - Selkirk	(Ritter et al. 1977, 92)
sha zə̀y däk'ə̀n	Southern Tutchone (xsl)	(Tlen 1993, 58)
dzokeʔəlki	Dakelh (crx)	(Poser 1996, 30)
sa pôsĕ tedî·aih	Dakelh (crx)	(Morice 1932a, 494)
sa pînḵaz tedî·aih	Dakelh (crx)	(Morice 1932a, 494)
sa didzik ghic'inïntsiy	Witsuwit'en (bcr)	(Hargus 1999, 109)
sa didzik hinc'ilhggït	Witsuwit'en (bcr)	(Hargus 1999, 109)
sā dedzı̨̂gi nanela'	Kaska (kkz) - Good Hope Lake & Francis Lake	(KTC 1997, 393)
sā delabā́t t'ā́t desat'ah	Kaska (kkz) - Francis Lake	(YNLC 2015, 14)
sā dedzĭ nā́nala	Kaska (kkz) - Watson Lake	(YNLC 2015, 14)
dadzi nansela	Kaska (kkz) - Liard	(KTC 1997, 393)
sā dedzı̨̂gi nedetān	Kaska (kkz) - Pelly	(KTC 1997, 393)
sā dedzigi nédéhk'an	Kaska (kkz) - Ross River	(YNLC 2015, 14)
dedzı̨̂gi yéh dáhk'án	Kaska (kkz) - Ross River	(KTC 1997, 393)
nē'edenetl'ų'	Kaska (kkz) - Ross River	(KTC 1997, 393)
datł'aka xaayiniish	Tsuut'ina (srs)	(Starlight and Donovan 1996, 20)
ch'at'agha ʔididatłish	Tsuut'ina (srs)	(Starlight and Donovan 1996, 20)
ch'at'agha ʔididinischiich	Tsuut'ina (srs)	(Starlight and Donovan 1996, 20)
dedzih edek'ǫ́	North Slavey (scs) - Shúhtaot'ı̨nę	(KTC 1997, 393)
dedzih ya'edek'ǫ́	North Slavey (scs) - Shúhtaot'ı̨nę	(KTC 1997, 393)
yachınaíya	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
sa héłghëth	Dëne Sųłné (chp)	(Kaulback et al. 2012, 123)
sa héłghäth	Dëne Sųłné (chp)	Fieldnotes
dzıne zaá héłghäth	Dëne Sųłné (chp)	Fieldnotes
sa k'ädhe	Dëne Sųłné (chp)	Fieldnotes
sa kún	Dëne Sųłné (chp) - Tetsǫ́t'ıné	Fieldnotes
sa bą́łk'ëth kún hela	Dëne Sųłné (chp) - Tetsǫ́t'ıné	Fieldnotes
sa níıʔa	Dëne Sųłné (chp) - Tetsǫ́t'ıné	Fieldnotes
dzē nidādehk'ān	Tahltan (tht)	(Leer 1985)

Names for solar and lunar halos are often interchangeable and usually denote something that is tied, draped, ringed, or extended around the sun or moon, as if donning a hat, hood, headband, or head covering in preparation for inclement weather. For example, the Koyukon phrase, *neton nok'enaadlek'et* ('there is a ruff extending'), refers to a solar halo that forecasts snow and suggests that the sun has donned the hood of its parka (Jetté and Jones 2000, 517).

Other names for halos that more generally refer to something that "extends around," such as Dena'ina, *niqahnazk'eti* ('ring going around'); Gwich'in, *shree neech'ilt'aii* ('string extends around the sun/moon'); and Sahtúot'ı̨nę, *sa kwí naıht'ı* ('extends around the sun's head'), are also widely conceptualized as the sun's or moon's headband, hat, or hood. With respect to the latter phrase, a Sahtúot'ı̨nę speaker said: "*Sa kwí naıht'ı*, like it looks like something around the head of the sun, *sa kwí* ('sun's head'). It's a hood."[181] Yellowknives Dene elder, Peter Sangris, similarly referred to a lunar halo as *kwımǫ eht'ı* ('extends around the head'). Through an interpreter, he explained:

> *Kwımǫ eht'ı*, ring around the moon. He's comparing it to putting something over [one's head]. Just like a little kerchief you put around the head, like that. Yeah, *kwımǫ eht'ı*. So, he said when elders saw that they said the weather would change. It would get really windy. Windy like if it was in wintertime, like maybe blizzard; windy like that. . . it's just like a forecast, a weather forecast. Just kind of predict. Predict what kind of weather's coming. And old-timers would really know about things like that.

The Sahtúot'ı̨nę also predicted wind when a halo appeared around the moon. When hunters saw this, they often prepared to go caribou or moose hunting the morning after its appearance given that the wind conceals the sound of a hunter's footsteps. Through an interpreter, Alphonse Takazo said:

> When this happens [a lunar halo], that's when they take advantage of it, cause they know it's going to be windy so it's a good time to go hunting. So, the first

[181] Cf. Petitot (1876a, 184, 265) *sa kfwi-ná-étti* ('the sun girds his head'), *sa kfwi-ná-détti* ('the sun girds his head'), and *sa kfwi-ná-énétti* ('the sun encircles his head').

thing in the morning while it's still dark they would go hunting for moose [or] for caribou.

The Gwich'in also observed atmospheric phenomena in conjunction with moose hunting. However, in Gwich'in country the type of windy weather most favorable for hunting moose is predicted by a lone sundog on either side of the sun. In contrast, hunting is suspended or delayed if a white or grey-colored solar halo appears, given that it forecasts warmer weather and snow. Gwich'in elder, Bill Flitt, explained:

> That sun, [when] it's a circle around and then they don't hunt no more. They don't hunt at all. They know it gonna snow. So, when it's a *shree* ('sun') one side *gwîilk'à'* ('fire burns') they know they gonna [have] wind so they go out at morning. And then when it wind, they get moose, eh. That's their traditions. That's the way they do it (Figures 61-63).

Figure 61. A solar halo with parhelia seen in central-interior Alaska on January 17, 2017.

Figure 62. A bright lunar halo seen in central-interior Alaska on February 3, 2012. This display was also accompanied by a circumzenith arc located high overhead out of the photo.

Figure 63. An odd-radius lunar halo seen in central-interior Alaska on January 28, 2018.[182]

As a generalization, red and rainbow-colored halos are interpreted as a sign of cold weather and/or wind, whereas white or greyish halos forecast warmer weather and/or precipitation. Regarding white atmospheric halos, Gwich'in elder, Trimble Gilbert said: "*Shreevyàa geetee chan daagąįį. Izhit dąį' chan hahshii geenjit injyaa giyahnyaa*" ('sometimes rainbows are white [a solar/lunar halo]. When it happens like that it means it is going to snow, they say'). In his ethnography about Gwich'in knowledge and practices relating to the boreal forest, Richard Nelson (1973, 198) writes:

> A moondog [i.e., lunar halo] apparently means only one thing – warm, cloudy weather and a good chance of precipitation. This sign does not precede all

[182] The angular radius of most atmospheric halos and sundogs is 22°.When present, the radius of a second larger halo is typically 46° (Tape and Moilanen 2006, 1-5). The lunar halo shown in Figure 63 is mostly composed of 18° and 23° arcs (Walter Tape, pers. comm. February 2018).

> weather systems of this type, which come in from the south, but when it appears it seems highly reliable. If a warm weather system moves in during the winter, but no moondog occurs with it (provided the moon is present at the time), it indicates that the weather change will not last. But if a moondog appears, the warm and cloudy conditions will probably last up to two weeks or more.

Atmospheric halos, sundogs, and sun pillars not only forecast different types of weather, but are also used to predict the onset, duration, and intensity of a weather system. These predictions are often correlated with the diameter of a halo, a sundog's apparent distance (radius) from the sun, and the length of a sun pillar. With respect to using the diameter of a solar halo to predict the onset of a weather system, Dena'ina elder, Steve Hobson, explained: "If it's [halo] a long ways away from [the sun] it'll be a little while before the storm [begins], but if it's close then just a couple days [until the storm begins]." Gwich'in elder, Robert Frank, similarly commented:

> *Vineechant'aii* ('string extends around it'). Sometime it long ways [from the sun], sometime it close. . . It change. I think when it's cold it's just like [the] longer the width is. [If] this [halo is] too big, it's still coming. The weather is still coming. And when it is getting close [a small diameter halo], the weather, it'll be close too.

With respect to the Upper Kuskokwim Dene, Pulu and Pope (1981, 34) write:

> Rings or rainbows around the moon meant lots of snow. If the rings were very close to the moon, it meant snow would fall within a day. If the rings were far from the moon, it meant snow would fall two to three nights from the time of observation.

Lower Tanana elder, Robert Charlie, explained a similar interpretation of sundogs with respect to the duration of a weather system rather than its onset. He said: "And then we look at the sundog. [It] depends on how far away the sundog is, it's how long the weather's gonna last and it's usually like cold weather." Other variations of these predictions are common. For example, Sahtúot'ı̨nę elder, Alphonse Takazo, noted that a lunar halo that remains visible for a long time forecasts a weather system that will persist for several days. Alternatively, if the halo disappears quickly, then the weather that it forecasts will also be short lived. Through an interpreter he said: "If it [lunar halo] stays like that for a long time it means the weather's gonna be like that for two or three days. But if it disappears fast, it means just probably the next day [the weather will break]."

Upper Tanana elder, Roy Sam, learned that a change in the weather can be predicted by counting the number of stars caught within a lunar halo:

> What I heard was whatever star get caught in there, that many days it mean going to be change in weather. . . Maybe if you could see five star, mean five days from right now there's going to be change. That's the way I understand it.

With respect to predicting the severity of a cold weather system, Yellowknives Dene elder, Fred Sangris, noted a correlation between temperature and the number of halos that form around the moon:

> And we watch the moon too. The moon gets a ring, eh? One ring is OK, minus thirty [Celsius], it's OK. But two rings, it gets a little colder. Three rings you have to bring your sled dogs in the house, by three rings. And don't travel at night because you could freeze. People lose toes and fingers when it's three rings, eh.

> Three rings is just like walking into a freezer, right. It's very, very cold. Cold air and very cold. Even if you breathe it in it's still cold.
>
> So, when we travel at night, the hunters go out. If the moon is out, they'll watch the moon. 'Oh, if there's one ring, we'll be OK. Two rings is OK,' they'll say. But when they see three or four rings, they will cancel that night. They will decide not to go, cause they know the cold air is coming down.

Although sun pillars (a single column of light that extends vertically from the sun) are a different phenomenon, they are also observed to predict the severity and duration of cold weather events. Names for sun pillars in Gwich'in and Koyukon are *aadrii zheedìint'aii* 'light is extending in a column into the sky' (Leer and Peter 1996) and *so delaadogh k'edaatlkoo*ł 'the sun has something around its neck' (Jetté and Jones 2000, 379), respectively. Dëne Sųłiné elders referred to sun pillars as *sa hélghäth* ('the sun is afraid'), which also denotes solar halos and sundogs. With respect to predicting the severity and duration of a cold weather event, a Dëne Sųłiné speaker explained:

> . . . it's going to be cold depending on the length of this too (sun pillar). The higher it goes, the longer it's going to be cold. And we just had that this spring. It's still cold out now, since March 26 [2018]. . . that's when it started to get cold and it's still cold today. So, it tell us even how long the weather's going to be cold in the future. So, the longer this is, the more cold it's going to be for a longer period of time.

Northern Dene names for solar and lunar halos are shown below in Tables 27 and 28, respectively. Although most of these names refer to something which "extends around" the sun or moon, the Dena'ina phrase, *kun nuhuk'dalzen* ('it [sun] is keeping rain for itself") (Kari 2019,

532) and the Dene Sųłiné phrase, *tëdhe zaá hélghäth* ('the night sun is afraid') illustrate some of the variability in the nomenclature. Taken together, the atmospheric phenomena described in this section underscores the continuity in which Northern Dene peoples carefully observe, interpret, and relate to these phenomena as weather signs and extensions of the personification of the sun and moon.

Table 27. Northern Dene names for solar halos.

Name	Language (ISO-639-3) – dialect/region	Source
shree neech'ilt'aii	Gwich'in (gwi) - Alaska	(Peter 1979, 100)
shree neech'įįlt'aii	Gwich'in (gwi) - Alaska	(Peter 1979, 100)
zhee vęę neech'ąąkhyuu	Gwich'in (gwi) - Alaska	(Peter 1979, 100)
shree vineechant'aii	Gwich'in (gwi) - Alaska	Fieldnotes
niitł'ęę gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
tł'ęę gwîilk'à'	Gwich'in (gwi) - Alaska	Fieldnotes
sree ne'nìlt'aii	Gwich'in (gwi) - Vuntut	(VGFN and Smith 2009, 334)
sree ne'nìlt'àih	Gwich'in (gwi) - Gwichyah	(GSCI and GLC 2003, 189)
srii ne'nilt'àih	Gwich'in (gwi) - Teetł'it	(GSCI and GLC 2003, 189)
va'alt'aih	Gwich'in (gwi) - Fort McPherson	(Ritter 1983, 51)
sraa nå'nèt'ey	Hän (gaa)	(Ritter and Paul 1980, 75)
k'ich'ihulan	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 79)
k'iy'hulan	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 79)
so neton hoolaanh	Koyukon (koy)	(Jetté and Jones 2000, 739)
neton nok'enaadlek'et	Koyukon (koy) - Central & Lower	(Jetté and Jones 2000, 517)
q'udagidltonh	Holikachuk (hoi)	(Kari et al. 1978, 25)
n'oy idiq'igitl'itonh	Deg Xinag (ing)	(Kari 1976b, 167)
kun nuhuk'dalzen	Dena'ina (tfn) - Outer Cook Inlet	(Kari 2019a, 532)
saa baaghe nekezc'et	Ahtna (aht)	Fieldnotes
kelahdziimiil	Tanacross (tcb)	(Arnold et al. 2009, 140)
saa mâanäh wudèek'ån'	Upper Tanana (tau) - Scottie Cr.	(John and Tlen 1997, 67)
na-ndenîsłelķê	Dakelh (crx)	(Morice 1932b, 66)
sa nebec'inïzts'egh	Witsuwit'en (bcr)	(Hargus 1999, 109)
sa nebec'ilhbez	Witsuwit'en (bcr)	(Hargus 1999, 109)
sapínıtį	North Slavey (scs) - Shúhtaot'įnę	(SDEC n.d.-b)
safíraʔəht'ə	North Slavey (scs) - K'áshogot'įnę	(SDEC n.d.-a, 5757)
sakwínaʔeht'u	North Slavey (scs) - Sahtúot'įnę	(Modeste and Tatti 2012)
sakwínaʔeht'ı	North Slavey (scs) - Sahtúot'įnę	Fieldnotes
sa gónaʔeht'ı	North Slavey (scs) - Sahtúot'įnę	Fieldnotes
sakwìnaèht'ii	Tlįchǫ (dgr)	(Saxon and Siemons 1996, 89)
ezhíenį́ʔǫ	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 165)
ezhini'ǫ	Dene Tha' (xsl)	(Monus and Isaiah 1977, 76)
et'áe'áh	Dene Tha' (xsl)	(Moore et al. 1980, 28)
sa shèbez	Dëne Sųłıné (chp)	(Le Goff 1916, 573)
sageth	Dëne Sųłıné (chp) – Tetsǫ́t'ıné	(Cardinal et al 2021, 321)
fa ma·sadatxa·'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 8)

Table 28. Northern Dene names for lunar halos.

Name	Language (ISO-639-3) – dialect/region	Source
tǫǫ oozhrii neech'ilt'aii	Gwich'in (gwi) - Alaska	Fieldnotes
tǫǫ oozhrii vineechant'aii	Gwich'in (gwi) - Alaska	Fieldnotes
shrii na'alt'aii	Gwich'in (gwi) - Fort McPherson	(Ritter 1983, 50)
sraa nà'nèt'ey	Hän (gaa)	(Ritter and Paul 1980, 73)
dołt'ol enok'edlebaatl	Koyukon (koy)	(Jetté and Jones 2000, 550)
dołt'ol netone nok'enaadlek'et	Koyukon (koy) - Central	(Jetté and Jones 2000, 550)
dołt'ol dohodenaałetl'oon	Koyukon (koy) - Upper	(Jetté and Jones 2000, 550)
niqak'elk'edi	Dena'ina (tfn) - Upper Cook Inlet	(Kari 2007, 149)
veniqak'nazk'edi	Dena'ina (tfn)	(Kari 2007, 149)
gheljay niqahnazk'eti	Dena'ina (tfn) - Inland	Fieldnotes
gheljay niqak'nazk'et'	Dena'ina (tfn) - Inland	Fieldnotes
shabila niqanayk'edi	Dena'ina (tfn) - Upper Cook Inlet	(Kari 2007, 149)
venuqen naqilan	Dena'ina (tfn) - Lime Village	(Kari 2007, 149)
unekec'ezc'et	Ahtna (aht)	(Kari 1990, 125)
niłkecnelbaets	Ahtna (aht) - Mentasta	(Kari 1990, 103)
unaxwch'eneeniit'iyh	Middle Tanana (taa)	(Kari 2019b, 160)
gheldzeey nakech'etneet'eey	Tanacross (tcb)	(Arnold et al. 2009, 140)
ch'aldzeegn xąą' maa nahneldzeek	Upper Tanana (tau) - Tetlin	Fieldnotes
ch'àldzěek ąąnah wudèek'ǎn'	Upper Tanana (tau) - Scottie Cr.	(John and Tlen 1997, 65)
se deka/dekí de'eshat	Northern Tutchone - Selkirk	(Ritter et al. 1977, 86, 91)
äzįzha yanda shadägäy	Southern Tutchone (xsl)	(Tlen 1993, 54, 57)
na-ndenîsłelḳê	Dakelh (crx)	(Morice 1932b, 66)
sa nebec'inïzts'egh	Witsuwit'en (bcr)	(Hargus 1999, 109)
sa nebec'ilhbez	Witsuwit'en (bcr)	(Hargus 1999, 109)
sā damā tl'ǟnsetl'ūn	Kaska (kkz) - Good Hope Lake	(KTC 1997, 387)
sā damā dat'ele	Kaska (kkz) - Liard	(KTC 1997, 387)
sele edenētl'ų̄	Kaska (kkz) - Ross River	(KTC 1997, 387)
sakwínaʔeht'ı	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
sa gónaʔeht'ı	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
kwımǫ eht'ı	Tlı̨chǫ (dgr) - Wıılıìdeh	Fieldnotes
ǫdzee ezhíhenı̨ʔǫ	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 164)
ǫdze zhinı̨'ǫ	Dene Tha' (xsl)	(Monus and Isaiah 1977, 79)
et'áe'áh	Dene Tha' (xsl)	(Moore et al. 1980, 28)
ʔeyíeyı̨ʔǫ	Dene Tha' (xsl) - Fort Nelson	(Rice 1983, 55)
ʔełdzı ʔéłgëth	Dëne Sųłné (chp)	(Kaulback et al. 2012, 104)
tëdhe zaá héłghäth	Dëne Sųłné (chp)	Fieldnotes
fa ma·sadatxa·'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 8)

Rainbows

Rainbows are widely interpreted throughout the Northern Dene region as a sign of no more rain. This interpretation has both a Biblical context rooted in the story of Noah as well as an indigenous origin based on the representation of a rainbow as a snare that catches thunderstorms. The latter concept is often associated with Grandmother Spider or Spider Woman who once lowered a girl from the sky on her web or rope of braided babiche (see Chapter 2). When the girl reached the ground, there was a large storm which indicated that Spider Woman had been killed by one of her sons who wanted to keep the girl for his wife. The story explains why killing spiders is thought to bring bad weather. Through an interpreter, Dëne Sųłiné elder, Madeline Drybone said:

> She [Grandmother Spider] lives up there [in the sky] and that's where she spins her web [makes a rainbow]; [where] she spins her web from. Then one person was taken back down with that. . . so that's why we take care of them [spiders] today. We can't kill them. . . like if we do her harm or whatever, we do things wrong to her, [then] the weather's going to be bad. . . if you see one [a spider] take it and put it somewhere safe. Yeah, respect all spiders.

While summarizing an Upper Tanana version of the Grandmother Spider story, Cora David said: "They say spider make rainbow. They tell us when we were small." Her husband, Roy David, commented:

> It [rainbow] stop storm weather, you know. Stop storm. Stop storm weather too, *Stsǫǫ Kelahdzeey daach'eetl'uu* ('My Grandmother Spider set a snare,' made a rainbow). That means *Stsǫǫ Kelahdzeey daach'eetl'uu*, she set snare for those storm . . . *Daacheetl'uu*, that mean she set snare.

Examples of the Spider Woman story and related discourse appear in the following sources listed by language: Ahtna (Rooth 1971, 346-349, Kari and Tuttle [eds.] 2018, 9-26), Upper Tanana (McKennan 1959, 199-203, Rooth 1971, 317-319, 328-339, Adam and Milanowski 1975, Tyone and Kari 1996, 23-34, David and Lovick 2017, 145-159, David et al. 2018, Brucks and Lovick 2019, Sam, Demit-Barnes, and Northway 2021, 3-25), Tanacross (Brean 1975, 20-28), Lower Tanana (Rooth 1971, 131-132), Gwich'in (McKennan 1965, 136-139), Deg Hit'an (Chapman 1914, 96,), Southern Tutchone (McClellan 1975, 181), Tsilhqot'in (Farrand 1900, 29-30, Lane 1953), and North Slavey (Petitot 1886, 126-130, 1887, 116, Hultkrantz 1973, 126). Although the Spider Woman story is not present in all Northern Dene languages, names for rainbows predominantly refer to this phenomenon as the sun's or spider's snare, web, rope, or net, or are otherwise based on a rope or snaring theme (Table 29, Figure 64). An outlier among Northern Dene names for rainbows appears in the extinct Ts'ets'aut language, which refers to this phenomenon as *ts'e·'nakuna* or *ts'e·'nokula* ('ghost cloud') (Boas and Goddard 1924, 12).

Table 29. Northern Dene names that refer to rainbows as the sun's or spider's snare, web, rope, or net, or otherwise reflect a snaring theme.

Name	Language (ISO-639-3) – dialect/region	Source
shreevyaa	Gwich'in (gwi) - Alaska	(Peter 1979, 100)
sreevyàa	Gwich'in (gwi) - Vuntut & Teetł'it	(Montgomery et al. 2000, 70, GSCI and GLC 2003, 155)
gudeedrii chihvyàa'	Gwich'in (gwi) - Teetł'it & Gwichyah	(GSCI & GLC 2003, 155)
gudeedrii da'ootł'ii	Gwich'in (gwi) - Gwichyah	(GSCI and GLC 2003, 155)
sro noyeghilek	Lower Tanana (taa)	(Kari 2020, 234)
nełteni sro noghilek	Lower Tanana (taa)	(Kari 2020, 234)
nełteni dhedli'	Lower Tanana (taa)	(Kari 2020, 234)
sromela'	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 77)
nełten ggaabeele'	Koyukon (koy)	(Jetté and Jones 2000, 90)
naaggedle ggaabeele'	Koyukon (koy)	(Jetté and Jones 2000, 90)
neełcheeł kkaaggoole'	Koyukon (koy) - Upper	(Jetté and Jones 2000, 215)
nełten dek'enaaltl'oonh	Koyukon (koy) - Central & Lower	(Jetté and Jones 2000, 613)
yo doteł nonodegges	Koyukon (koy) - Lower	(Jetté and Jones 2000, 209)
čo·nigegaθλik	Deg Xinag (ing)	(Osgood 1959, 54, 181)
shavila	Dena'ina (tfn) - Upper Cook Inlet & Inland	(Kari 2007, 152)
jabila	Dena'ina (tfn) - Upper & Outer Cook Inlet	(Kari 2007, 152)
sabiile'	Ahtna (aht)	(Kari 1990, 107)
tsulahdzaey ggaal'	Ahtna (aht) - Mentasta	(Kari 1990, 190)
saabiil'	Middle Tanana (taa)	(Kari 2019b, 25)
saamíił	Tanacross (tcb)	(Arnold et al. 2009, 209)
yaamíił	Tanacross (tcb)	Fieldnotes
saamįįl'	Upper Tanana (tau)	(Lovick 2020, 156)
stsǫǫ kelahdzeey gąął	Upper Tanana (tau)	Fieldnotes
stsǫǫ kelahdzeey daach'eetl'uu	Upper Tanana (tau)	Fieldnotes
nanelt'oon	Upper Tanana (tau)	Fieldnotes
tl'uuł naałeeł	Upper Tanana (tau)	Fieldnotes
iik'a dach'etl'ǫǫ	Upper Tanana (tau) - Northway	Fieldnotes
utsia myán'	Northern Tutchone (ttm) - Mayo	(Ritter 1976, 44)
hutsía myán'	Northern Tutchone (ttm) - Selkirk	(Ritter et al. 1977, 92)
hutsí chemę́l	Northern Tutchone (ttm) - Carmacks	(Billy and Wheeler 1997, 37)
kwänsì mę̀l	Southern Tutchone (xsl)	(Tlen 1993, 57)
həkw'əz̲bił	Dakelh (crx)	(Poser 1996, 36)
tî̲tni-pił	Dakelh (crx)	(Morice 1932a, 489)
kutsē mī́lé'	Kaska (kkz) - Liard	(KTC 1997, 388)
kutsie mī́lé'	Kaska (kkz) - Ross River	(KTC 1997, 388)

Table 29. Continued

kustsie dēsetl'ūn	Kaska (kkz) - Ross River	(KTC 1997, 388)
nateni dasetl'ų̄	Kaska (kkz) - Lower Liard	(KTC 1997, 388)
tsų̄ dēsetl'ų̄	Kaska (kkz) - Good Hope Lake	(KTC 1997, 388)
kūstsée tl'ūlé	Kaska (kkz) - Watson Lake	(YNLC 2015, 14)
kūssią tl'ūlé	Kaska (kkz) - Ross River & Francis Lake	(YNLC 2015, 14)
chǫ tl'ūlé	Kaska (kkz) - Watson Lake	(YNLC 2015, 14)
chą tl'ūlé	Kaska (kkz) -Ross River & Francis Lake	(YNLC 2015, 14)
chǭ tl'ūlé'	Kaska (kkz) - Pelly	(KTC 1997, 388)
nàhtuni tl'oolh	Sekani (sek)	(Hargus 2000, 104)
sáátl'ulé'	Dane-zaa (bea)	(Pasomonik 2011, 37)
cho tanaastł'u	Tsuut'ina (srs)	(Starlight and Donovan 1996, 20)
gutsē mí'	North Slavey (scs) - Shúhtaot'ıné	(KTC 1997, 388)
gutsē míé'	North Slavey (scs) - Shúhtaot'ıné	(KTC 1997, 388)
gósimílé'	North Slavey (scs) - K'áshogot'ıné	(Rice 1978)
k'álemíne	North Slavey (scs) - Sahtúot'ıné	Fieldnotes
k'àlemı̨̀ı̨	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 59)
k'alée mı́hé	Dene Tha' (xsl)	(SSDEC 2009, 164)
k'ellée tl'unhén	Dene Tha' (xsl)	(Moore et al. 1980, 46)
k'aleetl'ulé	Dene Tha' (xsl) - Fort Nelson	(Rice 1983, 56)
k'aleetl'uné	Dene Tha' (xsl) - Fort Nelson	(Rice 1983, 56)
ʔurádzıbı́l	Dëne Sųłıné (chp)	(Kaulback et al. 2012, 102)
rádzıbı́ł	Dëne Sųłıné (chp)	Fieldnotes
rádzílú	Dëne Sųłıné (chp)	Fieldnotes
hurádzı̨ bı́lé	Dëne Sųłıné (chp) - Tetsǫ́t'ıné	(Cardinal et al. 2021, 315)
yurádzı̨ bı́l	Dëne Sųłıné (chp) - Tetsǫ́t'ıné	(Cardinal et al. 2021, 315)
yā tl'ūle	Tahltan (tht)	(Carter and Carlick 1994, 140)
sādā tl'u·le	Tahltan (tht)	(Leer 1985)

Figure 64. A double rainbow seen in central-interior Alaska on July 12, 2014.

Northern Dene names for rainbows that include a stem for "snare" refer to the type used for big game animals (e.g., Gwich'in, *vyàa*, Dena'ina, *vił,* Dëne Sųłiné *bi̯ł* or *bi̯ł*) and the spring-pole variety which resembles the arc of a rainbow. With respect to the Koyukon phrase, *nełten dek'enaaltl'oonh* ('thunder set a snare,' there is a rainbow) Jetté and Jones (2000, 613) state: "[*Nełten dek'enaaltl'oonh*] can be understood as: the thunder has set a snare, the snare alluded to, being of the *noheghenolghude* [spring pole] type, which when set, presents an upward semi-circular curve." In the following narrative Gwich'in elder, Trimble Gilbert, describes thunder as a powerful and sentient being like that of a big game animal, which becomes caught in the sun's snare or rainbow known as *shreevyàa*:

Shreevyàa: Rainbow
Told by Trimble Gilbert on 6-11-2017 in Arctic Village, Alaska
Recorded by Chris Cannon
Transcribed and Translated by Chris Cannon with Kathy Tritt and Jason Harris

Shreevyàa reh.
The rainbow (lit. 'sun snare').

Aii,
That one,

hee giginkhii t'ee reh
while they were talking about it back then

zhik
at that time

khàtàl gwąhtan gwinyaa aii reh
they say that thunder is coming out exploding

hee shin hee nagwahtan. Ts'ą'
in the summer when it is thundering. And

it'ee hahtsin dąį' łyâa gwintł'oo nagwahtan.
now when it is raining there is a lot of thunder.

Aii reh gwąhchyàa it'ee reh aii gwintł'oo hahtsin.
When a big raincloud is coming then it will rain for a while.

Izhik dąį' shreevyàa,
When this is happening the rainbow,

aii reh,
that one,

git'ee zhik gwąhchaa gwideetsįį reh shreevyàa jěiichy'aa nagwadhak.
sometimes when the raincloud is coming the rainbow shows up ahead of it.

Shreevyàa it'ee,
That rainbow,

yaagwan gyàh direetł'uu dąį'
when they are setting the snare

nin tr'iilòk gyàh hàa.
they snared the animal with this snare.

Aii gwikyąą reh giiyuuzhrii vyàh.
And that is how it (rainbow) got its name (*shreevyàa* 'sun snare').

Vadzaih eenjit chan ts'ą' dinjik chan vyàh.
There is also a snare for caribou and a snare for moose too.

Aii gwikyąą giiyuurii shreevyàa giyàhnyaa. Ts'ą'
That is how it (rainbow) got its name and that is how it was called. And

aii gwąhchaa dąį' aii,
when the raincloud is coming,

shreevyàa zhìt t'injik dąį'
inside the rainbow when that happens

it'ee
at that time

iilòk ts'a' gyah nan dzaa
when he is snaring an animal that is why

It'ee gwahchaa geetee vakwaa neegwiilik ahtsin kwaa.
when the raincloud dissolves then the rain stops.

Jyaa ts'ą' giiyuuzhrii.
And that's how it was called.

Although Trimble's description is remarkably detailed, elders throughout the Northern Dene region frequently corroborated that rainbows snare thunderstorms and are a sign of no more rain. For example, Upper Kuskokiwm elder, Jim Nikolai said: "When it's a rainbow they pull that rain. . . Yeah, no more rain after that. *No'ełchonh* ('it is not raining anymore'). Rainbow [*sromela'*] just pull him out." Ahtna elder, Fred Ewan, similarly said: "*Sabiile'* ('sun snare'). *Sabiile'* means no more rain . . . He (i.e., she) snare him, you know. Just keep it there." Likewise, Dena'ina elder, Helen Dick, commented: "[Rainbow is a] snare for rain, the rain catch [in] it. They say, you know when it rain shower, that's when you get that [rainbow]. Then when it stop, *shavila* ('sun snare') catch all the rain." Catharine McClellan (1975, 79-80) specifically noted that rainbows are the thunderbird's snare and wrote: "The Tagish believe the rainbow to be 'thunderbird's snare' (*xyetł t'adzi*, Tlingit) and at the end of it there may be found a lot of game."

The concept of the thunderbird as the origin of thunder and lightning is discussed and explored in the following section.

Thunderbird

Thunderbirds are widely regarded throughout the Northern Dene region as the embodiment and source of thunder and lightning. In some instances, thunderbirds are associated with a specific species of bird, whereas in other instances they are considered unique beings in and of themselves. Thunderbirds are not often regarded as large birds but vary in size between that of a warbler and an eagle. Most descriptions, however, refer to a bird that is approximately the size of a ptarmigan or grouse. Thunderbirds are also thought to migrate or enter a state of dormancy during the winter, which accounts for the presence of thunder and lightning only in the spring, summer, and early fall.

Thunderbirds are highly respected as significant sources of power and are occasionally described as one of the most coveted beings to encounter during a vision quest. Although there is some debate regarding the elaboration of the thunderbird concept in Northern Dene cultures, it is reported in at least 17 languages. However, Henry Sharp (2001, 186) states: "The Thunderbird concept is not well developed in Dene culture and probably should not be taken to imply any of the values and meanings associated with the Thunderbird figure elsewhere in North America." While it is true that some Dene elders reject the thunderbird as an indigenous concept to their respective language and culture it should also be noted that thunderbirds are dangerous and powerful entities. Like other powerful beings in the Northern Dene cosmos, thunderbirds are not casually spoken about and may therefore have greater prevalence among Northern Dene cultures than the documentation suggests. For example, Ahtna elder, Fred Ewan, who referred to thunderbirds as *łteni nanghidaetl'* ('thunder flew back [like a flock of birds]') said:

> We never talk about [thunderbirds]. *'Engii* ('taboo/prohibited') we say. . . No, you just mention one time, *łteni nanghidaetl'*. They know what it is. . . The bird must have been little birds or something, you know [Fred laughs]. Birds it says anyway, *łteni nanghidaetl'*.

I learned about thunderbirds from Upper Tanana, Tanacross, Ahtna, Sahtúot'ı̨nę, Yellowknives Dene, and Dëne Sųłiné elders. The concept is also reported in the 16 following languages: Gwich'in (McKennan 1965, 76), Koyukon (Jetté and Jones 2000, 343, 512-513), Deg Hit'an (Osgood 1959, 50, 115), Ahtna (de Laguna 1969, 19, Simeone 2018, 115), Upper Tanana (Tyone and Kari 1996, 74-75), Southern Tutchone (McClellan 1975, 80-81, 175, McClellan, Cruikshank, and Kernan 2007a, 122-123), Kaska (Honigmann 1954, 144), Sekani (Hargus 2000, 45, 104, Desgent and Lanoue 2005, 169-170), Dane-zaa (Goddard 1916, 243, 260, 1917, 321, 350, 424, Ridington 1988, 183, 196-197, 1990, 18, 174, Ridington and Ridington 2013, 178-179), North Slavey (Petitot 1886, 283, 1890, 79, Petitot and Savoie [ed.] 1970, 81-82, Tatti 2015, 23-24), Tłı̨chǫ (Petitot and Habgood 1970, 119-123, Helm 1994, 139-142), Dëne Sųłiné (Petitot 1876a, 346, Curtis 1970 [1928], 204, Birket-Smith 1930, 81, 90-91, Sharp 2001, 186), Dakelh (Morice 1932b, 298, 1932a, 307, Jenness 1943, 539), Tagish (McClellan 1975, 79-80, 175, Cruikshank 1990, 40, McClellan, Cruikshank, and Kernan 2007b, 223-226), Tahltan (Honigmann 1954, 103), and Tsuut'ina (Curtis 1970 [1928], 112, Jenness 1938, 77, 84).

In Alaska, the thunderbird concept is especially pronounced in the Tanacross, Upper Tanana, and Ahtna language areas where Mount Neuberger or *Naadęęy Xu'* ('Marmot Tooth') is regionally recognized as a sacred mountain where the thunderbird resides. Notably, this mountain, which is adjacent to the village of Tanacross, is devoid of timber and has a rocky tooth-like summit. A Tanacross elder, who referred to the thunderbird as *nahten tsúgaay* (lit.

'thunder bird'), explained that its coloration is ultraviolet or iridescent and that people do not generally visit the mountain where it lives:

> *Naadęęy Xu'* ('Marmot Tooth'), yeah. Well, belief is that there's a thunderbird that lives up in there. And the way it was described to me is it's very ultraviolet like, beautiful feathers, and usually people don't go up that direction to disturb it. Because it's very strong spiritually. And there was some people that in the past had gone in that direction just to see, [in the] very [distant] past. And well, they didn't have bad luck or anything, but they knew better than to go farther. . . it causes thunder and lightning. And it flies in that thunder and lightning. And all the colors of his feathers are like thunder and lightning, very bright. . . It hibernates and comes back in the spring.

Tanacross elder, Larry Jonathan, explained that thunderbirds have an electrostatic energy around them and that the only time people visited or directed their thoughts towards *Naadęęy Xu'* was when they faced the most challenging circumstances of their lives. Larry said:

> . . . this sacred mountain we have which is *Naadęęy Xu'*. It's a hard area for me to talk about. But yet, the younger people need to know how the story of it was told to me, why it's named that way.
>
> *Naadęęy Xu'* is where you face the most complicated time. That two point like that, (Larry holds up his index fingers to represent two mountain peaks), like that. And then in the center of it (between the mountain peaks) like that they go. . . *Naadęęy Xu'* is an ancient word and the meaning of it was told to me by the late chief's grandson. And he said, 'Whenever you faced the most complicated area in your life, that's the direction you think about, that mountain.' And that

mountain's not going to repair anything for you, but it's a symbolic thing that stands there for our people (Figure 65).

Figure 65. *Naadęęy Xu'* ('Marmot Tooth') or Mount Neuberger, a sacred mountain to the Tanacross Dene and the home of *nahten tsúgaay* ('thunder bird').

Upper Tanana elders in Tetlin and Northway also use the Tanacross name, *Naadęęy Xu'*, to refer to Mount Neuberger where the thunderbird lives. Cora David of Tetlin remembered that her grandfather attached an orange and brown thunderbird feather to his dancing stick. Although it should have been strictly prohibited, Cora said that her grandfather let her play with the dancing stick when she was young. Cora also noted that people used the phrase *ch'ethdhaa noodatk'qął* ('it [thunderbird] is building a fire long away') to refer to an approaching thunderstorm. Cora recalled:

When we were young my grandpa make thunder feather for dance. I wonder if it's true. I keep wondering even today. I wonder if there's a bird for thunder. . . they tell us this is a *nahtan* ('thunder') feather and we wonder if that's true cause we don't know the difference. . . It's brownish color with red, I mean orange and a little brown. It's funny. . . They're just long feather. He glue it on dancing stick. I don't know. It should be taboo, but he never say nothing about it, my grandpa. I mean for us little girls to touch it. We used to touch it and act like we dance with that thing. He think it's funny. My grandpa is half Russian, so he don't know the difference, I guess. . . [Thunderbird] they say [is] that big [Cora gestures with her hands to show that a thunderbird is about the size of a large grouse]. I don't know if that's true though, how true it is. *Nahtan ts'ugaay* ('thunder bird'), they call it. . . they can't go up to where, you know, like a hill where there's thunder [i.e., *Naadęęy Xu'*]. It's danger. . . *Ch'ethdhaa noodatk'ąął*, they say. That mean thunder is coming. And *noodatk'ąął* means they're burning fire on top of mountain.

Cora's husband, Roy David, explained that thunderbirds resemble northern hawk owls, except that they are pure white:

It kind of like *tthi'dziidn* ('northern hawk owl'), that mean owl. Like small one you know. Like *delgayh* ('it is white'), that mean white. . . Spooky looking, little one. It not going to be fly around like bird out there, but it show from above, white one. And not very far, thunder, *nahtan*. . . It's white one though. Pure white (Figure 66).

Figure 66. A Northern Hawk Owl (*Surnia ulula*) or *tthi'dzüüdn* seen along the road to Tetlin, Alaska.

The thunderbird concept is also prevalent among the Sahtúot'ı̨nę, Yellowknives Dene, and Dëne Sųłné. Elders from each of these groups noted that thunderbirds either migrate south or enter a state of dormancy beneath frozen lakes in winter. Thunderbirds are said to break-up the lake ice when they emerge in spring. Elders throughout the Northwest Territories also regularly mentioned that thunderbirds, and the lightning that they produce, are attracted to places where greasy foods are cooked on open fires. Through an interpreter, Dëne Sųłné elder, Madeline Drybone, compared the thunderbird to an eagle and said:

. . .like everything else, there's life in everything and it's very powerful. In the wintertime it goes into the water. That's where it stays in the wintertime and then that's why sometimes the ice comes up. That's why the energy comes up from it (Figure 67). And she said an incident that happened close to us when she was young, we were out in the bush and the lightning hit the ground. And it was not far from us and it caught fire. It was raining lots. It was windy and it caught fire. It burned for a little while cause I prayed for it – prayed to it. I said just leave us alone and we don't want fire. So, she said she prayed to it and then they prayed to the spirit and the fire went out right away. Yeah. . . Yeah, it comes close. So you're not supposed to cook [with greasy foods]. . . *ʔerelyël*, *nagodhełt'í* ('thunder, lightning'). *Nagodhełt'í* ('lightning'), that's the thunderbird.

Figure 67. Ice forming on Great Slave Lake near Dettah, N.W.T. in November 2015. Elders throughout the Northwest Territories note that thunderbirds either migrate south or enter a state of dormancy beneath frozen lakes in winter and then they break up the ice when they emerge in spring.

Another Dëne Sųłiné speaker commented: "When it [thunderbird] goes into the lake in the wintertime it freezes over. Then when they come back out in the springtime, that's when the ice breaks up. So, they're everywhere." Elder, Daniel Alphonse, added: "Even in the big great lakes, all of a sudden a big thunderstorm comes up, it'll [lake ice] all be crushed up. That's when they come out, they say. Thunderbirds are out." A Dëne Sųłiné speaker from Manitoba said:

> The thunder being is small. We don't know what the size of it is. And when he wakes up, or when it wakes up, its eyes are where the lightning comes from. And when he moves his wings just a bit, that's the thunder. And that's the actions of it and, you know, that's when it comes alive.

Yellowknives Dene elder, Peter Sangris, commented on the relationship between lightning and cooking greasy foods. Through an interpreter, he said:

> If you see the clouds and it's really dark you know it's a rain clouds in spring and summertime, early fall. You know that it's rain clouds he says. So you have to watch the weather, you have to watch the clouds all the time and then if you are going to cook something over the fire, over the open grill or something, don't ever cook fatty food like fish. Because the smell of the fish oil cooking in that, it's going to attract the lightning bolts towards wherever that smell is coming from. So never cook outside while it's raining or thunderstorm.

Through an interpreter, Eddy Sikyua of Ndilǫ said:

> It's thunder, but it's a small thing, but really loud. And that you know when they're out hunting, he said they don't cook greasy foods when it's thundering out, because it attracts grease [i.e., it is attracted to grease], the lightning. So, they try to avoid cooking greasy fish or fatty meats, caribou or moose. Because when it's thundering out it goes to the grease, I guess.

Madeline Beaulieu of Dettah, who also used an interpreter, corroborated:

> That [thunder/thunderbird] too, it looks for people cooking with grease and it goes towards it she says. So always be careful where [there is] thunder. They don't cook fish or fry meat . . . I heard she says 'it's small' . . . It smells. The thunder smells what's cooking and it goes to it. . . [our] ancestors used to tell us don't cook an open fire when it's thundering out. . . Yeah, she says this one is smelling around, smelling for grease she says.

Alfred Baillargeon referred to the thunderbird as *ʔɻyez delttho* ('yellow bird'), which he described as a tiny yellow bird the size of his two crossed index fingers. He recalled that his grandfather found a thunderbird near Quarter Lake that had been killed in a tree during a lightning strike. Fred Sangris also referred to the thunderbird as *chı̀ą dekwo* ('yellow bird'), which he described as a small brown and yellow bird approximately the size of his thumb.[183] Fred provided an extensive description of his knowledge and understanding of thunderbirds:

> OK, we'll talk about that little bird. That little bird is a very small bird. And in my history and in my culture, we're not allowed to talk about it. Because we could get lightning, hit by lightning in this house here. That's [a] small little bird, but very powerful. Very powerful. Of all the shamans and of all the wise people, this is the bird that they look forward to. When a young man goes to the mountain or the hill to seek his vision, eh, this is the one bird that you want to be able to make contact with. You know, so that in your life this is the bird that's going to be your guide, guidance in life. Through shamanism, through medicine, you know, through life, eh.
>
> And that little bird is very small bird. It's probably the size of your thumb. Very small bird. You can't see him. But on a very spring day, he's very active in mid-April, May, and part of June. Those are the three months he's very active. He's probably in Oklahoma right now causing lot of trouble there, that little bird. It migrates, eh. But when he's here in the spring you can hear him fly, but you can't see him, because he's a tiny little bird.

[183] The name for the thunderbird that Alfred provided (*ʔɻyez delttho*) is in the Tetsǫ́t'ıné dialect of Dëne Sųłıné, whereas the name that Fred provided (*chı̀ą dekwo*) is in the Wıìlıìdeh dialect of Tłı̨chǫ.

On a clear day we were just resting, you know. Usually what we do is we go beaver hunting with a canoe, eh. The ice start to melt and along the shorelines, there's just enough room for canoe to paddle through once the ice melts. And lots of migration birds are coming. And all of a sudden, you're paddling slowly and quietly and then you hear this little bird way up there [Fred imitates the sound of the bird's beating wings], it goes like that. And you're looking up, you know. Oh, this is not good because that little bird is thunderbird. That little bird is going to bring weather. It's going to bring storm, it's going to bring wind, it's going to bring rain. But whatever happens, a storm is coming. And that's a sign. And when we're out on land canoeing or something we don't want to hear this bird. Most hunters don't want to hear it. Because he brings storm, eh. He's a little powerful bird. And not long after, you know, that bird getting in the sky making all that noise, then you'll see the storm moving in. The storm comes.

This is one bird in our history that is probably what we call the closest to God. Because he's got some kind of power and he's got a connection. And that storm comes from out of nowhere and he's very connected somehow. But that little bird makes a lot of noise. Sometime two birds, sometime one will be over there, another one will be [in a] different direction, eh. They'll be helping each other. And if you have two birds doing the same thing, you know, then you expect to camp right away; set up your camp. Cause that bird is very small but it's a very powerful bird. And it makes thunder. And thunder and rain will come right after that. And usually it does. I say about 90 percent of the time it does. It's pretty accurate.

So that little bird, we don't talk about him very much, but we call him the thunderbird, eh. And if they didn't tell you what it looks like I can probably tell you. It looks like a canary, small little bird. They're kind of yellow and sometime they're brown. And I don't know if you ever see a small canary here, wild birds, eh. They fly. You probably see them in Yukon and other place too. But they're small little yellow bird and they don't make a lot of noise. On a sunny day they'll be nesting in a tree behind you, you know. They don't make a lot of noises. But when they want that storm to come, oh yeah, it makes lots of noise. Yeah, very powerful bird.

. . .They're still around. Last spring, I was [at my camp]. My camp's here, about three miles [from] here. I skidoo'd there just before the snow start to melt and my son and I were camping there on a beautiful day and then I heard it. I heard it way up there. [Fred imitates the sound of the bird's beating wings], it goes like that. You can almost - you know, he [is a] small bird but he's got a small wing, eh. You can almost hear the wing, you know, at the very end. [Fred imitates the sound of the bird's beating wings again], just like that. Just like that sound, [Fred makes the sound of a rapidly descending bird]. Just all from the feather, from the wing, eh. It makes that noise. Yeah, I tell my son this, I didn't want to hear that bird [laughs]. Something's gonna come. I say storm's gonna come.

Yeah, so it's a small little bird, but very powerful in our culture and well respected. . . *Chịą dekwo* ('yellow bird'). Very small. I think he's probably about no more than three inches. With the tail, maybe four inches. Small little bird. It could sit right in your hand. . . He makes the storm. And he's the boss. From what

we heard there's no one above him. If he wants rain on his nest, on his eggs and if he wants that storm to come, you know, he'll make it. Yeah, he's got it all in his hands so you can't really expect to have good days all the time with this bird, eh. Sometime, you know, he's going to make the storm come. We call him the thunderbird because he's got that connection. So, every now and then you'll hear that bird trying to make the storm. But sometime you'll hear him and nothing happens, eh. 'Ah, nothing's going to happen today. Ah, we heard the bird. Nothing's going to happen.' You go home and you sit in your teepee, eh. And by next morning pouring rain, next morning. And that's what happens. It might not come right away, but it'll come. And that's what he does, eh? Small little bird.

Yeah, we see them here. I been hearing them in 1960's, 1970's, 1980's and last spring I been hearing them too. They're around. They migrate. One time I was camping, probably late April, I think. And I was camping, I was cooking some beaver meat and some stuffing and I seen two birds land right beside me on the branch, real close. And they were yellow, about that small. Two, three yellow birds, eh. Didn't say nothing. I don't want to say nothing to that little bird, you know. He's a little troublemaker. So, I watch him and watch him and watch him and then they both flew away. I didn't want to have nothing to do with them. Yeah, I don't even want to talk to him. He might make a storm, you know.

Yeah, but they migrate. They come here. You'll find them all over the forest and sometime right in your back home you hear, in Dettah or Ndilǫ, right in your back home if you got a willow tree, like birch, willows or birch. Mostly on birches, he lays his nest on birch. If you find a birch that has three - two or three

branches growing apart, that's where you'll find. He never puts his nest on the spruce or any other tree. It's always the birch or the big willow; the big dry willow, eh. And I don't know why he never puts his nest on a spruce tree or any other tree. Just these two trees, that's it.

Sahtúot'ı̨nę elder, Charlie Neyelle, explained that thunderbirds are about the size of a table knife and corroborated that they are attracted to the smell of greasy foods cooked over an open fire. Charlie noted that the return of thunder in early spring is a sign that the summer will be plentiful as opposed to a time of sickness or famine. When thunder was first heard in early spring, Charlie recalled that elders greeted it with thankfulness. He said:

Nágǫhtene ('thunder/thunderbird'). He's about the size of a table knife [Charlie holds his fingers about 10 inches apart]. Just about that big is *nágǫhtene*. He's the one that making all that noise. . .Thunderbird, *nágǫhtene*. When the elders sitting outside and they see the big white cloud, and another one over here, oh boy, when they hit each other it's gonna storm.

When the thunder one's gone for a long time, [when] it never show up here and then they say that it's going to be a bad sign. There's going to be sickness. He tells you. There's going to be no food. There's going to be some kind of sickness going to come to the whole country, when he [thunder/thunderbird] was gone for a long time. When the elder was saying when there's still ice out there, a little bit of snow, when the thunder come up [from beneath the ice], you hear a thunder. And then I used to see them old people, 'Eh, *másı, másı* ('thank you, thank you'). Thank you so much, it's going to be a good summer,' they said, this year.

So when he [thunder/thunderbird] come up early and then it really a sign for the thunder's going to come up . . . It's about the size of a kitchen knife [Charlie claps his hands together to imitate the sound of thunder]. When he hit the top of the tree he can split it right down to the ground. So, when it rain like that, when it thunder you never go under the tree. You don't go under the tree. You gotta stay away from it. And beside that, when the thunder comes you don't get your fire going. If the smell of the fish or meat and pepper goes up, then he go after it.

Another Sahtúot'ıné elder related the thunderbird to a woodpecker (*chıhkw'ıne*) and noted that one of her relatives found a thunderbird that had been killed in a tree during a lightning strike. Upper Tanana elder, Mary Tyone (Tyone and Kari 1996, 74-75), told a short narrative about her father's accidental discovery of blue thunderbird eggs among the rocks on Wellesley Mountain. She prefaced the narrative by noting that he also found a dead thunderbird in a tree that had been struck by lightning:

There is a bird in that thunder. My dad [Bell John] says he has a breast like a dog and he looks like a spruce hen. Sometimes they find him where thunder lands and splits a tree. Sometimes that thunderbird is dead in there. This happened when I was really small.

The thunderbird's attraction to greasy foods and its preferred nesting habitat on treeless hills and mountains is also reported among the Dan-zaa (Goddard 1916, 260, Ridington 1988, 196-197, 1990, 18). Pliny Goddard (1916, 260) writes:

They [thunderbirds] breed where there is a high hill. They destroy all the timber where they make their nest. They live on every high mountain. The places where

they live are dangerous. Only men with strong supernatural power can see them. Those are the only ones who know where they live. As soon as a person who has nothing of that kind (supernatural power) comes near, they attack him. The people who do not see them are afraid of them. They say they can kill a man because they are strong. 'Earth's roots' are the only things which are stronger than they are. They tear twisted trees to pieces.[184]

With respect to the Dakelh, Jenness (1943, 539) briefly states: "Thunder the natives attributed to the flapping wings of a bird, about the size of a grouse, that lived on top of a mountain. . ." While thunder is produced by the thunderbird's beating wings, lightning is occasionally described as a product of the bird's blinking eyes or other bodily motions. In this respect, Jetté and Jones (2000, 512) state:

> The Ten'a [Koyukon] believe in a thunderbird, whose eyes throw the lightning, which is consequently expressed as *k'enohkkune'* 'eyefire of the thing', and *nodootlk'eteledeyhtl* 'the thing winks'. It also makes the noise: *k'edelghus* 'the thing makes noise', i.e., it thunders. The Ten'a however consider it to be a rather small bird, about the size of a ptarmigan, and some have known people who have seen it.

With respect to the Tahltan, James Teit (quoted in Honigmann 1954, 103) states: "Thunder is a bird, and the noise of thunder is caused by the flapping of its wings. Its armpits are red, and when these are exposed by the extending of its wings, the red is seen as lightning." Linguist, Sharon Hargus (2000, 45, 104) elicited the phrases *nàhtuni dzè'* ('thunder's heart') and *nàhtuni dzoǫ̀dzà'* ('thunder's bird') as Sekani names for the thunderbird which are also

[184] In a footnote Goddard (1916, 260) writes: "In reply to a question the informant added that the thunderbirds are about as large as the jackpine partridges. He said his father used to go to see the thunderbirds."

synonymous with a species of bluebird. With respect to Sekani concepts of thunder and lightning, Desgent and Lanoue (2005, 170) write: "Thunder comes from the thunder-bird *Natani* flapping its wings. The opening and closing of its tail causes the lightning."[185] In comparison to the Deg Hit'an, Cornelius Osgood (1959, 50) writes:

> Thunder and lightning are caused by a black bird the size of a raven, which flies high in the sky and comes down fast making thunder with its wings which flap like those of ducks settling on water. The speed of this bird through the air causes lightning. The thunder-bird has a wife but she makes little noise.[186]

In few instances, thunderbirds are regarded as gigantic birds like those often described in other Native North American cultures (see, for example, Eells 1889, Chamberlain 1890, Birket-Smith and de Laguna 1938, 233, de Laguna 1972, 804, Lenik 2012). For example, Ahtna elder, Charlie Hubbard said: "I don't remember the word for thunderbird, but they used to talk about a big bird. You know, giant bird. . . Usually [lives] in the mountains. And it wouldn't have been a condor because they say it would take animals." Descriptions of giant thunderbirds that produce lightning by blinking their eyes are also reported among the Gwich'in (McKennan 1965, 76), North Slavey (Petitot 1886, 283, 1890, 79, Petitot and Savoie [ed.] 1970, 81-82), Dëne Sųłiné (Birket-Smith 1930, 81), Dakelh (Morice 1932b, 298, 1932a, 307), and Tsuut'ina (Curtis 1970 [1928], 112). With respect to the Gwich'in, McKennan wrote: "Thunder and lightning are believed to be caused by a huge bird, thunder resulting from the flapping of his wings, and

[185] In another entry, also quoted from Diamond Jenness's unpublished notes, Desgent and Lanoue (2005, 169) write: "Thunder arises from the flapping wings of the thunder-bird, *Edjidji*. Once a youth named *Adji* saw the young of the thunder-bird and obtained medicine from it. Lightning is caused by a mouse flicking out its tongue."
[186] In a subsequent section Osgood (1959, 115) states: "Little is known about him [thunderbird] except that, according to one explanation, lighting is fire from the thunderbird's eyes. It is misfortune when he looks at anyone."

lightning from the flashing of his eyes." In my experiences, however, Gwich'in elders strongly rejected the concept of a thunderbird.

A list of Northern Dene names for thunderbirds is shown below in Table 30. Notably, Dene names for thunderbirds are highly variable from one language to the next. A few names literally translate as "thunderbird" (e.g., *nahten tsúgaay*) while several others are synonymous with the standard lexemes for "thunder" (e.g., *nágǫhtene*). The names that correspond to thunder are not, however, all that surprising given that thunder and thunderbirds are one and the same.[187] Names that refer to a particular type of bird (e.g., *chı̨hkw'ı̨ne*) or else describe a bird or birds more generically (e.g., *ʔı̨yez delttho*) are highly variable across languages but are not entirely idiosyncratic.

Table 30. Northern Dene names for Thunderbirds.

Name	**Language (ISO-639-3) – dialect/region**	**Source**
łteni nanghidaetl'	Ahtna (aht)	Fieldnotes
nahten tsúgaay	Tanacross (tcb)	Fieldnotes
nahtan ts'ugaay	Upper Tanana (tau)	Fieldnotes
injUR [njʊ̀r]	Southern Tutchone (xsl)	(McClellan et al. 2007, 122-123)
nàhtuni dzè'	Sekani (sek)	(Hargus 2000, 45)
nàhtuni dzoǫ̀dzà'	Sekani (sek)	(Hargus 2000, 104)
edjidji	Sekani (sek) - Fort Grahame	(Desgent and Lanoue 2005, 169)
natani	Sekani (sek) - Fort Grahame	(Desgent and Lanoue 2005, 170)
natane	Dane-zaa (bea)	(Ridington 1988, 183)
idi [ɪdɪ]	North Slavey (scs)	(Petitot 1890, 79)
nágǫhtene	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
chı̨hkw'ı̨ne	North Slavey (scs) - Sahtúot'ı̨nę	Fieldnotes
chı̀ą dekwo	Tı̨chǫ (dgr) - Wıı̀lıı̀deh	Fieldnotes
ʔı̨yez delttho	Dëne Sųłné (chp) - Tetsǫ́t'ıné	Fieldnotes
ʔı̨yez nechíle	Dëne Sųłné (chp) - Tetsǫ́t'ıné	Fieldnotes
ídíye det'ané	Dëne Sųłné (chp)	Fieldnotes
ɂerelyël	Dëne Sųłné (chp)	Fieldnotes
i-dí-hi	Dëne Sųłné (chp)	(Curtis 1970 [1928], 204)

[187] Note that terms for thunder and thunderbird are also synonymous in Eyak (*qeʔgu·l*) and Tlingit (*xʼétl*) (Krauss 1970, Leer, Hitch, and Ritter 2001, 24, 145).

Northern Dene lexemes for thunder are shown below in Table 31, followed a list of names for lightning in Table 32, in which the majority literally translate as 'thunder fire.'

Table 31. Northern Dene names for "thunder."

Name	Language (ISO-639-3) – dialect/region	Source
*-təm	Proto Dene	(Kari 2020, 296)
nahtan	Gwich'in (gwi) - Alaska	(Peter 1979, 132)
nèhtanh	Gwich'in (gwi) - Vuntut	(Montgomery et al. 2000, 71)
nàhtànn	Hän (gaa)	(Ritter and Paul 1980, 75)
neɬteni	Lower Tanana (taa)	(Kari 2020, 296)
niɬtine	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 108)
neɬten, neɬtene	Koyukon (koy)	(Jetté and Jones 2000, 512)
niɬtin	Holikachuk (hoi)	(Kari et al. 1978, 25)
niɬtin	Deg Xinag (ing)	(Kari 1978, 45)
k'eltemi	Dena'ina (tfn) – Outer Cook Inlet	(Kari 2007, 153)
neɬteni	Dena'ina (tfn) – Inland & Upper Cook Inlet	(Kari 2007, 153)
beɬteni	Dena'ina (tfn) - Talkeetna	(Kari 2007, 153)
ɬteni	Ahtna (aht) – Central & Lower	(Kari 1990, 333)
neɬteni	Ahtna (aht) – Mentasta & Western	(Kari 1990, 333)
naɬtene, naɬten	Middle Tanana (taa)	(Kari 2019b, 149)
nahtên	Tanacross (tcb)	(Arnold et al. 2009, 270)
nahtan	Upper Tanana (tau)	(Milanowski 2009, 10)
nàtän	Upper Tanana (tau) – Scottie Cr.	(John and Tlen 1997, 67)
nátaan	Northern Tutchone (ttm) - Mayo	(Ritter 1976, 45)
njù̀r	Southern Tutchone (xsl)	(Tlen 1993, 58)
ditni	Dakelh (crx) - Central	(Walker and Wilkinson 1974, 81)
dïtnïc	Witsuwit'en (bcr)	(Hargus 1999, 110)
nehtene, nehteni	Kaska (kkz)	(KTC 1997, 394)
idîji	Kaska (kkz) – Frances Lake & Ross River	(KTC 1997, 394)
nàhtuni	Sekani (sek)	(Hargus 2000, 104)
naahtane	Dane-zaa (bea)	(Holdstock and Holdstock 1986, 34)
ʔidi	North Slavey (scs)	(Rice 1989, 186)
idíi	North Slavey (scs) - Shúhtaot'ı̨nę	(KTC 1997, 394)
nágohtene	North Slavey (scs) - Sahtúot'ı̨nę	(Modeste and Tatti 2012)
eezii	Tlı̨chǫ (dgr)	(Saxon and Siemons 1996, 26)
ídíí	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 160)
ndahteni	Dene Tha' (xsl)	(Moore et al. 1980, 64)
náhteni	Dene Tha' (xsl) – Fort Nelson	(Rice 1983, 55)
hurelyel	Dëne Sųɬné (chp)	(Kaulback et al. 2014, 127)
ɪdījɪ	Tahltan (tht)	(Carter and Carlick 1994, 69)
ʔindiny	Tsilhqot'in (clc) - Xeni Gwet'in	(JHLC 2020)
uneˈ', u.neˈ'i'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 14)

Table 32. Northern Dene names for "lightning."

Name	Language (ISO-639-3) – dialect/region	Source
nahtan kon	Gwich'in (gwi) - Alaska	(Leer and Peter 1999, 93)
nèhtanh kwàn	Gwich'in (gwi) - Canada	(Montgomery et al. 2000, 77, GSCI 2009, 140)
nàhtänn kònn	Hän (gaa)	(Ritter and Paul 1980, 73)
kwndoɬt'ol	Lower Tanana (taa)	(Kari 2020, 322)
niɬtinekwna'	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 57)
tloolohu̶teldeyhtl	Koyukon (koy) - Central	(Jetté and Jones 2000, 585)
tloolohu̶telyaayh	Koyukon (koy) - Lower	(Jetté and Jones 2000, 585)
niɬtin naxqun	Holikachuk (hoi)	(Kari et al. 1978, 25)
niɬtinqun'	Deg Xinag (ing)	(Kari 1978, 45)
tsila, shila	Dena'ina (tfn) – Upper Cook Inlet	(Kari 2007, 152)
shila, delvashi	Dena'ina (tfn) – Inland & Outer Cook Inlet	(Kari 2007, 152)
i'nakone'	Ahtna (aht)	(Kari 1990, 244)
naɬtene' kone'	Middle Tanana (taa)	(Kari 2019b, 149)
nahtên kónn'	Tanacross (tcb)	(Arnold et al. 2009, 165)
nahtan künn'	Upper Tanana (tau)	(Milanowski 2009, 10)
nàtän kònn'	Upper Tanana (tau) – Scottie Cr.	(John and Tlen 1997, 65)
nátaan kwán'	Northern Tutchone (ttm) - Mayo	(Ritter 1976, 44)
njùr nädàk'ą	Southern Tutchone (xsl)	(Tlen 1993, 57)
ditnikwun	Dakelh (crx) - Central	(Walker and Wilkinson 1974, 81)
dïtnïc kwi'n	Witsuwit'en (bcr)	(Hargus 1999, 110)
nahtenekóné'	Kaska (kkz)	(KTC 1997, 386)
idîjikóné'	Kaska (kkz) – Francis Lake, Pelly, & Ross River	(KTC 1997, 386)
nàhtuni kwùnè'	Sekani (sek)	(Hargus 2000, 104)
naats'istɬiyashi	Tsuut'ina (srs)	(Starlight and Donovan 1996, 20)
ʔidikóné	North Slavey (scs)	(Rice 1989, 186)
idíikóné'	North Slavey (scs) - Shúhtaot'ıné	(KTC 1997, 386)
nágohtene kǫ́né	North Slavey (scs) - Sahtúot'ıné	(Modeste and Tatti 2012)
eeziikǫ̀ǫ̀	Tlıchǫ (dgr)	(Saxon and Siemons 1996, 26)
íítɬ'ı	Dene Tha' (xsl) – Hay River	(Kaulback and Buckley 2008, 157)
ndáhtenikóné	Dene Tha' (xsl)	(Moore et al. 1980, 65)
náhtenikóné	Dene Tha' (xsl) - Fort Nelson	(Rice 1983, 55)
nagodheɬt'í	Dëne Sųłıné (chp)	(Kaulback et al. 2014, 77)
dedıtī	Tahltan (tht)	(Carter and Carlick 1994, 21)
ʔindiny detɬig	Tsilhqot'in (clc) - Xeni Gwet'in	(JHLC 2020)
une˙da'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 10)

Deterring Unfavorable Weather

Because weather has sentience and a human-like agency it is responsive to different actions, methods, and techniques employed to coerce, attract, or divert it. With respect to the Koyukon, Richard Nelson (1983, 16) states:

> The scope of Distant Time stories ranges from minute to cosmological. They explain the beginnings of entities that inhabit the sky – the sun, moon, and aurora. They account for certain weather phenomena, such as thunderstorms, which are the transformed embodiment of a formerly human spirit. For this reason thunderstorms have consciousness and can be turned away by people who know how to influence them.

Rain, thunderstorms, and wind, caused by thunderbirds or other sentient manifestations, are among the most common types of weather that Northern Dene peoples attempt to divert or influence through ritualized behaviors and actions. One method is to face the thunderstorm while performing cutting motions with a knife. Through an interpreter, Sahtúot'ı̨nę́ elder, Alphonse Takazo explained:

> . . . people do say it [thunder] is a bird. . . He says sometimes you'll notice when there's a storm. Like you'll see really dark clouds coming, just dark. *Tl'é* is dark. And then you can hear thunder. And then you can see lightning. Thunder's *nágǫhtene*. Lightning is like *ʔedíkóné*. And sometimes old ladies, they would take a knife; a knife, and they would face it towards that dark clouds and all that thunder and lightning and she make it into a cutting motion [i.e., ritually cuts apart the thunderstorm]. And then that clouds would break up and that storm will disappear, thunder and everything.

A millennial first language speaker in Délı̨nę learned the same practice from her grandmother. Notably, it is usually women and young girls who use knives and other sharp objects to cut, pierce, or redirect thunderstorms.[188] With respect to the Hän, Mishler and Simeone (2004, 234) write:

> . . . Han women can change the route of a thunderstorm by making an arrow on the ground out of sticks or rocks and pointing the arrow in the direction they want the storm to go. They often do this while they are out berry picking. In Moosehide they 'cut the sky with a knife' to make the sun come out.

Another Sahtúot'ı̨nę method for deterring thunderstorms is to throw a handful of salt into the fire. This practice has efficacy when cooking greasy foods during inclement weather, which attracts the thunderbird. Through an interpreter, Alphonse Takazo explained:

> He says sometime it [thunder and lightning] comes really close and it gets really loud. So, what you do is to prevent it, to make it go away, you take salt, and if you're in a camp [and] you have a campfire, throw the salt into the fire. If not, if you've got a woodstove, put it [salt] on the woodstove so this will go away.

Charlie Neyelle corroborated:

> . . .when the thunder comes you don't get your fire going. If the smell of the fish or meat and pepper goes up, then he [thunder/thunderbird] go after it. So sometime when [there is] something (food) that he [is] pleased with, and you had

[188] In comparison to the Central Yup'ik, Fienup-Riordan (1994, 260) states: "Still today in western Alaska, women sometimes climb to a high point and perform a simple ceremony to produce good weather. Turning to each of the cardinal points in turn, they touch their index fingers to their mouth, blow on the tips, and then turn their fingers outward and perform a tearing motion, moving them apart. By this act, they make holes in the sky, letting in the good weather."

a handful of salt, you throw it in the fire and then he won't bother you. Little bit of salt.

In comparison to Dena'ina practices, Anna Birgitta Rooth (1971, 62) writes: "If they wanted fine weather, they should put two blue flies into the oven, into the fire saying, 'Go back to the sun and give us fine weather!' or saying, 'Go back to the sun and give us a good!'"

A Gwich'in method for deterring thunderstorms is to point the burning end of a stick in the direction of the approaching storm, which is said to split it in half. A variation is to place the head of a pike fish on a stick facing the storm. The pike's head, which contains especially sharp teeth, will either intimidate the storm or tear it apart like the method that employs ritual cutting with a knife. With respect to the burning stick strategy, Robert Frank, of Venetie Alaska said:

> . . .when you go out hunting or take a hike and you see a big rain is coming towards you, did they ever tell you about that? If you got a campfire, whatever [sticks] burn in half, get that one with the fire, spark on it. You poke it toward the thing [thunderstorm]. Sometime it work, sometime it don't, I tell them. But lots of time the whole place is dark, but we never get the rain. Weird, when we do that. We point at it, you know, like 45-degree angle in the ground. And that fire is going on the [other] end. They say it split [the thunderstorm]. It happened lots of time. I even hear about that thing up around Northway area too.

The Gwich'in also used a bullroarer called *zhee zhrįh* (O'Brien 2011, 82-83) or *neenya'* to deter thunderstorms. The tool not only threatened to cut the thunderstorm but also produced an intimidating "buzzing" sound. O'Brien (ibid., 82) notes that the notched configuration on the blade of the bullroar could be altered to produce different noises, in which some "sound like barking dogs." O'Brien (ibid. 82-84) writes:

The rain chaser is made from clear white spruce chosen for its lightness. The tool comprises two primary components: the stick handle and the blade. The blade is elliptical in configuration and notched along the length of both lateral edges. It is fastened to a small, light stick with a length of babiche or twine.

This tool was used frequently in the early days. Its purpose is to chase away foul weather and clear the skies of squalls. Rev. [David] Salmon's parents always kept a rain chaser in their camp and, when traveling, the tool was very important. The tool was utilized extensively during their annual treks to Fort Yukon to resupply with provisions. Calm weather is needed to trackline canoes and boats upriver. The rain chaser was used to intimidate any threatening squall that would impede the progress of travelers.

Several rituals and rules existed in regard to the prescribed use. The tool was never used for fun but only operated for the purpose of producing good weather. If the tool was worked during a period of good weather, it was believed that storms would inevitably come. Successful use of the rain chaser to gain the desired result demanded that all those within the camp or group believe in the power of the tool.

To use the rain chaser a person first selects open surroundings. Next a piece of charcoal is taken from the fireside and a series of alternating stripes at 45-degree angles are marked on each side of the blade. The person then takes the tool by the handle and extends the arm outwardly, twirling the handle three or four times in a clockwise rotation. This movement is then altered to a counterclockwise rotation. The process is repeated several times.

> The centrifugal action on the blade caused by the rotation extends the babiche line tautly and the blade spins as the line twists. The notched surfaces of the spinning blade produce a distinctive buzzing noise. If the notches are configured in another pattern, the sound produced will be altered. Rev. Salmon noted that some rain chasers sound like barking dogs.

Cornelius Osgood (1936, 100) also describes the bullroarer and notes that the Gwich'in used it as "an instrument to scare away rain." Gwich'in elder, Trimble Gilbert, described the same device which he referred to as *neenya'*. With respect to deterring thunderstorms he said: "*Neenya'* is when a storm is coming towards us and then they use it too, you know. Like the weather, stopping raining or storm, *neenya'*."[189] Trimble also showed me a traditional buzz-toy called *ch'akwài' hqqtr'il* that he made from the joint of a caribou cannon bone (see Appendix A). Although not associated with deterring weather, the latter device is said to open one's hearing. With respect to the use of the bullroarer by the Dena'ina, Osgood (1937, 175) states: "A buzz-toy (apparently a kind of bullroarer) is swung on the beach when the waves are rolling in in order to make fine weather." Honigmann (1954, 114) notes that the Kaska employed the device to achieve a similar result and writes: "The bull-roarer possessed magical power and a man swung it for magical assistance, to chip stone successfully and also to bring about milder weather."

The Deg Hit'an employed several methods for deterring thunderstorms that involved nets, sharp objects, and the sound of yelping dogs. Cornelius Osgood (1959, 50) states:

> Thunder may be kept away by spreading an old fish net on some poles a few feet above the ground anywhere around the village. Another protection is to erect a

[189] Robert McKennan (1965, 137) recorded a Gwich'in version of the Spider Woman story where two girls are instructed to deter a thunderstorm by removing their pants and turning their backs to the wind.

series of twelve-foot poles with bones knives pointing upward tied on the ends. Also women may beat bitches with willows to make them yelp as the thunder-bird is thought to be afraid of that sound.[190]

The method of deterring a thunderstorm by enticing a female dog to bark is also employed by the Koyukon. Jules Jetté (1911, 252) writes:

> To put an end to a thunder-storm, which is not a frequent phenomenon on the Yukon and consequently frightens the natives, a Ten'a generally an old woman, will bite the ear of a bitch. This makes the animal howl, and the surrounding group of Ten'a say to the thunder: *no̥-'ot ka dinlḁ'atl* [*ne'ot kk'e deenle'aatl*], i.e., 'you have trodden upon your wife', which of course, persuades the thunder to keep quiet.[191]

Charlie Hubbard described an Ahtna ritual called *caan isax* ('he hooked the rain') that involves blowing across one's cupped palms towards an approaching thunderstorm. He said:

> There's certain rituals, like *caan isax*, you know. [It] means blow the rain [Charlie demonstrates by blowing across his cupped hands]. And the medicine man would do that [Charlie blows across his palms again] and the rain would slow down, stop. And I've seen that happen.

Charlie added:

> You know, especially if you're out there in the woods, not so much if you're in town. But you can see the rain starting to come to you, *isax* ('he hooked it') [Charlie makes a blowing sound], you know. And you blow it away.

---

[190] In a subsequent section Osgood (1959, 125) writes: "Anyone who has this [thunder] 'song' can keep thunder away by 'singing' it, blowing on the end of a stick, and making four passes in the direction of the thunder."
[191] Cf. Nelson (1983, 42) and Jetté and Jones (2000, 29).

Catharine McClellan describes several Tagish methods for deterring rain and thunderstorms that also involve pointing sticks towards them, blowing on one's palms, and a ritual practice related to young women in puberty seclusion. McClellan (1975, 84) writes:

> If a thunderstorm is coming, people can try to stop it by pretending to spit on their hands and then spreading out their palms and blowing on them while saying, '*t'u, t'u . . . s'A s'A* - Go that way! Go that way!'
>
> A person may be able to make the rain stop by peeling a willow stick and tying to it all of the peeled bark so that it looks like a back pack. The whole stick is then propped on a second one with the 'pack' pointed in the direction from which the rain is coming. 'They claim you make a pack for thunderbird.'
>
> A more dramatic way of trying to stop a prolonged rain is to build a huge fire and then pretend to burn up in it all of the girls who are in their puberty confinement. The people gather and shout. 'We are burning her! We are burning her!' as loudly as they can. Then they talk about how they have burned the girls up, while the latter sneak away into the bush. They hope that the weather will hear and no longer be angry.[192]

In addition to the standard lexemes for thunder (e.g., Upper Tanana, *nahtan*; Koyukon, *nełtene*; Upper Kuskokwim, *niłtine*; Ahtna, *łteni*; Sahtúot'ı̨nę, *nágǫhtene*) the sound of thunder is occasionally described as the words or language of an animate being. An example from Upper Tanana is *nahtan hǫǫhey* ('thunder is talking'). Similar phrases in Kaska and Lower Tanana are *nełtenı dedi* ('thunder is speaking') and *edíjī gudedé* ('thunder is talking'), respectively (Yukon Native Language Centre 1987, 15, Kari 2020, 266). Conversely, Gwich'in elder, Trimble

[192] See McClellan (1975, 83-84) for several other Tagish methods employed to influence weather.

Gilbert, described the collective howling of a wolf pack as *zhòh nahtankhyàh datthak* ('together the wolves will speak like thunder') and noted that these are "old words." He referred to a lightning strike as *nahtan gwinaatùu* ('thunder drilled/augured [the ground]').

Wind is another major weather phenomenon that has agency but also responds to the will and behavior of other beings. A Sahtúot'ıne speaker explained, for example, that a chinook wind occurs when a bear rolls over in its den whereas trees routinely ask for a strong wind to clear their branches after becoming heavily loaded with fresh snow.[193] Alternatively, Dëne Sųłıné speakers noted that Ravens call for strong wind whenever they want to play. Whirlwinds, however, are often interpreted throughout the Northern Dene region as a benevolent manifestation.

Regardless of its origin or manifestation, wind is often a hindrance to travel, particularly on open water. The following methods for deterring wind employ ritual shooting that is sometimes accompanied by verbal commands. Dëne Sųłıné speaker, Dennis Drygeese of Łútsëlk'é, described how his uncle taught him to deter wind while stormbound on an island during a hunting trip:

> Well, when I was about 13 year [old] I was in the tundra, Barrenlands with my uncle Eddy Drybone. And he's a really bush guy. He lived on the tundra. He was born on the tundra. He knows everything about changes in weather, changes in the animals, even changes in insects. You know everything he saw, there was a reason behind it.
>
> But one day we had no food. We were on an island called Crystal Island and the caribou was late. And all we were living on was rabbits, jack rabbits and

[193] Cf. Tatti (2015, 24-25).

ducks and fish. We couldn't [get out] because it had been so windy for like a week and a half. And it would just blow wind and we couldn't get out. But one day he was looking in the binoculars. He saw these muskox way yonder on a hill. So, me, him, and his two daughters and his dog he called Joe, holly man, that dog was smart. He understood Chipewyan. No matter how bad the weather was we put our gear [on]. I was thirteen years old mind you. I was just a small guy at the time. But we had no food. We had to go. So, no matter how big the waves were, we went across to the mainland. And we hiked over two hills and finally that dog just started going crazy. Cause he got the scent now, eh. So, we went over another hill and there they were. A whole herd of muskox. And they did their thing there where they corral in a circle because his dog would just, a couple dogs were just going around and around.

Anyways, we got this one bull. I shot him about six times with 30.06. From there I killed this bull. That's all we needed was one. And these dogs kept chasing these muskox around. This one bull just went [Dennis makes a goring gesture], caught this one dog right through the leg with his horn. And it yanked through it. It just [Dennis imitates the sound of a yelping dog], it hit it. So that old man shot that dog because he had no time for try to mend it.

Yeah, so anyways we were there hunting this bull muskox. So, we cut all the meat up and we made our way back to the shore and that waves got even worse; even worse. So, we stay there. We made fire, made tea. Figured it would calm down. We ate. We had some tea, nothing. It was still like that. So, this elder told me to come. He says, you know, he gave me a .22. He gave me three bullets.

He said, 'Three times you see the whitecaps come. Shoot the whitecap and say *dı̨gel* ('calm down'). Say *dı̨gel* three times.' So, every time a whitecap came, I shot it [Dennis imitates the sound of a gunshot], *dı̨gel*, *dı̨gel*, *dı̨gel* ('calm down, calm down, calm down'). Another whitecap [again, Dennis imitates the sound of a gunshot] *dı̨gel*, *dı̨gel*, *dı̨gel*. Same thing, another whitecap. Three times I shot a whitecap. Honest to God about half an hour [later], you know, we're still sipping tea. It just calmed down. Not really calm, but enough to get us back to our camps. Yeah, and the same thing he says. And right there and then says, 'You know if you're not near water, you're on the land and it's really bad weather, if it's wet snow but summer and it's blowing like crazy, you can always be sure to see a raven dancing in the wind,' he says. 'And if you see that you go look for a raven. They're always in the cliffs. And you shoot a raven and say *dı̨gel* three times,' he says. . . The raven's calling for bad weather so they can play around, eh. That's what the elders believe. That's why if it's really bad weather the ravens are just dancing in the weather, they say. So, you shoot the weather and the ravens will push the weather away.

Madeline Drybone, also from Łútsël'é, corroborated the same method and command described by Dennis for stopping the wind on open water. Sahtúot'ı̨nę elder, Charlie Neyelle, recalled a similar experience with his grandfather who taught him how to shoot a whirlwind:

That one, when we see *nı̨htsíba* ('whirlwind') when we're traveling, beaver hunt and stuff like that, when you heard that it's coming, oh boy, it's so powerful. And then my grandfather said, 'Grab my rifle, grab my rifle.' And I wonder what he was talking about. So, I grab any kind of rifle. I ran back to him and he said,

'Need to be quick.' And then he [the whirlwind] was coming and then he [Charlie's grandfather] took a shot. He took a shot and then he [the whirlwind] come down. He must have shot it, I don't know. He come down really nice. . . Yeah, when you shoot them then he come down. And he come down but I never [received an] answer [to my] questions. But I was surprised.

But when he [whirlwind] comes and you know that little small canoe that they make. So, that was the first thing. The first thing in your mind is you got to run to the boat. Otherwise, it's going to pick them up. And then you take the boat and then you put it anywhere underneath. You sit down. Otherwise, it's going to take them up.

Although these examples are only a preview of the various methods and techniques for influencing weather, they further delineate and underscore the significance of socio-cosmic relationships between the Dene and other inhabitants of a highly sentient universe.

Colors of the Sky

The colors of the sky are observed to predict different types of weather but also occasionally relate to stories that provide context and meaning about the sky's appearance. Just as red northern lights are often interpreted as a sign of bloodshed or war, a red-colored sky has an equivalent connotation in Gwich'in culture. A variant of the Gwich'in Spider Woman story recorded by Robert McKennan associates stormy red skies with the death of Spider Woman after she lowered a boy (usually a girl) to earth on her braided rope. McKennan (1965, 139) writes:

When the boy reached the ground, he had no way of carrying his food so he cut off a bit of the rope [that Spider Woman had lowered him on] to make a pack

sling. Immediately a big storm blew up and the heavens became blood red. That is why when there is a storm today one can see a blood-red streak across the sky.

Gwich'in elders, Paul Herbert and Kathy Tritt, also noted that a red sky is a sign of war or bloodshed. Kathy explained:

> That's what grandpa said, they always watch something like that (a red-colored sky). They always have to watch the sky. Cause it always tells them something, then they prepare for it. Like the *dah* ('blood'). You know, the sky gets red real bad they said, and that means the sign of blood. And that's killing. So, they prepare. Even that night, they even start dancing so they'll be brave.
>
> You know like dancing; war dance is like to make themself brave. They say, 'I will die for my land. I will die for my family,' you know. Like that, you know. They make themselves really strong like that when they dance. And the next day they just anxious to fight. The fear, they just remove the fear from themselves. Grandpa said their face even changes, they said, the next day. Cause they're not fear and there [is] no fear inside them. They're just really want to, you know, get ready for the fight. And they even painted their face. They made sure their hair's not loose cause the enemy could grab your hair fast, you know. Like that's why they had to have their hair all tighten up like that (Figure 68).

Figure 68. A red sky with darker streaks interpreted as a sign of conflict or war as well as a predictor of stormy weather. Paul Herbert's fishwheel is pictured in the foreground on the bank of the Yukon River in Fort Yukon, Alaska on November 17, 2013.

A red-colored sky in the morning or evening is widely observed as a predictor of either warm, cold, fair, or stormy weather. While there is not agreement about the specific types of weather that red skies forecast, these differences likely reflect variations in appearance, season, and regional climates and weather patterns that were not fully captured in my conversations with Dene elders. In any case, Gwich'in, Upper Tanana, Tanacross, Upper Kuskokwim, Dena'ina, Yellowknives Dene, Dëne Sųłıné, and Sahtúot'ı̨nę elders all described observing a red-colored sky as a weather predictor.[194]

[194] Nelson (1973, 199) states: "The Kutchin say that red clouds in the sunrise mean warm, cloudy weather is on its way (presumably a southerly wind system). A bright red sunset, on the other hand, presages the approach of clear, calm, and cold winter weather."

Yellowknives Dene elder, Madeleine Beaulieu, explained that a red-colored sky seen any time during the summer is a sign of calm, warm weather. Through an interpreter, she said:

> This one here [a red-colored sky in summer], it's calling for warm weather and calm weather, no wind. . . *Yatsı*, this is what it's doing right now. This is *yatsı*, everyone say this. Elder get up, '*Hé*, *yatsı hórelyą ʔat'ı* ('hey, good weather is coming')." That's what they would say. It's *yatsı*. It's telling us it's going to be beautiful weather tomorrow.

Eddy Sikyua noted that the Yellowknives Dene gathered firewood to prepare for a winter storm whenever they saw a red-colored sky in evening. Fred Sangris elaborated on these weather predictors, especially with respect to forecasting warming temperatures from a red-colored sky in winter. Fred explained:

> So, in the olden days people predicted weather. You know, as my grandfather said, there were really good men in the past who were astrologers who paid attention to the universe, who can read the stars, who can read the skies. So, one day my mother - I was probably fourteen, fifteen years old – my mother told my grandfather, he was probably like 90 years old, 'Teach your grandsons about the weather,' she said.
>
> So, he goes outside every evening as the sun set. 'Look at the sun,' he said. 'It's not red, it's not pink. Yeah, nothing's going to change tomorrow. It'll still be the same,' he says. Sure enough, tomorrow is the same. Same kind of weather, same kind of temperature, you know. And then one day this big bright, just orange [sky]. Sun's going down with a little bit of wind on the trapline, but just orange. All the clouds, just pinkish, bright orange. He said, 'Right now there

is a lot of firewood in that stove,' he said. He's talking about the sun. There's a lot of firewood. So, what the sun is doing is getting hotter, and hotter, and hotter. And that's why you see all that red. But from the sun to here, that heat is like starting a forest fire. When you start cooking on a campfire it takes a while for that heat to get to you. It's the same thing with the sun when it's red like that. The heat was going to come, but it's not going to come tonight. By tomorrow morning you're going to feel the heat.

Sure enough, tomorrow morning. Tomorrow we're looking at it, eh. Boy, it's ever nice and warm and the weather, the temperature is just good. The old man is right. The old man is right, you know. It takes that long to get here. So that's when I got really interested in weather, weather prediction. And I still do that today. I look at different clouds, I look at the skies, you know.

The clouds here in the bottom [i.e., lower elevation clouds], they don't tell you very much other than rain, snow, or fog. That one don't tell you too much. But if you look way up there, those streaks up there, that's the one you got to pay attention to [Fred points out the window to high stratus clouds over Great Slave Lake]. That's the one that tells you there's wind; what's happening with the wind and what's happening with the temperatures. That's the one that tells you what's gonna happen that day. So today, right now, if you look at it all the streaks is going this way. So the wind is going that way, but it's a strong wind way on top. Down below there's no strong wind. But if the clouds here start to break up, the clouds start to disappear in the bottom, that's cause that wind is coming down. Once it hits the bottom, they're gone. Just like last night. Same thing happened

last night. The big wind came. So, by now the wind's gone further up now, way up there. It's no longer here now.

So, we as indigenous people, you know, when we hunt with sled dogs and skidoo, we have to predict the weather. Whether it's going to snow, or fog, or slush, eh? We know, just by watching. And that's when we travel. We don't want to travel in the storm when it's going to be sixty-kilometer wind with snow and blizzard. That could cause us a lot of trouble. And so we predict weather too. And there are still members of the tribe here, even the old people here can still predict weather (Figure 69).

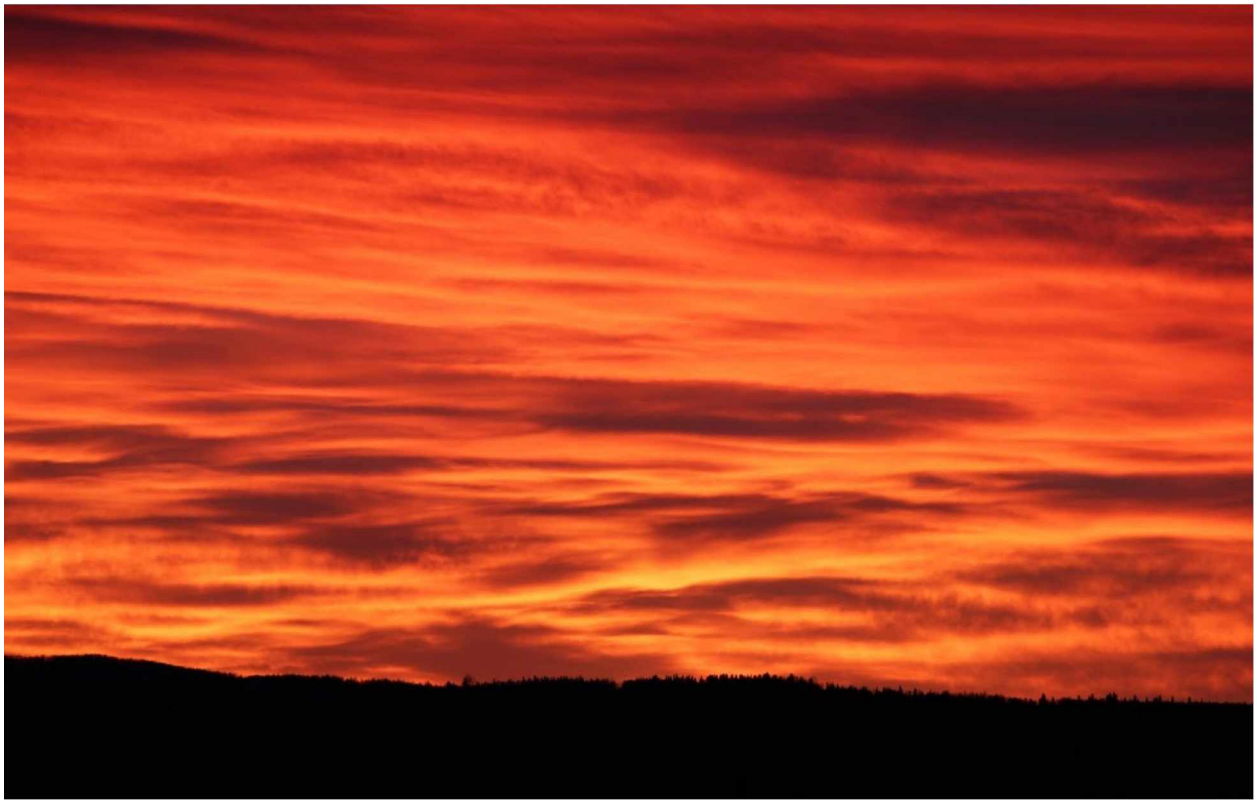

Figure 69. A red morning sky with darker streaks seen on September 25, 2012 in central-interior Alaska.

Dëne Sųłiné elder, Madeline Drybone, said that a storm is expected when there is a red sky with darker streaks running through it. However, if the sky is uniformly red across an

expansive region of the sky, then the weather is expected to be clear and calm the following day. Sahtúot'ıne speakers use the term, *náɻtsį́*, to refer to any brightly colored sky at sunrise or sunset.[195] Through an interpreter, Alphonse Takazo said:

> He says today you've got lots of machinery. Like in the past they had no radio or TVs, so they use the signs to tell the weather. When it sets, the sun sets, that's when this coloration comes. And it could mean it's gonna be cold tomorrow (*gók'á*), or it's gonna be warm (*gókǫ́*). . . So, the elders too, just by some of these signs they can tell two days ahead what's gonna happen, if it's gonna rain or it's gonna be windy. . . Elders, he says *sa kádaraʔa* ('sun rises'). When the sun, *sa kádaraʔa*, when the sun is just rising and it's just over the horizon, you'll see a little bit of the sun. And that's when *naɻtsį*. You can see these coloration and from that the elders can tell what the weather gonna be like. . . [When the sun is] coming up. That's when there's *naɻtsį* too. And once it gets higher, you can see the whole sun, that *naɻtsį* will disappear. Yeah, until probably when it sets [*sa náʔa*].

Dena'ina elders referred to a red sky as *yuq' hdastdeł* ('the sky is red') and noted that a red sky at dawn indicates good weather whereas a red sky at dusk forecasts stormy weather. In comparison, the Dena'ina terms, *hvu* and *qevu* denote a colorful sunrise and sunset (Kari 2007, 150). Upper Tanana and Tanacross elders simply referred to a red sky as *k'oh hodat'eeł* and *delt'eł k'oth* ('clouds are red'), respectively. Oscar Jimmie, who provided the Upper Tanana phrase, explained that a red morning sky in winter indicates cold weather. In contrast, Upper Kuskokwim elder, Philip Esai, said that a red morning sky predicts warm weather whereas a red

[195] Compare to the Tłı̨chǫ phrase, *sa nàʔɻɻtsı̀* ('sun making signs through colors') (Saxon and Siemons 1996, 88).

evening sky forecasts cold weather. For the Upper Kuskokwim Dene, Pulu and Pope (1981, 46) corroborate:

> Sunrise and sunset were observed in order to predict the weather. If the sun was red at sunrise, good warm weather was to be expected. If the sun came up and there was no color on the horizon, cold weather was to be expected. The opposite was true for the setting of the sun in evening. A red sunset meant cold weather. A white sunset meant warm weather.

John Honigmann (1954, 113) reports that the Kaska expect evening rain showers after observing a red sunrise. Alternatively, a red sunset forecasts "bad weather" several days later. Honigmann (ibid.) also states that a red northern sky at sunset indicates warm mild weather whereas a red southern sky at sunset forecasts a north wind. In comparison, Cornelius Osgood (1959, 54) reports that the Deg Hit'an interpret a yellow sunset in winter as a sign of cold weather whereas a red sunset predicts warming temperatures. Osgood (ibid.) also writes: "A beautiful sunset with a red sky in either winter or summer is a promise of fair weather. . ." Again, these differences of interpretation are likely owed to subtle variations in season, appearance, and regional climates and weather patterns that are difficult to articulate without experiencing the phenomenon and other potential variables.[196] Finally, a list of general Northern Dene terms for "sky" is shown below in Table 31, in which most are cognate or nearly so.

[196] See Fienup-Riordan and Rearden (2012, 62-64) for Central Yup'ik weather signs interpreted from red skies at dawn and dusk.

Table 33. Northern Dene names for "sky."

Name	Language (ISO-639-3) – dialect/region	Source
*ya·	Proto Dene	(Krauss and Leer 1981, 200)
zhee	Gwich'in (gwi) - Alaska & N.W.T.	(Peter 1979, 116)
zheetìi	Gwich'in (gwi) - Vuntut	(Montgomery et al. 2000, 70)
zhää	Hän (gaa)	(Ritter and Paul 1980, 74)
yo	Lower Tanana (taa)	(Kari 2020, 404)
yokok'	Upper Kuskokwim (kuu)	(Collins and Petruska 1979, 90)
yo	Koyukon (koy)	(Jetté and Jones 2000, 696)
yo	Holikachuk (hoi)	(Kari et al. 1978, 25)
yo	Deg Xinag (ing)	(Kari 1978, 45)
yuq'	Dena'ina (tfn)	(Kari 2007, 148)
yaa	Ahtna (aht)	(Kari 1990, 419)
yaa	Middle Tanana (taa)	(Kari 2019b, 202)
shaa	Tanacross (tcb)	(Arnold et al. 2009, 236)
yaa	Tanacross (tcb)	(Arnold et al. 2009, 236)
yaa	Upper Tanana (tau)	(Lovick 2020, 90)
yét'aak	Northern Tutchone (ttm) - Mayo	(Ritter 1976, 44)
yat'aak	Northern Tutchone - Selkirk	(Ritter et al. 1977, 92)
yat'äy	Southern Tutchone (xsl)	(Tlen 1993, 57)
yat'a	Dakelh (crx) - Stoney Cr.	(Poser 2000, 205)
ya	Dakelh (crx) - Stuart & Trembleur Lake	(Poser 1996, 95)
ye	Witsuwit'en (bcr)	(Hargus 1999, 108)
yā	Kaska (kkz) - Good Hope Lake & Francis Lake	(KTC 1997, 389)
yāt'ā	Kaska (kkz) - Liard & Ross River	(KTC 1997, 389)
ya	Sekani (sek)	(Hargus 2000, 132)
yaa	Dane-zaa (bea)	(Holdstock and Holdstock 1986, 51)
nast'agha	Tsuut'ina (srs)	(Starlight and Donovan 1996, 58)
ya	North Slavey (scs)	(Rice 1989, 32)
zha	North Slavey (scs)	(Rice 1989, 32)
yát'a	North Slavey (scs)	(SDEC n.d.-a, 57, n.d.-b, Modeste and Tatti 2012)
zhat'a	North Slavey (scs) - Shúhtaot'ıné	(SDEC n.d.-b)
ya	Tlıchǫ (dgr)	(Saxon and Siemons 1996, 122)
ya	Dene Tha' (xsl) - Fort Nelson	(Rice 1983, 55)
zhaa	Dene Tha' (xsl) - Fort Simpson	(Monus and Isaiah 1977, 78)
yaat'ah	Dene Tha' (xsl)	(Moore et al. 1980, 102)
ya	Dëne Sųłiné (chp)	(Kaulback et al. 2012, 114)
yazā	Tahltan (tht)	(Carter and Carlick 1994, 202)
yat'ax	Tsilhqot'in (clc) - Xeni Gwet'in	(JHLC 2020)
yad'á'	Ts'ets'aut (txc)	(Boas and Goddard 1924, 13)
yat'a	Ts'ets'aut (txc)	(Boas and Goddard 1924, 13)

Chapter Seven Conclusion

In this chapter I described a host of highly personified atmospheric phenomena that occupy a liminal space between the upper cosmos and the lived world of humans. Although this chapter was primarily descriptive it continued to emphasize the role of socio-cosmic relationships in patterning Dene perceptions, experiences, and practices relating to the sky and its contents. Sections about the northern lights, meteors, halo phenomena, rainbows, thunderbirds, deterring embodied weather patterns, and the colors of the sky further show that the sky is a significant dimension of the Northern Dene cosmos. It is at the intersection of the earth and sky where meaningful relationships between social processes and order and cosmological processes and order can be found. Finally, this chapter offers a departure point from astronomical knowledge and an entry point for other future related studies such as those that more deeply explore meteorological knowledge, concepts of embodiment and personhood, sacred geography, and relationships to other beings that will contribute to a more holistic understanding of the Northern Dene universe and the place of the Dene within it.

Chapter 8: Conclusion

If you didn't respect the world, you didn't respect Nek'eltaeni, see.

- Ahtna elder, Charlie Hubbard

Everything you have to respect, the stars, everything. Even that little bug that's crawling down there, if you look at it, he'll stop. He's got his own mind. If you talk to it, he'll listen to you. That little bug will listen. So, praying all the time. Praying for good things, those are really important. The value of life is everywhere and it's a big circle.

- Dëne Sųłiné elder, Madeline Drybone

The aim of this comparative ethnographic study was to investigate the ways in which Northern Dene peoples, perceive, conceptualize, and integrate the sky and its contents into systems of knowledge and practices, worldview, cosmology, and spirituality. What transpired across more than a decade of research, learning, and sharing in the lives of my Dene teachers, hosts, and friends was a deep dive into relational significances. I began by explaining that what previous writers and scholars had simply documented as the Big Dipper or Ursa Major corresponds to a much larger constellation in which the Big Dipper is but one part. While introducing approximately 175 newly documented star names, I showed that this principal Northern Dene constellation is widely regarded as the incarnated spirit of the ancient Dene Traveler figure who accounts for the largest cycle of stories in the Distant Time genre. However, when the Traveler completes his journey at the end of these story cycles his fate is usually left unresolved, implying that he disappeared or that he is still out there somewhere. The open-ended conclusion to these story cycles is intended to incite curiosity about his whereabouts, potentially

leading to the realization that his spirit never died but continues to watch over earth as a guardian, ally, teacher, gamekeeper, and embodiment of the world.

While the stories and places associated with the Traveler describe origins and a core of taboos, protocols, and laws that guide Dene behaviors and actions, the incarnation of the Traveler's spirit in the stars completes a larger conceptual model of Dene cosmology, worldview, and spirituality. In other words, following the metaphorical trail and teachings of the Traveler through life continues as a journey of the soul along his Milky Way trail to the afterworld where one may "become again." As Charlie Hubbard explained, the Traveler "went ahead of us to pave the way" and "he is the keeper of all knowledge." The morning stars, Milky Way trail, and the Traveler constellation are key metaphors for understanding a sacred Dene cosmology embodied in astronomical knowledge. In addition, the Traveler's land-based journey and his subsequent transformation to the stars are models for personal transformation and gaining and using power while also providing archetypes of the vision quest and an idealized medicine person. As a Gwich'in elder succinctly stated: "The higher the power, the more schooling you've had. . . *Yahdii* is like the highest power. By the time you know about *Yahdii*, you know a lot."

In total, the Traveler on earth and in the sky provides a powerful and holistic model for knowing, being, and relating to the universe and its inhabitants in all modes and transformations of life and spirit. As such, the Traveler is a central organizing principle and locus of Northern Dene cosmology, worldview, and spirituality that links that past, present, and future while also relating the individual, the society, and universe. Although I do not imply that there has been no evolution of thought regarding these systems of knowledge and practices, the presence of a Navajo Traveler constellation coupled with a broader Navajo strategy of subdividing

constellations into named body part star groups suggests deep antiquity in the Dene family. While investigating broader relationships to Dene-Yeniseian is an intriguing proposition, a list of celestial vocabulary provided by linguist, Edward Vajda (pers. comm. December 18, 2018), suggests that Yeniseian star and constellation names are at least somewhat influenced by the mythology of other adjacent languages in central Siberia. Nonetheless, a similar Traveler figure identified as Cree and Ojibwe constellations (*Wesakaychak* and *Nanaboujou*) suggests at least a minimal connection that extends throughout the North American Subarctic.

While Chapter Two provided extensive baseline documentation of the Traveler and other humanoid constellations, Chapter Three focused on interpreting and situating these knowledge systems in the context of the broader anthropological literature. Together, these chapters served as a foundation for presenting and thinking about other aspects of the sky and its contents as part of a unified and highly sentient Northern Dene universe. In Chapter Four, I provided an overview of general concepts of stars and commented on minor stellar themes relating to the "Star Husband" story and a constellation of hunters or dogs pursuing one or more animals in the sky. These constellations differ from the Traveler constellation in the respect that they belong to a general domain of knowledge and are overtly recounted with a starlore. Nonetheless, these constellations and their mythology emphasize protocols and proper personal conduct for relating and interacting with the stars.

In Chapter Five, I provided an overview of Northern Dene divisions of time and then discussed how stars are used in time-reckoning, wayfinding, and weather forecasting. This chapter more narrowly focused on practical uses for stars and featured case studies on Yellowknives Dene and Gwich'in stellar wayfinding systems utilized in two different Subarctic landscapes that have a low legibility of landmarks. When traveling off trails and waterways in

these respective Subarctic environments, the Yellowknives Dene and the Alaskan Gwich'in utilize drastically different approaches from one another while essentially sharing the same view of the sky. However, in both systems, use of celestial schemata are suspended in favor of route-based navigation when the traveler intersects a familiar geographical feature or trail near his or her target destination, suggesting strong preference for orienting by landmarks when available. A comparison of both wayfinding systems suggests that large-scale environments that have a low legibility of landmarks are most conducive to the development and implementation of a celestial wayfinding schema when combined with other influential factors such as culture, individual experience, and travel behavior. Notably, systems of stellar wayfinding are rarely described or robustly attested outside of maritime contexts, with few examples also reported among people of the high Arctic and some desert regions. These are the first stellar wayfinding systems reported among the Northern Dene and perhaps the first described in detail for any inland Subarctic culture.

In Chapter Six, I introduced and discussed the sun and moon as personified beings and time-referents that also provide an array of signs and prognostications about the weather and the future welfare and security of people. Like the Traveler constellation, the mythology and apparent motions of these celestial bodies integrate to provide essential models to live by. In particular, circling in a sunwise (clockwise) direction is regarded as the natural way of the universe that helps maintain and restore balance and harmony. Circular sunwise motions are observed in a wide array of mundane and ritual activities such as sewing, passing food or a talking stick, and dancing, for example. These protocols are regularly observed in contemporary Dene communities and are so fundamental that even animals are said to observe the sunwise direction. Notably, anti-sunwise motions invite disharmony, stochasticity, or harm, and often

appear in stories or experiences of tragedy, bad luck, and bad medicine. I completed this chapter by describing Dene responses to eclipses as the ritualization of proper behavior and actions required to restore balance and socio-cosmic relationships that in turn restore the sun and moon to their natural state. In the case of lunar eclipses, I explained how these rituals are strongly connected to the mythology of the Boy in the Moon.

In Chapter Seven, I described atmospheric phenomena as animate and sentient beings that bridge the liminal space between the upper cosmos and the lived world of humans. This chapter reinforces the precept that actions and thoughts have efficacy in maintaining and mitigating relationships with these and other inhabitants of the world. The northern lights, for example, can be helpful or harmful in a moment's notice depending on one's thoughts and conduct. I described a host of other powerful beings and forces of nature in subsequent sections that pertain to meteors, atmospheric halos, sundogs, and sun pillars, rainbows, the thunderbirds, methods for deterring unfavorable weather, and colors of the sky. Atmospheric halos, sundogs, and sun pillars, for example, are generally regarded as the sun or moon dressing, building fires, or otherwise responding in various ways to changing weather. In turn, the Dene observe, emulate, or respond to these actions so that they too are prepared for the predicted changes in weather. The section about the thunderbird demonstrates its widespread presence in Dene cultures while showing that it is a particularly transient being between earth, sky, and seasons. Although I included a table of names for the thunderbird it is often referred to using the same lexeme as "thunder." The section on rainbows emphasizes a rope-like theme for snaring or catching highly animate and sentient thunderstorms that are sometimes equated with the thunderbird. While this chapter is primarily descriptive, it significantly contributes to the

documentation of sky-related practices while also providing additional grounding for considering the ways in which the Dene relate to the sky.

While previous scholars have suggested that Northern Dene astronomical knowledge is "extremely slight" this study emphatically draws the opposite conclusion. The Northern Dene have rich and complex relationships, practices, and understandings pertaining to the sky that are no less a part of life, language, and culture than the immediate lived world. The earth and sky are not exclusive of one another but are part and parcel to a unified cosmology and worldview. It is at the intersection of these domains where meaningful relationships between social processes and order and cosmological processes and order can be found. Yet, cultural anthropology has been slow to recognize that value of the sky in the lives and cultures of the Northern Dene and other indigenous peoples. Despite this hesitancy, the sky is immensely relevant to an array of other prominent and wildly popular topics in anthropology including human-animal relationships, animism, shamanism, concepts of personhood and ontologies, religious change, environmental knowledge, human spatial orientation, cosmology, and worldview, etc. In light of the present study, addressing any of these broader topics would now seem partial without considering the sky.

When reflecting on this work, I repeatedly return to approach and investments of time and consider how initial questioning does not adequately address or reveal the immense depth and scope of Northern Dene astronomical knowledge and practices. Moreover, early ethnographers who reported a dearth of Dene astronomical knowledge while using a more positivistic approach may have steered some subsequent investigators away from seriously exploring these knowledge systems with their Dene hosts and collaborators. Regardless of the

reasons, the field experiences of previous anthropologists did not inspire a focused and long-term approach for investigating the sky as an essential or meaningful part of Northern Dene life.

Although participant-observation through experiential learning has been used in anthropology for decades, there was more at play in this study than simply following a research method. It was the human connection, relationships, the buildup of comparative knowledge through multi-sited ethnography, and the continuous sharing of experiences and dialogues that led to advanced learning and valuable insights that helped me see the Dene world in ways that I had never considered. As previous anthropologists have noted, experiential learning requires letting down one's ethnocentric comforts to permit oneself to be authentically open to experience the realities of one's hosts and teachers. This is to commit more fully to the total human experience which inevitably includes sharing in tragedies, joys, fears, dreams, problems, opinions, ambitions, and accomplishments, etc. However, with this approach there is also a responsibility and commitment to relationships that transcends the field site and the duration of the research.

Although I admittedly floundered in the early stages of this research, I realized that Dene epistemologies for learning are rooted in experiences and that it was important to my primary Dene teachers that I also learn in this way. As Charlie Hubbard succinctly told me, "All knowledge comes to us personally." However, other factors also seemed important for learning and building relationships, such as having an interest in Dene languages, outdoor skills, and practical knowledge of living and traveling in northern environments. Although Dene systems of astronomical knowledge and practices are maintained by few elders and culture bearers, it is the contexts for learning in a deeply grounded and experience-based way that are most at risk of loss. On the other hand, this research shows that indigenous astronomical knowledge systems are

probably more viable than previously thought and that inadequate approaches and investments of time have contributed to an overly bleak assessment regarding the maintenance of these knowledge systems around the world. Yet, few scholars attempt to learn about the sky with and from indigenous partners and our collective understanding of the diverse and complex ways the humans know and relate to the sky remains relatively impoverished.

While I have spent more than a decade learning with and from Dene elders, hosts, and teachers, I hope this research may serve as a bridge towards better recognizing the rich astronomical heritage of indigenous Subarctic peoples. I do not insist that my perspectives and interpretations stand as the final word, only that they are part of an ongoing dialogue as all learning and research must be. Finally, it is my hope that this ethnography conveys the great extent to which the sky may be part of society and culture while also bringing about new awarenesses that lead to other paths of discovery and reflection. To this end, and for the sake of better understanding the ways in which humans know and relate to the sky, it is imperative that we continue asking the question and riddle that my late friend and mentor, Charlie Hubbard, initially posed to me, "Why do the stars intrigue us?"

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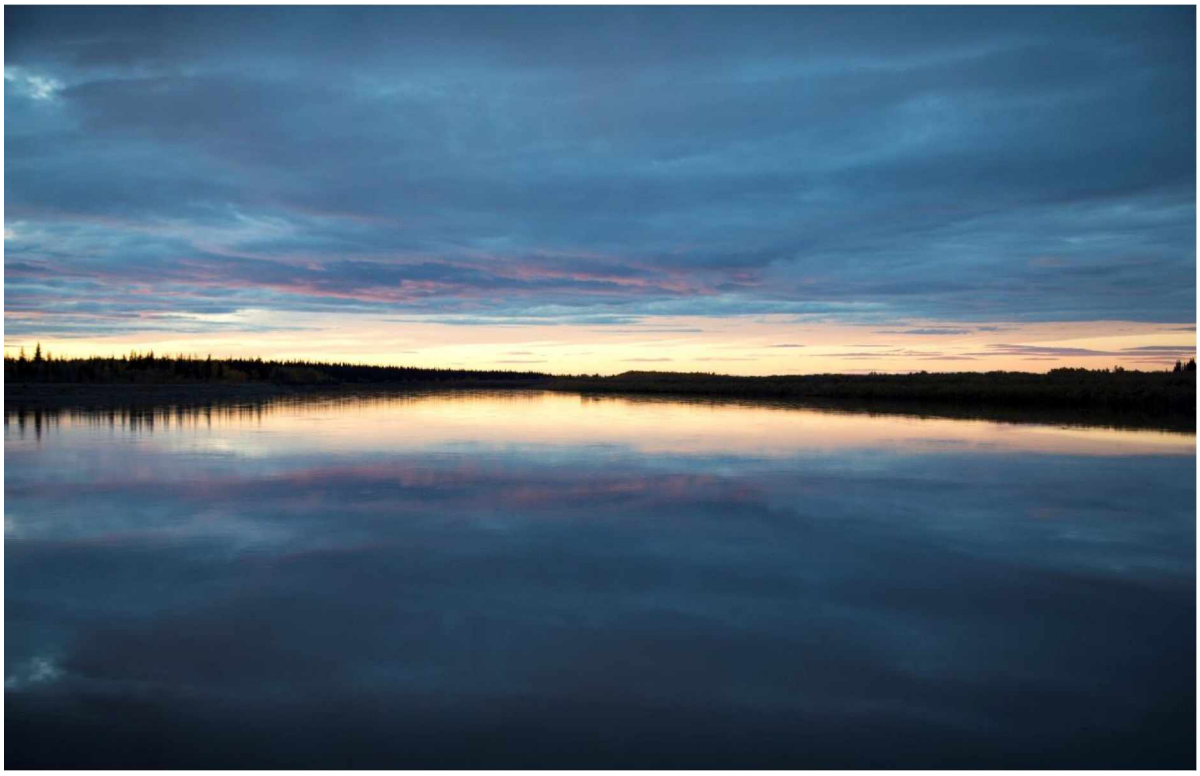
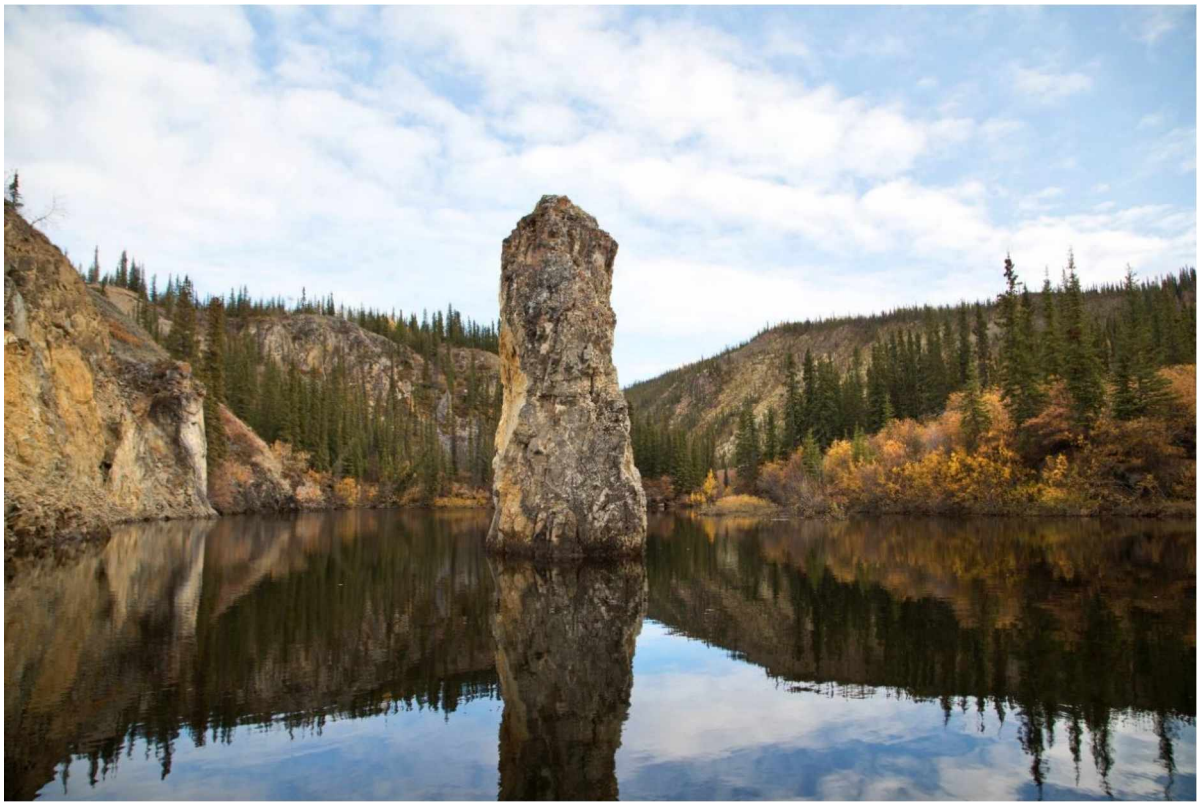
Appendix A

A photo-essay of fieldwork

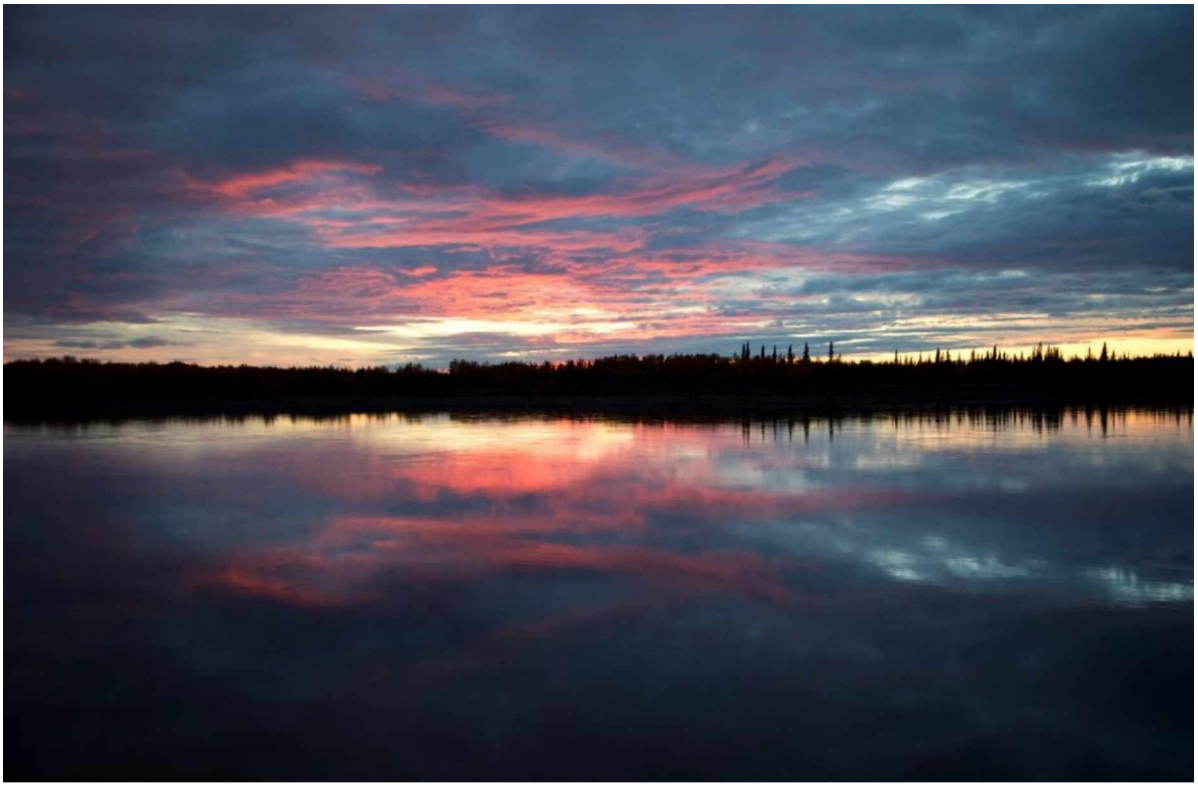


Lower Porcupine River or *Ch'oonjik* ('quill river') Alaska.

Cache at Rampart House on the Alaska-Canada border.



Kheetsik (‘mouth of dog salmon river’) at the confluence with the Porcupine River, Alaska.



Lower Porcupine River, Alaska.

Tl'yah Dik ('flint bank') John Herbert's Village along the Porcupine River, Alaska.

Porcupine River, Alaska.

A large bull moose (*ch'izhur*) harvested on the lower Porcupine River, Alaska.

Harvested moose placed on a thick bed of willows and alders along the Porcupine River, Alaska.

Author washing dishes at camp on the Porcupine River, Alaska.

Camp on the Porcupine River, Alaska.

Paul Herbert driving his boat on the Porcupine River, Alaska.

Rampart House at the Alaska-Canada border.

Tł'yah Gitaarinlii ('we take rope over the top'), a rocky bluff along the Porcupine River, Alaska.

Chalkyitsik (*Jałgiitsik*), Alaska.

White-winged scoters (*njaa*), Chalkyitsik Alaska.

Migratory birds at *Ohdik* ('lake on top'), Alaska.

Paul Herbert hunting waterfowl at *Ohdik*, Alaska.

Broad whitefish (*chihshòo*), Chalkyitsik Alaska.


Paul Herbert's cabin in Chalkyitsik, Alaska.

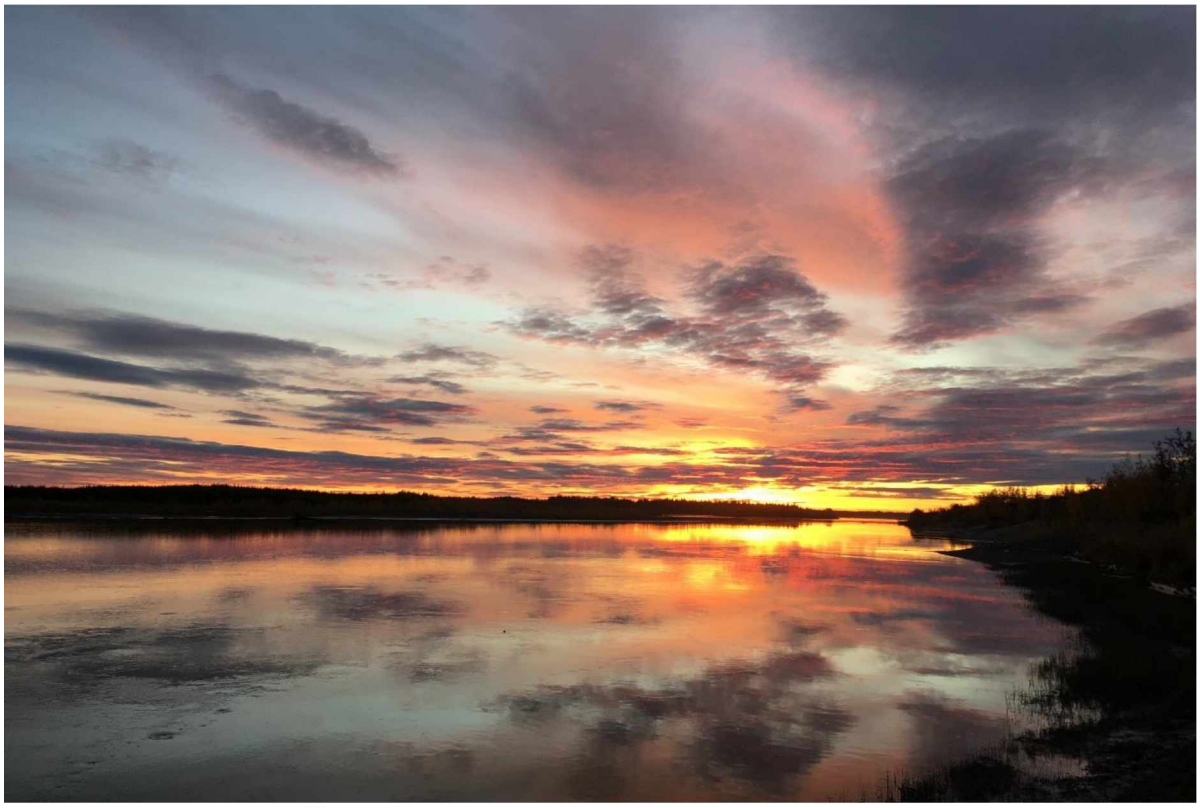
Chalkyitsik, Alaska.

Draanjik (‘platform cache river’), Chalkyitsik Alaska.

Paul Herbert singes a beaver (*tsee*) along the *Draanjik* River, Alaska.

Kii Ts'èhch'įį ('puberty hood rock') on the *Draanjik* River; a woman who was turned to stone.

Kii Ts'èhch'įį ('puberty hood rock') on the Porcupine River; a woman who was turned to stone.



The Yukon River seen from Paul Herbert's place in Fort Yukon (*Gwichyaa Zhee*), Alaska.

Moose web fat in Paul Herbert's meat shed in Fort Yukon, Alaska.

Paul Herbert singes the quills of a porcupine (*ts'it*) in the Yukon Flats, Alaska.

An aerial view of the Yukon River near Fort Yukon, Alaska.

Paul Herbert fleshes a beaver at his home in Fort Yukon, Alaska.

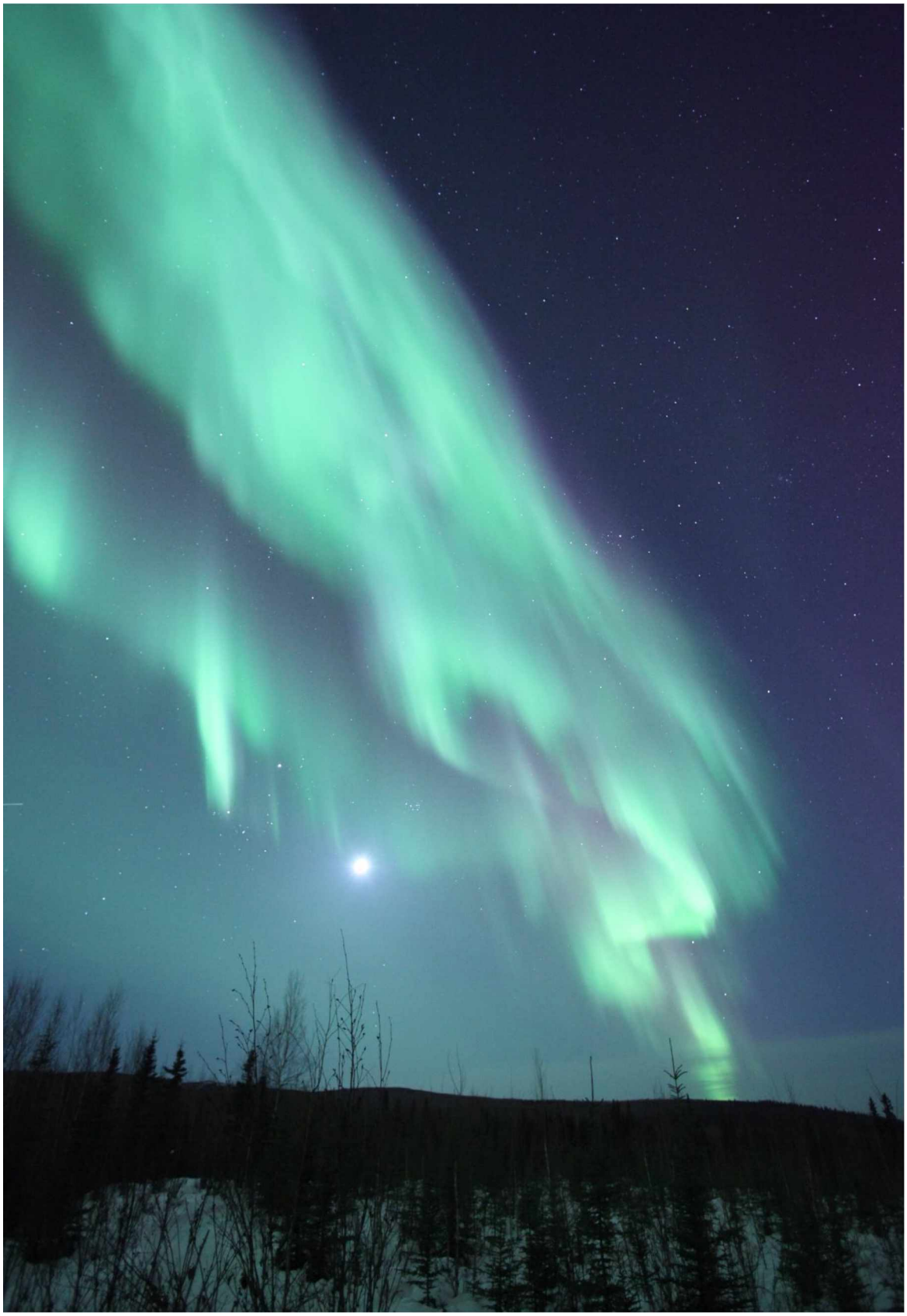
Paul Herbert and the author work on a preliminary Gwich'in star chart in Fort Yukon, Alaska.

A plant known in Gwich'in as *Deetryą' Ts'eet'it* ('raven's tobacco').

Iltin ('pike') caught at *Teedląjį Gwitsik* ('mouth of water flows'), Alaska.

Paul Herbert prepares of meal of pike bellies, intestines, livers, and eggs at *Teedlą̨į̨ Gwitsik*.

Paul Herbert's canvas covered Gwich'in-style hunting canoe (*trih*).



Northern lights in central-interior Alaska.

Historic church in Arctic Village (*Vashrąjį K'ǫǫ*), Alaska.

Arctic Village, Alaska.

Artic Village, Alaska.

Trimble Gilbert descales and cleans a whitefish in Arctic Village, Alaska.

Fish trap (*da'anlee* or *gwatral*) made by Trimble Gilbert, Arctic Village Alaska.

Caribou hooves (emergency food) in Arctic Village, Alaska.

Youth bows (*k'iłtai'*) and an assortment of arrows (*k'i'*) made by Trimble Gilbert.

A buzz toy (*ch'akwàì' hąątr'il*) made by Trimble Gilbert, Arctic Village Alaska.

From Left: Olga Lovick, author, Oscar Jimmy, and Roy Sam in Northway (*K'ehtthiign*) Alaska (Photo by Caleb Brucks).

Country around Northway, Alaska.

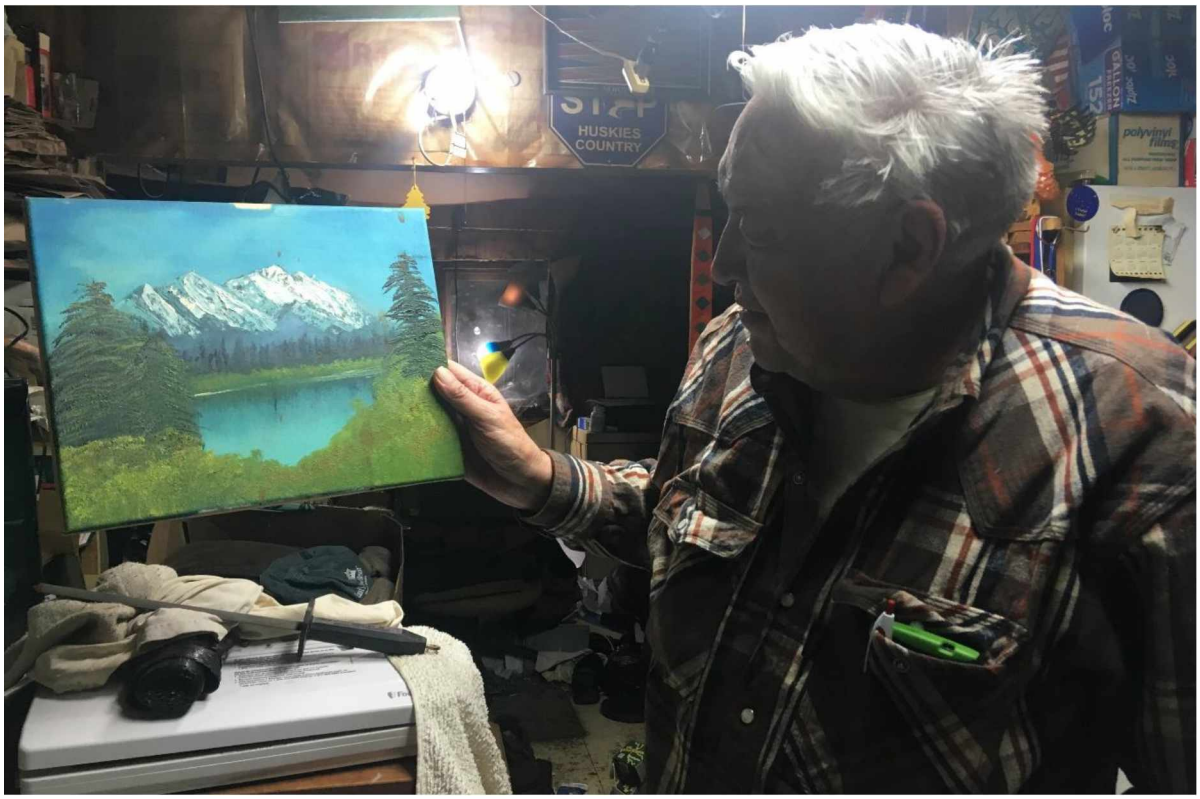
Avis Sam with beaded mukluks at her home in Northway Alaska.

James Kari and Caleb Brucks near Tetlin (*Teełąy*), Alaska.

Roy David and the author in front of *Naadęęy Xu'* ('marmot tooth') near Tanacross, Alaska.

Emma Northway and James Kari at Emma's daughter's house near Tok, Alaska.

Carlo Creek in the country around Cantwell (*Yidateni Na'*) where Charlie Hubbard grew up.



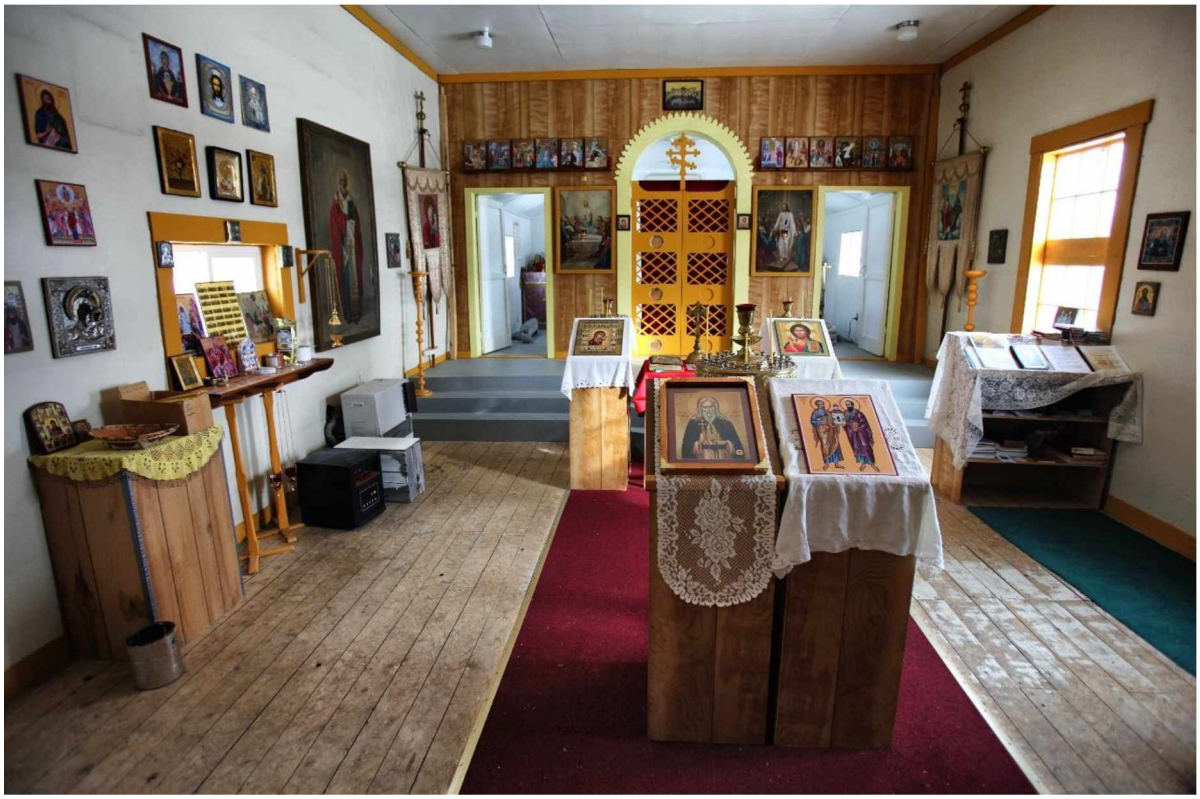
Charlie Hubbard with one of his paintings at his home near Sterling, Alaska.

Robert Charlie points towards *Tr'edhdode* ('someone is sitting') north of Fairbanks, Alaska.

Ninle (‘steam bath’) in Nikolai, Alaska.

Country near Nikolai, Alaska.

Bells at the Russian Orthodox church in Nikolai, Alaska.



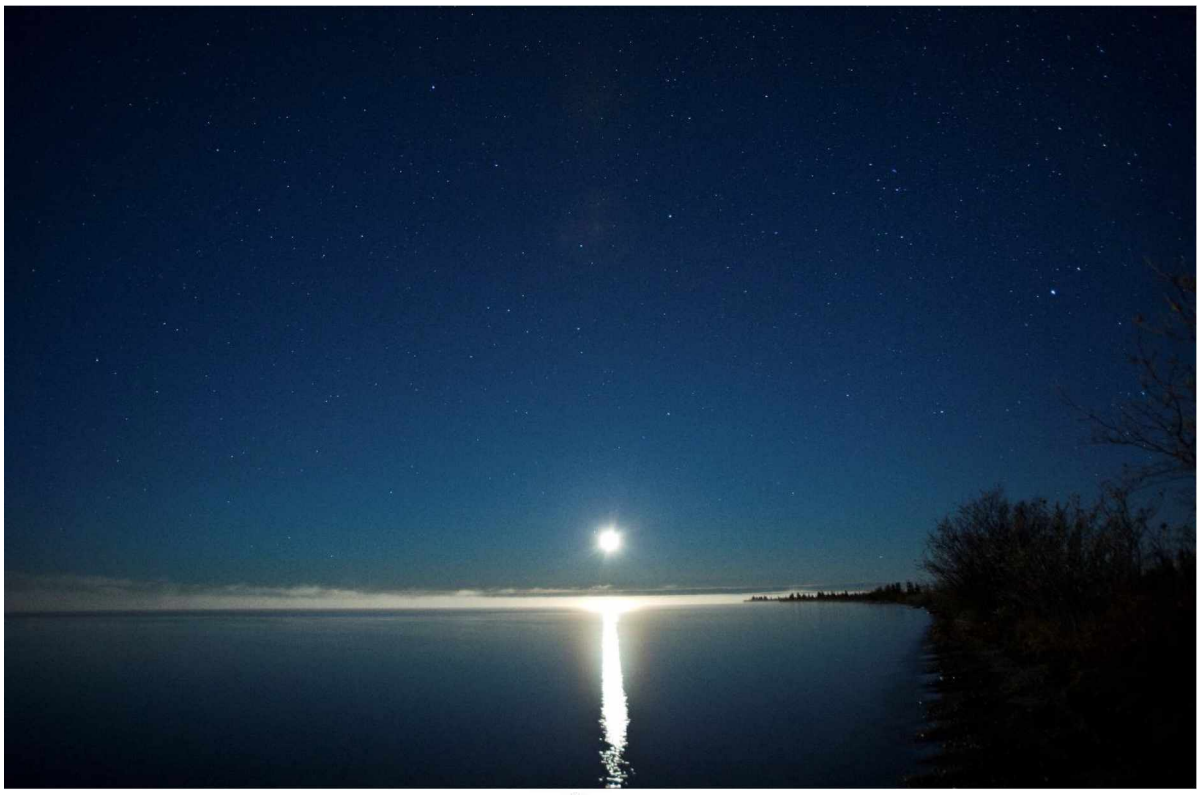
Russian Orthodox church in Nikolai, Alaska.

Bobby Esai Sr. at his home in Nikolai, Alaska.

Délı̨nę, Northwest Territories.

Dene drum (*əghəle*) from Délı̨nę, Northwest Territories.

Church in Dél̨nę, Northwest Territories.



Moon reflecting on Great Bear Lake near Dél̨nę, Northwest Territories.

Sunset over Great Bear Lake in Délı̨nę, Northwest Territories.

Dárélı̨, the upper mouth of Great Bear River near Délı̨nę, Northwest Territories.

The Prophet's House in Délı̨nę, Northwest Territories.

Arbor used for ceremony in Délı̨nę, Northwest Territories.

The author speaks on Délı̨nę radio while host, Michael Neyelle, interprets in *Sahtúoɬ'ı̨nę kedə*.

Dettah (*T'éɂehdǻ*), Northwest Territories at Great Slave Lake.

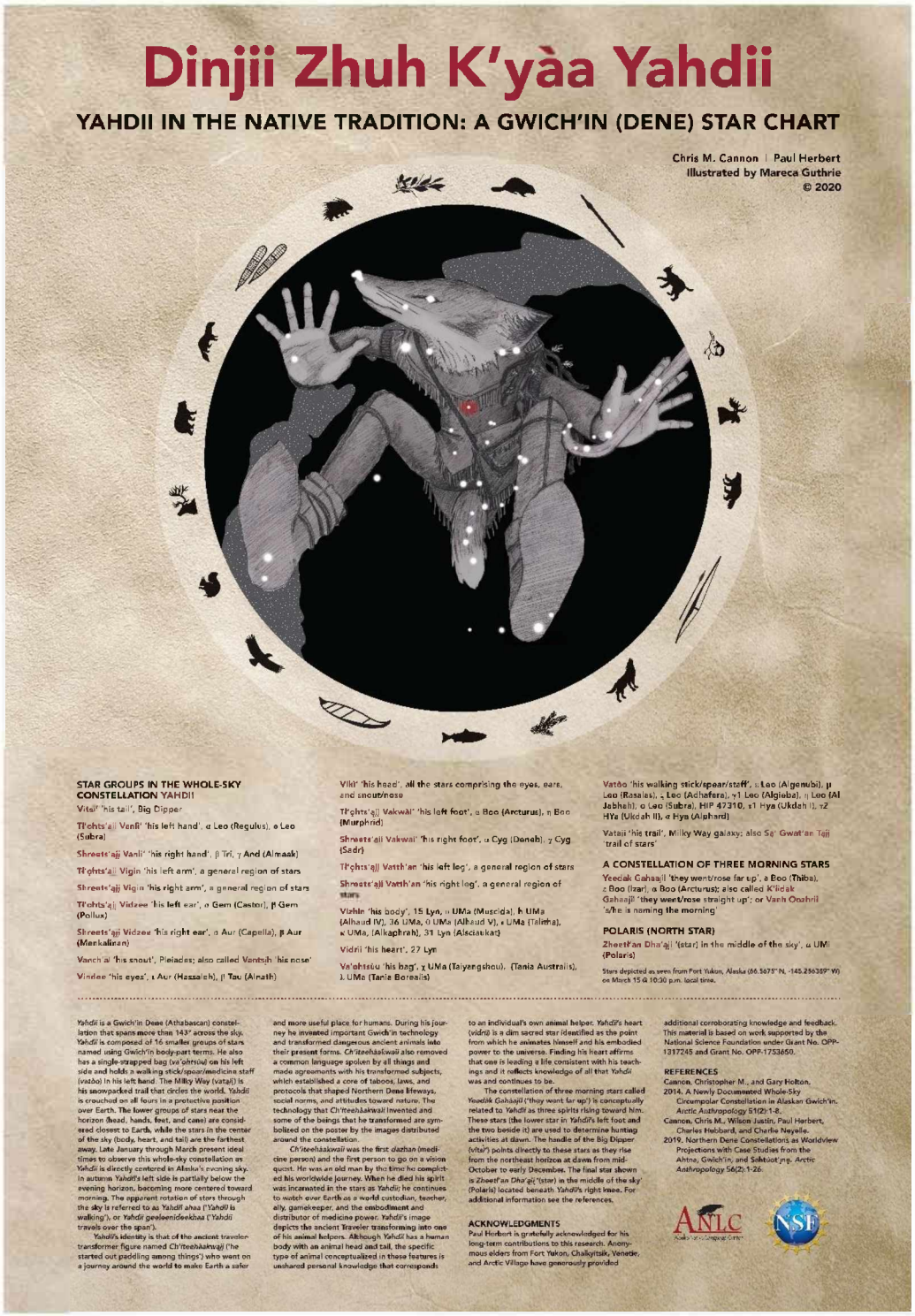
Chief of Ndilǫ, Fred Sangris (left) and Yellowknives Dene elder, Alfred Baillargeon (right).

Salt Plains in Wood Bison National Park in northern Alberta.

From Left: Gabe Sepp, Daniel Alphonse, and Alex Jaker in northern Alberta.

Appendix B

A Gwich'in Dene star map



Gwich'in Dene star map created by Chris Cannon, Paul Herbert, and Mareca Guthrie; published by the Alaska Native Language Center in Fairbanks, Alaska in 2020 (27 x 39 in).

Appendix C

Institutional Review Board (IRB) approval letters

UNIVERSITY OF ALASKA FAIRBANKS

Institutional Review Board

909 N Koyukuk Dr. Suite 212, P.O. Box 757270, Fairbanks, Alaska 99775-7270

(907) 474-7800
(907) 474-5444 fax
fyirb@uaf.edu
www.uaf.edu/irb

February 15, 2013

To: Gary Holton, PhD
Principal Investigator

From: University of Alaska Fairbanks IRB

Re: [432041-1] Documenting Gwich'in Indigenous Astronomy

Thank you for submitting the New Project referenced below. The submission was handled by Exempt Review. The Office of Research Integrity has determined that the proposed research qualifies for exemption from the requirements of 45 CFR 46. This exemption does not waive the researchers' responsibility to adhere to basic ethical principles for the responsible conduct of research and discipline specific professional standards.

Title:	Documenting Gwich'in Indigenous Astronomy
Received:	February 14, 2013
Exemption Category:	2
Effective Date:	February 15, 2013

This action is included on the March 6, 2013 IRB Agenda.

Prior to making substantive changes to the scope of research, research tools, or personnel involved on the project, please contact the Office of Research Integrity to determine whether or not additional review is required. Additional review is not required for small editorial changes to improve the clarity or readability of the research tools or other documents.

(907) 474-7800
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Institutional Review Board
909 N Koyukuk Dr. Suite 212, P.O. Box 757270, Fairbanks, Alaska 99775-7270

July 31, 2015

To: Gary Holton, PhD
Principal Investigator

From: University of Alaska Fairbanks IRB

Re: [432041-3] Documenting Gwich'in (Dene) Indigenous Astronomy

Thank you for submitting the Amendment/Modification referenced below. The submission was handled by Exempt Review. The Office of Research Integrity has determined that the proposed research qualifies for exemption from the requirements of 45 CFR 46. This exemption does not waive the researchers' responsibility to adhere to basic ethical principles for the responsible conduct of research and discipline specific professional standards.

Title:	Documenting Gwich'in (Dene) Indigenous Astronomy
Received:	July 30, 2015
Exemption Category:	2
Effective Date:	July 31, 2015

This action is included on the September 9, 2015 IRB Agenda.

Prior to making substantive changes to the scope of research, research tools, or personnel involved on the project, please contact the Office of Research Integrity to determine whether or not additional review is required. Additional review is not required for small editorial changes to improve the clarity or readability of the research tools or other documents.