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Special Issue

Beyond Melt

Indigenous Lifeways in a Fading Cryosphere

Introduction. Going Beyond Melt and Cryodispossession

This thematic special issue stems from an international workshop convened at the University of Alberta (Edmonton) in May 2018. "After Ice" brought together committed scholars from across the globe with a shared interest and deep investments in environmental change research. The common aim of the group was to challenge and diversify current interpretations of ice-related phenomena, broadly understood.

One of the primary goals to emerge from the workshop, and which led to the collaborative work behind this special issue, came from the group's desire to expand and extend expertise on the cryosphere from the dominant and often interpretive leveling of the natural sciences to the environmental humanities. The transdisciplinary group of contributors assembled in this special issue seeks to foreground how it is Indigenous experiences of changeable cryographic phenomena that are often fit into a binary of, on the one hand, bounded historical experience, and, on the other hand, short term and forced adaptation in the face of the ground-level effects of global warming. What these contributors offer is a bridge between the two that attempts to account for the long-held connections that Gwich'in, Tłı̨chǫ, Dene, Inuvialuit, and many other communities have maintained through profound and ongoing claims to cryospheric land and phenomena.

While the very term *cryosphere* might seem removed from Green-

landic experiences of *pinngortitaq* ('all that has come into existence,' Nuttall, this issue), it is in the former's unifying, global reach that the two terms merge by reminding linear and compartmentalizing Southern epistemologies of the web of relations that the earth is bound by—high Alpine glaciers that carve out and flow down into river valleys; or, to pursue this glacial time scale, and as Ruth Morgan posits in this issue, the geological accounting for an absent cryohistory that results in conditions apt for colonial, water-based violence and dispossession. To move away from "the cryosphere" as a semantic terrain grounded in the empirical natural sciences is to move into ice-dependent lifeways and cultures that build out relations from seasonal and geological presences and absences. It is in these relationalities, a complex inversion of temporal reach and mobile span that we will explore in more detail below, that the cryosphere makes itself manifest as not only a planetary, hydrological condition, but also as a *milieu* with living stakes best exemplified in Indigenous claims to environmental, political, and cultural sovereignty. *Pinngortitaq* is not a bounded territory—it is "all that is around, above, below, underneath and within, and which is still taking shape" (Nuttall, this issue). States of matter are also states of being where human and more-than-human phenomena co-constitute each other through cyclical patterns governed by the increasing liquidity of water due to warming air and ocean currents.

Despite the recent broadening of the research agenda on and about ice through the introduction of terms such as cryopolitics (Bravo & Rees 2006; Bravo 2017; Radin & Kowal [eds.] 2017) and cryohistory (Sörlin 2015), treatments of ice in the environmental humanities remain limited. Given the significance of the cryospheric world and a future "after ice" we need to deepen and diversify our understanding about the multitude of knowledges, relationships, and contexts around the frozen state of water as a natural environment. Making sense of ice is not just a material question, but involves ideas rooted across past, present, and future socio-cultural contexts and environmental experiences. This issue is a contribution to the timely, emerging field of "ice humanities" (see also Dodds 2019) and to its articulations through a politics of cold (Ruiz *et al*. [eds.] forthcoming).

"Icescape" is "a world informed by ice [...] ice that is both substance and style: ice that is both landscape and allegory" (Pyne [1988] 1998: 2; see also Shields, this issue). Pyne's term captures the variety of different environments in which frozen water is both physically and mentally immersed into human perceptions. However, these articles on the interactions of ice with humans and more-than-human elements of nature challenge the binary patterns of understanding, experiencing, and describing such cryoscapes. They move beyond Pyne's boundary-drawing scheme that overrides in situ

experiences of ice by circumpolar Indigenous communities. The articles show how the subtleties of phase changes of water actually are involved in dissolving of fluid boundaries between land and water, solid and liquid, ice and no ice. Ice is thus characterized as a "liminal substance that combines and confuses" the properties of land and water (Gerhardt *et al*. 2010: 993–994). The blurry and shifting characteristics of cryospheric phenomena impact largely Indigenous modes of being and governance, as "water, ice and land intermingle with the lives and trajectories of humans and animals, take on a multitude of shapes and forms, and give rise to a complexity of social relations" (Nuttall, this issue). This manifests in embedded mobilities and temporalities, and both Indigenous and colonial practices and discourses of living with ice.

Ice and its related phenomena are nested with simultaneous and overlapping *temporalities* ranging from geological time scales to cyclical occurrences and fleeting events. The temporalities of ice formation, movement, and melting are inherently embedded into human interactions with ice, often also complicating notions of permanence and stability of cryospheric environments (cf. Aporta 2002; Jørgensen 2013; Bravo 2017: 48; Dodds 2018; Watt-Cloutier 2018; see also Dodds 2019). The simultaneous coexistence of several temporalities becomes evident through the thermodynamic particularities of phase changes of water, constantly fluctuating weather conditions, the cyclical seasonality with the "annual making and breaking of the cryospheric fabric" (Piper, this issue) and profound anthropogenic climate change being observed in the cryosphere. Apart from the multi-temporal character of ice as a phase state of water, icy environments are also fused with the multiple and contradictory relations of human temporalities that live on it and depend on its presence and predictability; here "natural" time becomes bound with times of human actions, needs, and senses, and together they contribute to create a lively cryosphere. One important marker of multiple temporalities of human-ice interactions are the differences and regular collisions in Indigenous and *Qallunaat* (non-Indigenous people) understandings and perceptions of cryospheric temporalities. Morgan draws these collisions into deep time. For the Wangkatha of what is now the eastern goldfields of Western Australia, the *Tjukurra* (Dreaming) was and is an ongoing event that elided geologically-defined conditions of drought and equated the restrained presence of water with sites of sacred identity formation.

As Liza Piper notes in this issue, as nineteenth century colonisers along the Yukon and Mackenzie rivers adapted to the rhythms of ice and water, they made claims on this seasonality to shore up how and under what conditions they settled into place through the often violent establishment of river-

based trade routes. By attending to networks of colonial circulation, Piper folds together how issues of both time and space, of stasis and mobility, could be mobilized to create a colonial seasonality that gleaned Indigenous knowledges and practices to further projects of dispossession and political economic enclosure. Time makes and conceals claims to land tenure, settlement, and title. The phase states of water moving towards or out of their condition as ices have often been made part of the settler colonial project of land-based dispossession.

Similarly, ice is entangled in manifold *mobilities*. Ice itself is far from static, but is a solid-yet-mobile phase of matter defined by temperatures that constitute its varied modes of being and formal appearance. Melting and liquidation, freezing and crystallization, breaking up and floating, are examples where the variety of cryospheric mobilities and temporalities come together, marking closures and new beginnings (Wilson 2003: 218–219). From the human perspective ice both enables and hinders mobilities—provides a solid ground for transportation and carrying vehicles, or creates a physical barrier for mobility through an unstable and fragile formation that presents risks apart from mobilities on the ice (insufficient extent or carrying capacity). Boat and ship traffic through floating sea ice is hindered. Increasingly unpredictable and mobile patterns of ice formation, structures, and qualities challenge Indigenous and colonial knowledges that have made (often diverging) claims about how to live with ice for generations. In Upernavik, ice is a feeling of safe passage, while also being bound up as a manifestation of *sila*, a Greenlandic term that overlays weather, climate, air, breath, and consciousness (Nuttall, this issue). Going beyond the empirical markers of climatic change is a matter of giving voice to the sensorial consequence of changeable ice—how phase states of water are sensed and lived in the unfolding present. The mobility of ice also captures its movement into a phenomenological register of unknowability, unease, and future anxiety that moves along linear and non-linear understandings of time. Ice is performative and binds together its being in the world with an experiential horizon of social and cultural practices, with Yup'ik terminological understandings of ice emanating out differently from shores or deep water (Shields, this issue).

In this issue, these characteristics of ice are put front and centre. All of the contributors foreground how Indigenous experiences, encounters, and entanglements with Southern/settler colonial ways of perceiving and utilizing icy and watery environments challenge claims to settlement and authority. The differing ways Indigenous and non-Indigenous peoples perceive, observe, understand, and instrumentalize phase transitions in the cryospheric environment reveal the emergence of a broader colonial season-

ality. This could be said to have been made complicit in the dispossession of northern lands, as well as for the incorporation of Indigenous communities across the cryosphere into economic and social configurations that were based on Southern interests (Piper, this issue). Settler colonialism across the circumpolar world, and in the Global South in its echoes through and in deep time, was and is tied to the predictable succession of frozen and liquid states that are also made manifest as seasonal change. Settler colonial practices had a seasonal rhythm that leveraged what water in its solid and liquid states could enable or constrain. Conversely, Greenlandic or Yup'ik experiences of tangible and reliable ice could make claims to land-based sovereignty that included maritime, coastal zones. Read in this manner, ice opens up question not only of stasis and mobility, but of extent and legal territoriality, of access and enablement of Christian, capitalist, and governmental authority with and across climatic variation.

The geographic scope of the articles is divided into the Arctic regions of the North (Northern Canada and Northwest Greenland)—and, by way of perspective, the Australian southwest. There are several cross-regional commonalities that these areas share and contribute to. They are very sparsely populated while at the same time covering vast and challenging geographical areas and climates, in the North typically related to coldness and in Australia to dryness. They are also areas distanced from the capitals of governance and thus perceived as remote (cf. Jørgensen & Sörlin 2013: 3–4; Morgan, this issue). They are also areas of crucial environmental significance, not least as sites of intensive resource exploitation and, more recently, climate change. They are Indigenous lands living out colonial legacies of extraction, forced nationalist commitment, as well as being subject to the first-order effects of global warming.

The disciplinary approaches that the articles in this issue are based on range from anthropology to environmental history and linguistics. They also show the varied source base for the analyses, ranging from Indigenous knowledges and oral histories to diaries and anthropological field observations, allowing thus rich analyses of the legacies and contemporary realities of ice and snow—or the absence of it. The "field" of ice moves away from empirical instruments of observation and registration, and towards an embodied understanding of the phase transitions of water that is not only informed by the boundedness of "traditional ecological knowledge" (Nadasdy 1999), but also by the excess of settler colonial structural conditions that include the damaging effects of global warming that permeate the constitution of northern and southern lifeworlds.

Two of the articles take a specifically historical approach. Cryohistory aims to uncover the historically changing relations of humans and their

institutions with their cryospheric environments (Sörlin 2015). Here, the focus is on the different ways that ice, and its absence shaped "both the material and cultural cryohistories of Indigenous and non-Indigenous peoples, and the nature of their encounters" (Morgan, this issue). Liza Piper's article deals with the cyclical, annual transitions in the cryospheric patterns producing colonial ecologies that include physical changes but also changing knowledges about ice. She focuses on the two annual special times, namely the phase change of water and ice during break-up and freeze of ice in the Canadian North in the nineteenth century moving into the early decades of the twentieth century. Piper considers the phase change of water and ice, both in the freeze-up and break-up of ice, and marking of the seasonal transitions as moments governing northern circulation, but also revealing the fundamentally different experiences of colonizers and Indigenous peoples with ice, and how this shaped the history of infectious diseases in the Canadian North. Through the investigation of the spread and circulation of pathogens in the rhythms of ice and snow, Piper reveals how phase changes are connected to mobilities of people, goods, and pathogens—the formation of colonial networks that were tied to ice seasons as a sort of colonial clock.

In her contribution Ruth Morgan explores how the Australian cryohistory in deep time is a geological history of the cold and arid desert, where the availability (and lack) of water reorganized mobilities and hydrocultures. The physical conditions of Western Australia, resting on the ice-deprived cryohistory of the region, created an "extractive frontier" around the sources of freshwater and shaped the encounters of colonial settlers and Indigenous peoples during the late nineteenth and early twentieth-century gold rush. She shows how Indigenous mobilities for *kapi* ['water'] were directed by biocultural knowledges of the environment. These eventually collided with the motivations of non-Indigenous, settler mobilities, which were founded on practices of exploitative land and resource extraction and racist interpretations of "civilization."

The articles by Rob Shields and Mark Nuttall explore the new realities, be they physical or linguistic, that emerge from the melting lifeways of Indigenous communities in connection with changing cryospheric conditions. Different knowledges are embedded in Indigenous ways of living through the "immersive sense of being [...] with ice" (Piper, this issue). The lived coexistence and experiential and intergenerational knowledge of ices are inseparably connected to everyday life and livelihoods.

Mark Nuttall's article, based on anthropological field work in Greenland, foregrounds the climatically induced challenges, fragilities, and increased insecurities of everyday living in a changing cryospheric environment. He treats the Greenlandic environment as an aquapelagic assemblage of wa-

ter and land, of soluble boundaries and fused interactions between humans and more-than-human actants in complex entanglements. Moreover, seeing these environments as liquescent places turns attention to the sensory and bodily ways of experiencing change, especially in regard to the mobilities of everyday life connected to subsistence and the wider regional economy. Nuttall's article highlights sea ice not as an empty, dead place, rather as an Ingoldian taskscape emerging from human activity and dwelling in this lived environment, including both animate and inanimate creatures. The implications of changes in cryoscapes, such as the areal or temporal extent of ice and texture or consistency of ice, affect everyday livelihoods, identities, and senses of place. Apart from material and physical risks that are linked to changing cryospheric conditions, the phase transitions of ice also induce changes in the sensory perceptions of these environments, such as sonic losses and new intrusions. Consequently, embodied knowledge about the world becomes outdated and residents' identities and sense of place is disrupted.

Experiential knowledge, especially of risks related to activities in icy environments, is the core of Rob Shields' article as well. He reaches out to speech-act theory to shed light on contextual and experiential knowledge of (sea) ice that is embedded in Indigenous sea-ice vocabularies. These lexica reveal illocutionary, performative, and normative aspects of ice terminology. This includes ice risks and guidance on safe and effective practices essential for everyday activities in these environments. Due to climatically conditioned changes in the cryosphere, the knowledge contained in the Inuit illocution may become invalid with regard to place-specific ice conditions. With the transformation of the various qualities of ice and its recurring phase changes, its mobilities and circularities, Shields sketches out a lexical horizon grounded in Yup'ik and other Indigenous experiences of these (now disrupted) cycles of ice formation and disintegration.

What this collection of work opens onto is the insufficiency of terms such as *cryosphere*, *icescape*, *cryohistory*, and *cryopolitics* to encompass Indigenous residents' experiences of an increasingly "liquescent" politics of everyday life tied to the phase transitions of ice, particularly as they are sped along by global warming (Nuttall, this issue). Going beyond melt as a defining narrative of ice loss is also a means of extending what the Greek element *cryo-* can include. Experiences of cold are manifold, and bringing their temporal horizons and spatial scopes into conversation with one another can begin to show how settler colonial social formations in countries now known as Canada, Australia, and Greenland, created land out of the very phase transitions of ice (Ruiz forthcoming). Ice as ground and as season

was part and parcel of sovereignty, title, and settler entitlements. If mineral prospecting has long been deemed a colonial science, Morgan demonstrates that hydrology can also double as an extension of colonial authority and governance. If, as we noted above, states of matter are also states of being, then it is worthwhile to attend to the experientially available crystals and fissures that form when water comes into contact with low temperature. Freeze-up and break-up, as Piper reminds us, were common, shared, meteorological conditions that bound together coloniser and colonized. There is an elasticity to the supposed brittleness of ice—the thinnest layer of new sea ice takes on the form of tidal waves. This is a figure to think with when it comes to engaging with cryoknowledges today. The creation of ice epistemologies that attend to settler colonial pasts and futures would do well to both undermine and supplement our present narratives of mere ice loss. Southerners in the figure above are both the ice and the wave—a thin veneer of colonial claims to territory that try to contain a resurgent force beneath. What Indigenous "cryo" claims articulate is the continuity of *sila* that can be cold, warm, or hot—a consciousness of climatic justice that can be sensed, practiced, litigated, and claimed. A fading cryosphere does not mean its dissolution and erasure; rather it signals the rightful re-emergence of knowledges that have always been present below the surface of colonial cryodispossessions. Not in a linear wake bound to zero degrees Celsius, but in the full atmospheric and embodied possibilities that occur when water begins to crystallize or crack.

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