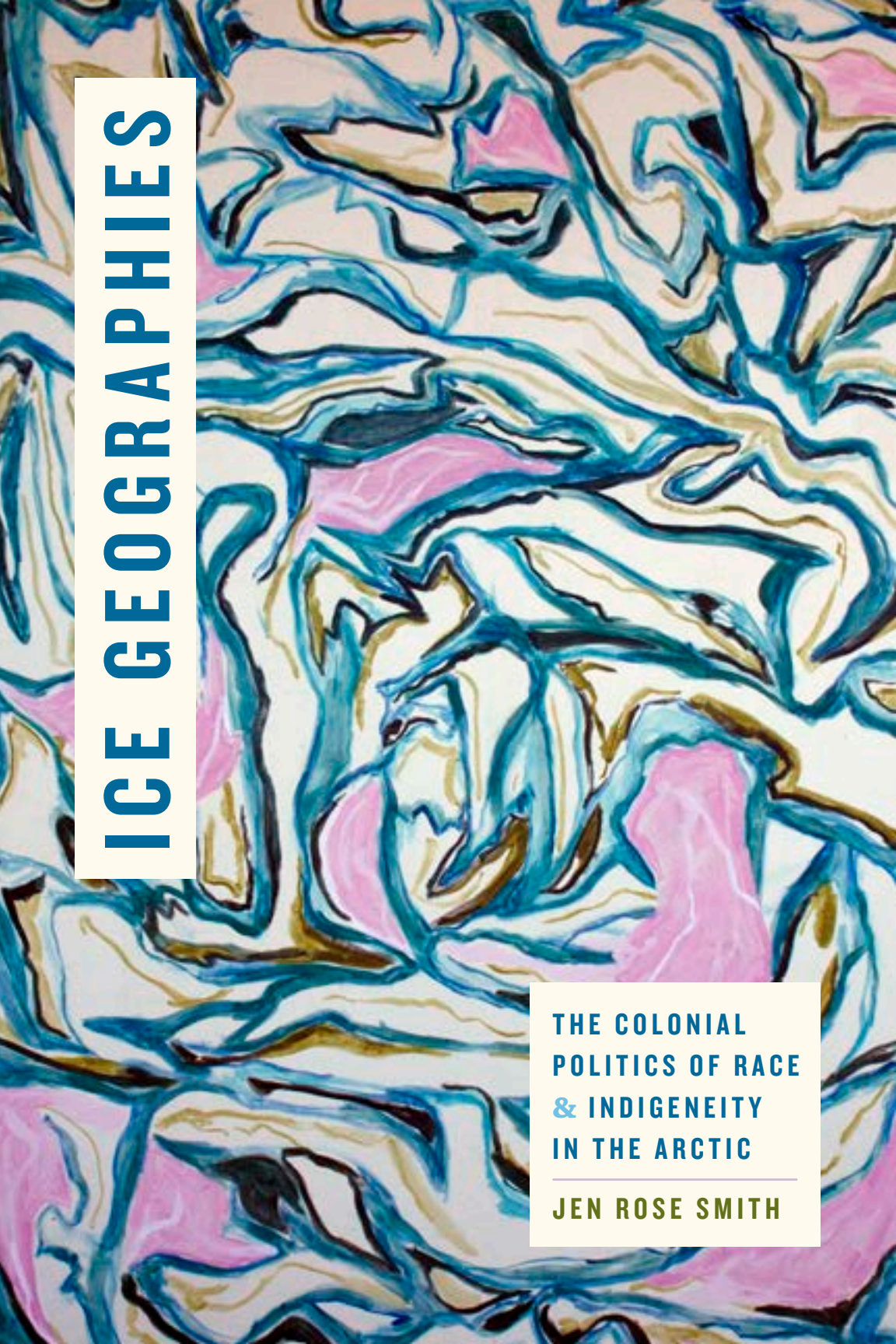
ICE GEOGRAPHIES
THE COLONIAL POLITICS OF RACE & INDIGENEITY IN THE ARCTIC
JEN ROSE SMITH

ICE GEOGRAPHIES

ELEMENTS *A series edited by Stacy Alaimo and Nicole Starosielski*

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JEN ROSE SMITH

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For my spouse, my mom, my dad, and my brother.
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and integrity.

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PROLOGUE: GLACIERS NOWHERE, EVERYWHERE, AND SOMEWHERE

. . . A glacier
makes a river of ice, of earth,
of everything that is & is not she.[1]
—Joan Naviyuk Kane,
Another Bright Departure

I was raised on the fringes of glaciers. When I was growing up, my family would take day trips to sit near glaciers and the waterbodies flowing from them, snacking, playing, picking berries and plants, building rock mazes in the glacial moraine. My mom would pack her Subaru with all of us kids and drive us to what we in my hometown call "Out the Road." Out the Road is reached by a one-lane highway that was built over railroad beds, the railroad beds built atop dAXunhyuu walking and hunting trails that once linked our villages.[2]

White men brought this railroad from idea into materiality—Morgans, Heneys, and Guggenheims—to extract resources like copper ore from Ahtna lands. Before copper stores were exhausted and mining halted, millions of dollars' worth of copper ore was transported bag by bag out of dAXunhyuu waters to Coast Salish Territories to be smelted. In the dreams of mining companies and the US government, the railroad was meant to be extended still further into dAXunhyuu territory to the coal fields near Katalla, but thankfully the railroad was not completed.[3]

Instead, the highway that takes us Out the Road is a "road to nowhere," as goes the refrain in the state of Alaska of such uncompleted projects. Out the Road used to span fifty-two miles down a mostly gravel road leading past the airport and ending with the defunct Million Dollar Bridge that spans a waterbody fed by two glaciers. The bridge collapsed during the massive 1964 earthquake. Several years ago, a tributary of the Copper

River, or aanguu'nuw, washed out another bridge near the thirty-six mile marker. Trips Out the Road were cut a bit shorter as anguu'nuw reclaimed and reshaped this landscape of "nowhere."

As kids, days Out the Road were the best days. We would spend the afternoon into the still bright evening playing in the glacier mud and silt, burying our bodies in the cold clay, wormwood and cottonwood buds opening with summer smell. We would follow bear tracks left in the sand and marvel at their size next to our tiny feet. When I drive Out the Road now as an adult, much of that same excitement remains and I continue picking berries and plants, sitting in the sun alongside glacier-fed rivers, making small fires to dispel mosquitoes.

I think of my mother, my grandmother, my great-grandmother, and their parents and grandparents, our ancestors who were born and lived in these dAXunhyuu lands. Many of them watched as kin and relations were forged into property, fish trap, cannery, and swimming beach. They witnessed home flattened into a vista, a postcard, a panorama of "Alaska" that continues to be sold as a tourist destination vacated of those violent histories. They witnessed home become dispossessed lands and waters; a dense, complex somewhere, piece by piece, becoming "nowhere."

Indigenous homelands, once refashioned as capitalist extraction points and tourist destinations of wild Alaska beauty, are now reconstituted and remade once again. In this iteration, they are made into landscapes of a different kind of loss.[4] As portraits of the destruction of climate change proliferate, glaciers are placed center stage—glacier is now an icon made into nowhere and somehow, now, everywhere. Glacier's face is melting in the news; glacier melt is around us in the sea and in the rise. Mainstream climate change narratives work to universalize glaciers as a kind of commons, a commons of scenery and of assured environmental apocalypse for all humanity. Glaciers and ice come to narrate a story about climate change that overlooks and undermines Indigenous historical and ongoing social relationships to their homelands.[5]

In many dominant narrations, the disappearance of glaciers and other forms of ice are linked to the narration of the declension of Native peoples. Native homelands become rhetorically de-peopled, thus reenacting actual attempts to de-people the landscape. Not only are glaciers transformed into the commons of scenery, of aesthetic value, but they are also understood as dangerous in that their synchronized melting has the potential to unsettle a temperate world that relies on sea level stability, among other forms of stasis.

Ice and glaciers as part of the cryosphere have always been central to the globe's stable functioning. This is particularly true for Indigenous peoples who have already known such facts about glaciers and ice—that home and homeland is of utmost importance. Ice has always been consequential, understood through generations of Indigenous knowledge production and practice, and not only through a contemporary melting. Yet, now, in a moment of a quickly changing global climate there is a new danger of ice in potentia. In its melting, the catastrophic potentiality of glacier, of Indigenous ice, is marked as a looming specter. In this framing, glacier ice is more than a landmark that should be preserved because "there will come a time when your grandkids . . . they'll want to see this."[6] If glacier ice in Alaska rings out in the contemporary moment as abundantly consequential, ice in a larger scope is also being studied, imagined, and thought of more intensely in new, but also not so new, realms.

In my own lifetime, I've seen new shapes of ice and land. I also see what surges and remains. te'ya'lee (king salmon), from aanguu'nuw, swim fat in silty glacier water as baby fish and return to the same waters at the end of their lives to spawn. When I make my way home in summer to visit with people, fish, plants, and glaciers, I notice how these relations, too, have changed. te'ya'lee are fewer and smaller, as are the glaciers. Glacier's face retreats from mine each year that I visit, and the cold lake between us grows with melt.

When I attempt to recount my concerns—emplaced, affective, and embodied—of seeing glaciers of home change their shapes, before I have formed the words into expression, the reflection feels overdetermined and compromised. Is there a story I can tell that isn't inevitably circumscribed and interpreted as destruction, demise, disruption, and declension? A recounting from home that can do something other than deliver a narrative of decline not just of the planet but also and always the devastation of Native peoples? Some stories of ice melt are easy to tell and to consume: one can witness representations and mediations of ice melt, everywhere but also from nowhere in particular.[7] This narrative of melt is so ubiquitous that it is nearly passé. Such stories are also urgent and necessary.

Stories of decline did not emerge with glacier melt. Trauma and pain have always served and satiated the desires of some at the expense of others. Eve Tuck and K. Wayne Yang argue that the overrepresentation of damage- and pain-centered narratives animates academic research, particularly research completed on (not for or with) communities that

are "not White, not wealthy, and not straight."[8] The pair offer instead what they call desire-based research. Desire is time-warping. It troubles the work that damage-centered research tries to accomplish in reifying a settler temporality and suppresses other experiences of time.[9] Desire is an antidote; it centers the concerns and research desired by Native communities and communities in solidarity, which may not always look like offering our specific orientations to the world for eager eyes. Desire can also be a studying-up, a studying-around to contextualize how the politics of the present came into being historically. It can be a takedown that then serves to make space for and uplift Indigenous knowledge production and co-theorizing. Desire-based research might also ask what the land desires, as desire is not only unidirectional.

Desire-based research shapes my concerns about ice in part to disrupt the twinned narratives that entangle apocalyptic environmental decline and the disappearance of Native peoples. The language of crisis and disruption is an enticing one. It calls for action, it stirs rage and uproar, it is affective and therefore potently effective. It calls for an uncritical return to sometime preindustrial and precontact, to nowhere in particular. Crisis is a road to nowhere.

In that nowhere, Native peoples will always be in crisis—we will always be declining, always diluted, altered, verging on extinction.[10] Extinction was the narrative I grew up enmeshed and embroiled within. The damage-centered narrative of extinction and decline is "enamored with knowing through pain" and makes unthinkable forms of living outside of ideals of progress or beautification.[11] We are extinct or we are revitalized, we are disappeared or we are intensely studied before our inevitable disappearance.

Having my experience as dAXunh narrated through the lens of loss—of language, of homelands, of salmon, of glaciers—is something that informs the way I teach, research, and write. When I study ice, my own concerns as a nonconsensual subject of crisis, of extinction, inform that inquiry and method as one who has been unwillingly forced to represent decline and mediate it back to an audience that is challenged by other forms of story and storytelling.

Glaciers are contested terrain, a material landscape of memory and narrative, and are an agential force capable of enactments not always legible to human faculties. Those dimensions of glaciers knowable by human tools have been and continue to be dominated by polar sciences: glaciology, paleoecology, geomorphology, and geophysics. Science is often con-

sidered in this view as the default, proper form of evidence, a reliance that has been crafted and maintained over time. In that maintenance other forms of knowing and recording outside of the written word and of collectable, legible, storable data have been intentionally maligned. Many of those knowledges are not only overlooked but actively erased and disparaged in the upholding of colonial and dominant forms of comprehension. As a changing climate transforms glaciers into nonfrozen states, scientific knowledge production of ice and glacial activity as threat increases.

Glaciers loom and figure large in the dominant cultural imaginary, often unmoored from the additional extinction narratives in which they are entwined and co-constitute. If such knowledge production should grow, so too should creative formations of knowledge about glaciers and ice as active entities. Poetry and prose provide invitations, offerings, and feeling-places, full with multiply sited and multitemporal relations and experiences with glaciers and ice geographies.[12] Literary contributions add to scholarship that rethinks the glacier as a site of liveliness, as opposed to an inanimate or dead metaphor.[13] Rewriting and thinking again with glaciers and ice attends to Indigenous articulations and ongoing historical relationships in ways that overturn the colonial fascination and masculinist desire for control over glacial bodies.[14] This conversation also critiques the violence inherent in flattening the dense sociality of glaciers into a dataset. In this moment of climate change, ice geographies are intensely monitored and measured by scientific tools that collect data, which is often used to create future climate models. These models take somewhere data and extrapolate it into a story for everywhere and nowhere specific. A glacier melts in dAXunhyuu territory, Łingít territories, et cetera, and the model tells us by what year Lenapehoking (New York City) will be under water.

In my experiences with glaciers many things happen at once. To be in the presence of a glacier is singular and disruptive to space and time. I also aim to offer glacial spaces as at once a pedestrian site of mundane Indigenous activity as a co-relation and co-creator of humble intimacies. Glacier is not simply a material manifestation of the sublime, aesthetic value, or rugged individualism—or, in its newest form, a locale for mourning the destruction of a modern warming world.

Melting glaciers are used as evidence of a changing climate that endangers a "human species," but glaciers are not and have not been experienced by humans equally across time.[15] Native peoples at once experience a rapidly changing climate, and before we can name that change in our

own words, the narrative of crisis and apocalypse has monopolized the discourse. Further, the global climate and the narration of its transformation casts the idea of change into the politics of liberalism of "good, social change" or "bad, climate change." This complicates how Native peoples change, whether we can juridically change, and disrupts our ability to narrate our change for ourselves on our own terms.

While glacial movement is currently narrated through melt and transformation to water, glaciers are always moving, even in their solid form. Pulled by gravity and transforming the physical and social geographies around and beneath them, glaciers are carving their own ideas onto this world. Glaciers are not an easy modern object/subject of spectacularism to be chased and surveilled. Glaciers watch, listen, make judgments, desire, and glaciers respond. Glaciers move on their own accord, based on their own will and sometimes at the request of human need.[16] Glaciers exceed the confining roles of scientific knowledge production that translate ice into data.[17] Icy bodies are named and claimed, but they also usurp and override the colonial bindings that distinct human groups wish to make on and of them. Glacier is not mine, and glacier is not yours. Glacier is here and here and here and here.[18]

The spring sun reflects off the remaining snow. We lean against the back of the truck and remove our shoes, socks stuck with small twigs from our walk through the woods looking for nettle sprouts. Saying iishuh greetings to new green leaves that sprout up through an understory bleached by sun and snow. We walk and stumble down the sandy dune toward the gray, glacial river that curves and banks closely below. The sand is warm between our wintery toes, on the bottoms of our wintery feet. We feel the sand grit between our teeth, which flash bright, smiling to be out on the land. The wind brings cool glacier air against our skin. Our breath with glacier's breath. You squint against the sun.

While writing this book, in many instances of explaining its main argument to academics who asked, a misunderstanding consistently emerged. This is how the conversation often went:

> What do you work on?
> I am interested in how ice gets weaponized to racialize and dispossess Indigenous peoples of the Arctic.
> I didn't know that ICE [US Immigration and Customs Enforcement] holds such a presence in the Arctic.
> No, I study ice, like snow ice, glacier ice.

At first, I took this moment to be simply an understandable slippage of homophones and the uncomfortable laughter that followed a common result of two awkward academics having an interaction. However, the more this nearly exact conversation unfolded, I came to understand this moment as a demonstration of how ice is, on the one hand, overrepresented and overdetermined. Visuals of ice circulate ubiquitously, especially ice melting and ice melt. In its water form, ice is more visible and consequential than ever before. On the other hand, ice is almost unimaginable as a place where power relations occur; ice seems only consequential in its melting. Melting ice is "wrong." Frozen ice is not wrong. And, maybe, analysis outside of that feels potentially superfluous. This conversation, that played out again and again, shows me that there are misunderstandings of the Arctic and Antarctica as uninhabited and asocial. Ice geographies are full of human history and politics, power relations, inequity, and state power. These contexts just don't jump to mind as obvious places for critical analysis.

A more stickling interpretation of this iterative interaction might be that the Arctic is generally thought of as so uninhabited that it feels silly to imagine state-sanctioned projects of surveillance and relations of power being enacted by ICE among ice. The reality is that following

FIGURE I.1. "The wrong Amazon is burning / The wrong ICE is melting." Screenshot from X, formerly Twitter. Tweet and photograph by journalist Zoë Schlanger, taken at a climate strike in Kalsruhe, Germany, in 2019. Published with permission.

September 11, irregular movements in the North American Arctic were considered a serious topic of security-related conversations, and the Arctic posed potential routes for the mobility of "terror." I interpreted that for many, analyzing ICE and ice together seemed incomprehensible. That, somehow, ice geographies aren't intelligible as sites of racialized

violence or that ice geographies are so empty that an analysis of race and dispossession feels counterintuitive and even humorous. It is true that this book is not a work of how ICE operates in Arctic or Antarctic spaces, though I would gladly read that text.

This book is concerned with analyzing a racial politic of ice toward a critical understanding of power-laden interfaces with ice geographies over time and especially in the modern moment of rapidly changing climates. Ice is a powerful imaginative and material force that has shaped many physical and social worlds historically and in new precarious ways in the contemporary moment. It has been utilized forcefully as a tool of racialization and coloniality, and it also is more capacious and generative than those violent trappings alone. Put another way, I center ice to critically study racialization, dispossession, and Indigenous knowledge production about ice geographies. I analyze ice as a relation and as a site and source of analysis that is integrally bound up with colonial and racial formations. I am interested in the following questions: How is ice both a racialized material geography and imaginary? How does it exceed those material and imaginative frameworks? What might ice be up to that is beyond our understandings, and how can we create research frameworks that honor emptiness, slowness, and consent while we carefully guess?

I work toward answering these questions through five interrelated parts that understand the Arctic and Antarctica as ice geographies. I bring close attention to the Arctic of North America, in what's for now known as Alaska and Canada, as well as but to a lesser extent Greenland, and to Indigenous peoples who call those geographies home. North America and Alaska take a central role, as I am dedicated to contributing to a flourishing field of Alaska Native studies. Alaska is positioned as an Indigenous place of the Arctic, the sub-Arctic, the Pacific, a place discontinuous to the United States yet so often at the center of global stories and histories that deserve attention singularly, as do Alaska Native literary and theoretical contributions. Alaska foregrounds the political work of ice geographies in ways that are worthy of close analysis. The specificity of Alaska history as an ice geography detailed in the chapters that follow demonstrate the particular entanglements of the politics of race and indigeneity as categories that get marshalled to do work in ways that differ from other contexts, especially those that have been given larger popular attention in polar studies more broadly. Simultaneously, I am aware of the many distinct specificities of Indigenous polities across the Arctic in their wide-ranging natures. Among other cross-Arctic relations,

Arctic Indigenous peoples, while maintaining autonomous and distinct political spatial territories and governments, often form political coalitions on shared goals and struggles across the Arctic. Organizations such as the Inuit Circumpolar Council, Inuit Tapiriit Kanatami, Saami Council, and the Russian Association of Indigenous Peoples of the North have long imagined local politics as similarly positioned across polities vis-à-vis ongoing colonial histories. I support those movements and efforts while simultaneously placing Alaska at the intellectual center that helps in clarifying how categories of race and indigeneity are embroiled within and inseparable from geographies of ice.

As an Indigenous person of the "sub-Arctic," I am aware that my own relationship to ice is divergent from other long-standing relationships, experiences, and obligations to ice geographies held by Indigenous people(s) who live and call home a farther north. My personal concerns with ice geographies are generally with snow, glaciers, and experiences of cold through dAXunhyuu/Eyak sensibilities and histories. Simultaneously, as an Alaska Native person, the forms of racialization and land dispossession that have occurred due to "proximity to ice" have shaped my experiences as someone hailed by the larger, more general category of "Alaska Native." Ice as an imaginary and materiality shapes how race and indigeneity are lived and enacted as political categories and understood distinctly across all Indigenous peoples of the Arctic and Arctic proximate. The specificities of historical and ongoing Alaska Native dispossession and racialization in relation to ice are taken up in chapters that follow.

The chapters are organized thematically in this order: studying ice as analytic, ice as science data, ice as imaginary, ice as terrain, and ice among the stars. Taken together, the chapters make an interdisciplinary argument for the necessity of looking toward ice, and materiality more generally, to better understand enactments of colonialism and racialization and to bring attention to critical Indigenous theorizations about the/their world(s) and ice geographies. Drawing from archival research, cultural analysis of Indigenous literature and theory, and popular science discourse, I argue that ice has been wielded as a tool of dispossession and racialization as it has shaped and maintained narratives and enactments of white supremacy. I am also concerned with how ice exceeds those formations.

I offer and place literature and theory by Indigenous intellectuals from what's for now known as the United States and Canada at the core of my inquiries. I ask fiction, poetry, prose, and theory to operate simultane-

ously as evidence, method, and practice to decipher and elucidate the politics, power, and place in and of many inhabited social and material icy worlds. I am interested in and drawn to Indigenous knowledge production as both form and function. This interest shapes the content in this book by what I examine and ask for assistance, as well as the way I write and move across voice in the chapters. I am invested not only in literary criticism as a method but also in the craft of prose and poetry in the practice of voice in scholarship. To craft poetry and prose is also to theorize.

Analysis of power relations and ice geographies asks the help of many co-thinkers and co-theorizings. In addition to thinking with Arctic Indigenous literature and theory, I turn to Native writers and thinkers who do not call the Arctic home, as well as Black intellectuals and theorizers and radical traditions more generally. I turn to these philosophers to mobilize their forms of expertise to make better sense of ice and its histories of violence and generative world-building. To carefully guess about ice, I must also learn and do guesswork about water and land. I am generatively indebted when I ask to co-theorize with oceanic thinkers, river thinkers, and land thinkers who have long had their lives, politics, legal systems, histories, communities, and livelihoods enmeshed with nonhuman coconspirators, relations, or kin. I am generatively indebted when I ask to co-theorize about indigeneity, race, Blackness, racialization, and dispossession with thinkers outside of my experience and expertise. Further, in my research and writing, ice has asked to be collocated with these ongoing histories, and I have done my best to carefully guess at their relations.

Ice may take several shapes at once: one, a weapon toward violent ends; two, a foundation and collaborator for Indigenous knowledge production; three, a matter that escapes and exceeds the intellectual binds and workings of human thought. This is to say that ice will act and enact as it sees fit. It is not simply responding to human activity or being analyzed through technologies that explain climate causality and the affective dimensions of human desires, including my own—although ice is also those things. This is not to equate Indigenous understandings and obligations of ice relationships with violent colonial incursions into/onto ice geographies. I aim to leave conceptual room for the experiences ice may have that are untranslatable through human faculties. Not all human understandings are the same; the ongoing denigration and active erasure of Indigenous sciences and laws are not lost on me. *And* I believe that there are limits to what a human being can experience, understand, and

express. We can make educated, careful, researched, studied guesses that are emplaced and formulated in ways that don't skip over ongoing Indigenous relationalities. I am interested in the tools that help us guess carefully that are not about access to knowing everything about everyone in all the imaginable ways, but that there is possibility in curiosity through consent and in slow study. That slow study must begin with the understanding that one is always working and thinking from Indigenous lands where Indigenous peoples hold and practice intellectual frameworks that make sense of, care for, and govern those relationships.[1]

I use the term *ice geographies* to conduct the analyses in this book to foreground how ice has been marshalled to do certain kinds of work in various related and overlapping political contexts. Ice geographies are constituted by the large-scale categories of polar and other ice-covered and high-altitude places. Ice geographies are large in material form such as ice sheets and glaciers, as well as small geographies of ice constituted by individual snowflakes and snow crystals. Ice geographies are places where there is proximity to ice in its many forms, in many scales, and is a constitutive element of Indigenous experience and knowledge. This, then, encompasses the Arctic, sub-Arctic, and Antarctica. I offer characterizations of ice that are uneasily categorized by perceptions of the colonial or continental-theoretical. Ice does not produce agriculture, it does not give root, it does not generate arborescence, it is not rhizomatic. It has been written as a geopolitical zone that defies bureaucratic clarity as neither land nor water.[2] Ice is a conundrum across academic disciplines; it confounds an aesthetic determinacy through lens or by brush. Immensity of glacier and icefield remains an artistic puzzle and representational bane.[3] Ice is slow and plodding as it shifts, breaks, and hardens; it can be dangerously rapid when reconstituted as meltwater. It is rendered precarious, a disappearing artifact and simultaneously a deadly force substantively equipped to annihilate a temperate world outside of the ice geographies it is meant to "naturally" or correctly constitute. The materialities, spatialities, and imaginaries of ice are simultaneously and equally consequential.[4] I analyze race and indigeneity and matter together, as placing matter as a primary mode of study assists in critically understanding the enactments of racialization and dispossession.

ICY CONTOURS

Ice geographies in a contemporary, normative sense are dominantly imagined and circulate as landscapes of consequence only in their declining transitory states as they pose potential problems to geographies imagined as more meaningful.[5] In its most present form, ice animates the look and feel of rapid, urgent climate change. Across all versions of mainstream media, on TV screens, news headlines, and internet memes, glaciers and ice sheets collapse. Ice melt is mediated out to a mass audience. However, viewers aren't always seeing the infrastructures of colonial-capitalism from which that ice melt is a consequence. It is true that today, ice is melting faster than ever before. Melt causes social upheaval among northern coastal communities, as well as those lives shaped by sea level rise. Alaska's western coast was pummeled by Typhoon Merbok in 2022, a storm bigger than has been seen in decades and made worse by an unusually warm Pacific Ocean, for instance.

Ice melt disrupts long-standing practices of mobility by Indigenous peoples across all ice geographies. Communities are meant to relocate due to rising seas without aid from governments invested in capitalist extraction directly implicated in sea level rise. Relations with ice shift more quickly than ever remembered, which challenge Indigenous fishing, harvesting, and hunting practices. As of 2021, the Arctic is warming at a pace four times faster than the rest of the planet.[6] Sea ice volume in the Arctic has reduced by two-thirds since it was first measured in 1958.[7] One of Antarctica's ice shelves named "Doomsday Glacier" parts away from itself and into the ocean. Simultaneously, an inundation of climate models anticipates a sea level rise over the next decade, half century, and century that will reshape the sociality of the globe. Readers, viewers, and listeners are told that melting ice will continue to disrupt a more temperate world as sea levels rise in every imaginable future because of and despite change in human behavior. Simultaneously, activism and proactive initiatives by Arctic Indigenous people(s) abound and multiply for climate justice.

Ice melt also creates and collides with other natural disasters heightened under the conditions of capitalist resource extraction and accumulation, like floods, fires, and freeze. That same ice melt in the far North creates new opportunities for the expansion of profit, of shipping lanes, and the mobility of seemingly ever-expanding resource extraction. Melting icebergs are transported by artists to well-trafficked city squares and

conferences that bring melt to a more temperate experience of everyday life. Ice has become an unprecedented daily mediated experience of modernity across the globe. As a result, conditions of ice are now a key interest for political, economic, academic, and activist stakeholders. This unsettling potential of ice thus spatially and temporally shapes the ways that contemporary humans understand the past, respond to the present, and plan for the future.

Yet, ice has always been at the center of making sense of the world. Ice as a de-peopled melting catastrophe, as a threat that will unsettle the settled and the settlers, is a modern iteration of long-standing ice anxieties, obsessions, and normative orderings. It has taken a considerable number of colonial enactments for certain sets of humans to imagine the Arctic, and other ice geographies, as empty and de-peopled. Especially as ontologically, cosmologically, and juridically, ice in part shapes and figures the world for many Indigenous peoples who call the Arctic home and homeland, and have for thousands of years.[8] Reflections on ice have also long been a constitutive element of Western political thought and cultural imagination for hundreds of years.[9] The way that ice geographies are figured in contemporary discourse are just one piece of a longer story of ice relations and imaginings.

Ice is anything but an innocent, pristine entity or apolitical, geographical soothsayer. Historically, ice has been cast as blank, barren, empty and/or ahistorical and disconnected from ongoing socialities, human or otherwise.[10] Often a description of emptiness attends the desires of extraction in some form such as resource extraction of crude oil or natural gas. In many colonial cases, landscapes must be made empty for white masculinity to be tested against it or technological invention to be tested within it. Across landscapes that are not immediately identifiable as easily workable for capitalist enterprise such as those of ice, desert, or swamp, the articulated "emptiness" of a landscape opens it for capitalist improvement, development, or other forms of extractive property relation. In the Arctic, emptiness is articulated to identify it as exploitable.[11] The practical response has been to evidence nonemptiness through a demonstration of liveliness and fullness, as clear evidence of why not to harm and exploit what was previously interpreted as empty—to fill the empty Arctic with life.[12] It is not empty; it is vibrant, it is full of history, stories, relations, and peoples. These claims are correct, *and* I pause at the impulse to fill some manufactured void with information. Who am

I trying to persuade, exactly, with whose relations, and with what tools and methods of proof?

I'd like to push a bit on the strategic necessity to argue for the legible fullness of ice geographies, both ecologically and socially. The response to imbue ice geographies with vibrancy is also to try to imbue ice with more acceptable qualities for those unfamiliar with those spaces. The urge is to fill ice geographies with notions of normative life, to unmake or improve its "wasteland" nature into something more recognizably aligned with normative or capitalist value, something vibrant or even pure. I'd like to offer a way to relate to ice and ice melt in a similar way to what M. Murphy calls "chemical alterlife."[13] Alterlife questions the normative senses of what life is and "asks for an unflinchingly pessimistic acknowledgment that these chemical relations are racist, harmful, even deadly, and that it is up to you to take on the ways that you are caught up in the killing (even if they are killing you too, just more softly)."[14] Each of us is implicated with ice melt. Though, like the metabolization of chemicals, there is an unequal felt experience[15] of that melt and, of course, the unequal contribution of a capitalist-carbon "footprint" that makes melt in the first place.[16]

In this alterlife, in which we are all caught up in the differently experienced melt, the generative capacity of emptiness can act as a reframing. I will not rush to narratively fill emptiness, to beautify it toward progress. Erica Violet Lee writes, "A wasteland is a place where, we are taught, there is nothing and no one is salvageable. . . . Wastelands are spaces deemed unworthy of healing because of the scale and amount of devastation that has occurred there. Wastelands are named wastelands by the ones responsible for their devastation."[17] I add that wastelands are named *wastelands* by the ones who have no relation, no history to lands deemed empty, wasted, and/or destroyed. I'm unconvinced by the need to prove otherwise, to fill emptiness.

In looking closely at a snowflake, the building material of ice, each snow crystal is shaped by its corners, openings, bubbles, and empty spaces. These characteristics are what fundamentally constitute the productive and capacious nature of ice, both scientifically and aesthetically. Empty spaces allow for matter to temporarily cohere. Empty spaces allow for the unknotting of the bind that yokes us as researchers to believe that we must know and report on every knowable thing in every knowable aspect about our research subject, object, place, and interlocutors, to

name and intellectualize a feeling into data before we've let it wash over and saturate us. In emptiness there is pause. There is no requirement for full, complete interpretation or translation. In emptiness, critical co-theorizing, productive touching, and contamination among us can occur without a final answer, magnifying glass, dictation, a recording device, a funded grant, a performance of complete mastery.

In emptiness, there is also what I offer as careful guessing or careful guesswork. Building from critical Indigenous studies, guesswork honors emptiness, respecting the refusals, the breaks, the pauses, the doors shut and not inspecting the windows. Careful guesswork also urges a form of study that is not extractive, that is desire-based,[18] that does not seek to build new theories that displace Indigenous theorizing.[19] Careful guessing is critically attentive to the ongoing dimensions and histories of power relations that shape the responses to the question at hand and the forms of questioning that seem possible and impossible. Who and what shape my questions that seem naturalized to me? Careful guesswork upholds that I can guess to the best of my knowledge, with accountability to place and peoples,[20] and with an ethic of anti-coloniality and decoloniality when possible.[21] Careful guesswork insists that objectivity is an impossibility, that researchers are narrators who craft compromised stories. We are guessing always, and our guesses must work to be consensual among all forms of our interlocutors, relations, and the careful guessing that has emerged before us.[22]

In my own guesswork, I am studying, researching, and guessing about Indigenous ice geographies, the spatial materiality of ice, and the experiences that ice might be having. I cannot know with the normative performance of certainty that is expected of a researcher. I can read, listen, and participate thoroughly, widely, experientially and make careful guesses. The work of careful guessing in relation to nonhuman kin, entities, and collaborators is not to anthropomorphize. Guesswork upholds that ice geographies cannot and will not be enclosed by the stretches of human intellectualizing or imagination. Instead, I can try to the best of my careful, critical abilities to tell my compromised reflections of the interlocking politics, stories, histories, and affective embodiments of and with ice geographies that existed before I had ideas about them. As Saidiya Hartman writes of her concept critical fabulation, there is a political-ethical-moral container we make as our research protocols. It is our responsibility to write within and against the intellectual infrastructures that invent the limits of what and who counts and matters.[23] In care-

ful guesswork, emptiness is a political reality of the haunting of colonial theft,[24] a choice or a refusal,[25] and the material embodiment of space and the infrastructure of matter to contain emptiness. Emptiness does not equate to meaninglessness or a void to be filled with meaning. For even if this mischaracterization were true, that ice geographies are empty, would they be less worthy of my time, attention, and care?

Toward that sensibility, I'm not concerned with redeeming ice as meaningful. Nor do I uphold a social vibrancy of ice, demonstrate a value of ecological vitality, or unmake it as a wasteland. From where I sit, ice is not in need of redemption or valorization; it has always been and will continue to be consequential in multitudinous ways and especially to Indigenous peoples. I am also interested in how ice geographies and the materiality of ice have been deployed to serve colonial enterprises of anti-Indigeneity. My curiosity in materiality is not to deemphasize affect or to uphold a positivistic analysis that necessitates material evidence as the arbiter of Truth. I show that the research-need for material evidence necessitates violence against Indigenous peoples, their ancestors, and their cultural items. Oftentimes the materiality of ice and other matter are made into evidence to prove violent theses.

If ice isn't empty and but is also generatively empty, then it has also been a site for normative machinations of masculinity and can also override those determinations. Imperial science at the poles is nearly always entangled with identity-making projects of white nationalism, resource-based commerce, and masculinity.[26] Lisa Bloom's ever-relevant text *Gender on Ice: American Ideologies of Polar Expeditions* reminds readers that "polar expeditions were icons of the whole enterprise of colonialism" and that "the difficulty of life in desolate and freezing regions provided the ideal mythic site where men could show themselves as heroes capable of superhuman feats."[27] The impulse to test and evidence masculine mettle against the elements is ongoing. In a sense, the figure of the hero never dies.[28]

This book takes up ice and race. I illustrate that spaces of ice were weaponized by Enlightenment philosophers through concepts of environmental determinism to racialize and dispossess Indigenous peoples of the Arctic. Within these notions, "extreme" environments of the North supposedly rendered Indigenous peoples intellectually and corporeally inferior, particularly in distinction to white men inhabiting temperate zones from whom and from where these theories emerged. Environmental determinism of the "frigid" and "torrid" zones is linked in the simul-

taneous and similar racialization of Indigenous peoples in tropical and icy geographies. Enlightenment philosophers and ancient geographers defined tropicality through a racialization that characterized peoples of the mid-latitudes as "naturalized" laborers and in other space-times into property,[29] whereas iciness was wielded to dispossess Indigenous peoples of juridical claims to Indigenous rights and territory.[30] In ice geographies, racial histories of ice figure into the ways that Indigenous peoples were forced to navigate juridical realms of land meanings and land dispossession.

Ice geographies, as they are brought under an imperial scientific laboratorial gaze and racializing regime, are bound up with colonial enactments over land, territory, and the peoples who live in concert with those lands and territories.[31] Nineteenth-century polar expeditions were compared alongside expeditions to what was called "darkest Africa."[32] The gendered and colonial ideations of conquering the "blank, white space" on the map of the Arctic and Antarctica are also always racialized, anti-Indigenous, and anti-Black projects as well. In Alaska the naming of the territory "darkest Alaska" fit easily in American imaginings of a wider imperial geography. The central position of Africa as the "Dark Continent" in colonial and imperial activities during the time period provided a kind of common grammar.[33] This book aims to keep the local contexts of colonialism and imperialism central while not losing sight of the entanglements of global projects of white supremacy always at work. In *Cooling the Tropics*, for instance, Hi'ilei Hobart analyzes the global movements of ice as a comestible and as a refreshment.[34] Hobart clarifies how ice followed the ruts of empire and carved new routes of dispossession. In this case, ice as a foodstuff can be made mobile and in tropical environments act as a "cooling" metonym for civilization.

Ice is also important to analyze in relation to the role that agriculture plays in coloniality, racialization, and land dispossession. An important dimension of environmental determinism and thermal colonialism as they are enacted in both hot and ice geographies is the implicit connection to the necessity of agriculture to the production of civilization and culture itself.[35] Early forms of racialization were constitutive to logics of agricultural sedentarism and what I call *temperate-normativity*. Temperate-normativity suggests that part of the myth of Western civilization is that only from temperate zones could proper forms of civilization grounded in agricultural practices and settled livelihoods flourish.[36] Not only did the climates of tropical and ice geographies supposedly produce

inferior human subjects, but those peoples belonging to temperate zones through acts of conquest and invasion believed they could "progressively soften harsh climates and the allegedly barbarous, politically fragmented societies peopling them."[37] These early foundations of race-thinking through geography and climate racialization shaped cultural and scientific knowledge production about climate itself, ice, and the tropics, as well as early and lasting manifestations of the category of the Human.

ICE, THE HUMAN, AND VIOLENCE

The historical foundations of race and space discussed previously continue to shape scientific, legal, and cultural interactions with ice geographies into the twenty-first century. Although environmental determinism is sometimes understood as a form of racialization that preceded and linearly gave way to the rise of scientific racism, it is not bound by the Enlightenment. Narratives of climate determinism histories, especially of ice, are necessarily enmeshed with contemporary coloniality and racialization. Those entanglements often go overlooked to favor and are also reiterated within generic, grand, planetary narrations. Such narrations of ice are meant to tell a generalized "we" something about humanity's linear past, present, and future. Humanity is defined in this case as largely sedentary Western civilizations that succeed in temperate locales and support settlements capable of domesticated agriculture—something that ice inherently forbids in its resistance to root. The making of these categories, Human and Humanity, require and produce discursive, epistemic, and corporeal violence.[38] The category of the Human, and its inherent exclusions, are in part forged through understandings of racialized theorizations of climate and land, expectations of how that land is worked, and what is produced from that land by human effort. I am concerned with the violences borne of the categories of the Human *and* the nonhuman, for one necessitates the simultaneous, careful analysis of the other.

One form that violence takes is the relationship between the ice geographies of the Arctic and Antarctica and how they have been written as a place of objective, universal human activity. In the context of Antarctica, the category of the Human plays out in the original moments of historical/Western Antarctic expeditions, in more contemporary nationalized science and exploration narratives, and in some of the scholarship and criticism produced about those primary materials and activities.[39] Some

writers instrumentalize Antarctica as a place to write universally about a "human condition." It is also often narrated as a supremely white continent.[40] There is a tendency to consider Antarctica as outside of human history yet somehow of whiteness. This is in part because, as some writers and scholars argue, it has been historically unpeopled and free of Indigenous history that made it into place. If no ancient communities have shaped Antarctica into place, so the story goes, that place must be beyond all human comprehension and language, and attempts to understand it fail unilaterally. This, perhaps unwittingly, appropriates Indigenous experiences as a tool of making sense of place for the good of all humanity.

Māori have their own specific understandings of Antarctica, and historical and ongoing science in the continent is not beyond the politics of oppression.[41] However, Māori history should not be automatically assumed as available and part of a common well of human knowledge. The reality that Antarctica is largely understood and occupied as a continent for science reinforces an opportunity for the humanities to step in as intellectual (often white) savior. In Antarctica, the humanities are often seen as remedial and as a solution to the overdetermined nature of science on the continent. This erases again the violence of the category of the Human as a resource of the humanities and inseparable from the violence of exclusion created by the calcification of the category.[42] The insistence on filling Antarctica with human history or denying it as a human geography signals the usefulness of my offering about emptiness and the desire to make politically meaningful that which may fall out of current categories of thought.

Ice geographies at both poles, then, lend something specific to the violent instantiation of the category of the Human. In the context of the Arctic, this ice geography has been used as setting and as evidence to support large-scale theories of human migrations through the Arctic to other—read, more temperate—climes, largely in exit from Africa or East Asia.[43] These migrations are linked to and are made across the phantom specter of the Bering Land Bridge and are nearly always imagined as unidirectional—out and away from ice geographies. The Bering Land Bridge theory utilizes the material geography of what is now understood as Alaska as the landform for which the populating of the rest of the globe occurred. In this narration, Alaska is cast as a spatiotemporal hinge connecting the Old World to the New, in which sense it is useful only for the transits that occur across it, not a meaningful space in and

of itself, and belongs neither to the hierarchies of the Old World nor the New World.

These enunciations of travel and arrival come to matter crucially for Native peoples in the legal making of claims to territory and how they are racialized as subjects of empire. Indigenous peoples of the Arctic and Alaska Native people(s) especially have been entangled in these projects.[44] I show that the racialization of Alaska Native peoples as non-Indigenous but instead as of Asian descent by ethnologists, lobbyists, and geographers is directly related to a spatial relationship to Beringia and ice geographies. Juliana Hu Pegues calls this form of racialization "settler orientalism" and writes, "Though Alaska Native peoples' imperial racialization as Asian would be superseded by colonial differentiation, the idea of indigeneity constructed through imagined Asian connection would find a lasting articulation in the colonial epistemology of the Bering Land Bridge."[45] These renderings of Arctic and Alaska as ice geographies where the migrations across the Bering Land Bridge supposedly took place then shape colonial definitions and legal classifications of race and indigeneity in the Arctic, and particularly so in Alaska.

Following the Alaska Purchase in 1867, Alaska Native people as individuals were not legally understood as racially American Indian nor as potential immigrant citizens but floated in an indeterminate lack of legal classification until 1931. Alaska Native communities were also not understood as sovereign polities who predate the existence of Russia or the United States. This lack amounted to more than sixty years of US occupation where Alaska Native peoples were not able to make legal claims to their lands. Since then, Alaska Native polities have been legally recognized as Indigenous with an Aboriginal claim to land. However, Aboriginal title was then extinguished through an unprecedented process of land claims in 1971. This land claim, the Alaska Native Claims Settlement Act (ANCSA), bound land to capitalistic corporate entities instead of the utilization of more recognizable forms of autonomous governing bodies such as those found in the continental United States. In the aftermath of ANCSA, concerns regarding sovereignty, self-determination, and tribal governance remain unresolved, and contestations around such issues continue into the present moment.[46] Only in 1993, assisted by the lobbying powers of Ada Deer, assistant secretary of Indian Affairs, did all tribes and villages listed in ANCSA become federally recognized. Only in 2021 did the Alaska governor sign House Bill 123 that provided formal recognition for tribes and villages by the state of Alaska. There are 228 feder-

ally recognized tribes in Alaska, almost half of the 574 recognized tribes in the United States. An incredibly diverse region, Alaska is also home to more than twenty distinct Indigenous languages.

ARCTIC INDIGENEITY

Arctic Indigenous peoples have long-standing relationships with ice. These ice relationships have been formulated through a millennium of lived experience; accumulation of expertise and science; aesthetic and artistic interpretations; cosmological, philosophical, and theoretical rubrics; and juridical structures of accountability, among other forms of relating. In this book, I center literary and theoretical contributions that Indigenous peoples have made in relation to their homelands, environments, and the matter that constitutes their material, psychic, and spiritual lives, especially regarding ice. My aim is not extraction but critical engagement through literary interpretation that can hold emptiness. My careful guesswork searches for the ways that theory is built, not only through something called *environmental knowledge* as rendered through quantifiable measurement, hard science, and policy but also through contributions of poetry, prose, and story. These forms of knowledge production, of course, are inseparable from the web of expertise of Indigenous law and governance. By virtue of centering ice, I am interested in environmental expertise. However, I illustrate that those forms of expertise can come in a range of forms and genres. To this end, this text will not rehearse or demonstrate specific details of Arctic and sub-Arctic Indigenous cosmologies as rich, important, distinct, and crucial as they are across but not limited to Sámi, Nenets, Khanty, Evenk, Even, Yukaghir, Mansi, Chukchi, Yup'ik, Unangax̂, Sugpiaq, Dene, Gwich'in, Athabaskan, dAXunhyuu/Eyak, Łingít, Haida, and Inuit worlds, territories, and lands. Often these are not mine to share or relay without permission. I keep my analysis to the materials of published creative knowledge production to bring attention to Indigenous intellectualizing through creative knowledge production.

I'm politically and ethically drawn to what literary forms offer and generate for articulating capacious lived and conceptual relationships, especially with ice geographies. Literary or aesthetic modalities offer intricate expressions without the mediation of purported objectivity. Native literature in this context offers understandings of ice geographies, some of which emerge from ecological expertise, but does not risk the same problematics inherent in representing those forms of expertise especially to a

non-Native world. Part of understanding crucial insights and distinctions brought to bear by emplaced and embodied knowledges and their potential creative meditations is that not all expertise will appear and appeal in the same fashion or universally. Such productions may allow for enunciations of experience and imagination that exceed typical or traditional modes of communicating ideas within the academy. And yet, as Katherine McKittrick writes, thinking specifically with what she writes as black methodologies, "science and story are not discrete; rather, we know, read, create, and feel science and story simultaneously."[47] While quantitative forms of normative science are often heralded as more consequential through dominant forms of knowing and interacting with the world, story and science are not mutually exclusive. They have always been formed and forged together, which is particularly resonant in thinking about literary and theoretical Indigenous conceptualizations of the world. As this text will demonstrate, Indigenous creative knowledge production will always make and allow for more capacious worlds, and representations of those worlds. This is true also of ice geographies and experiences of cold. For instance, as Sarah Wright and Matalena Tofa put it:

> Weather is . . . mediated by, and itself mediates, power relations. The cold weather feels, makes and is experienced differently by homeless people living rough in a major US city, or by Inuk scholar Sheila Watt-Cloutier as she calls for the right to be cold to support the survivances of Inuit cultures and co-emergent environments, and differently by a small scale farmer with an unseasonal freeze, or a politician in a heated office making climate policy at the behest of oil companies, or by a glacier, a migrating bird, the frozen grass, the building's heating system and the communications and co-becomings between them.[48]

Ideas of ice as a vibrant materiality and cold as an affective dimension have been deployed differently to service projects of anti-Blackness and anti-Indigeneity through environmental determinism and other colonial enterprises. I aim to bring attention to some of these moments.

Relations with ice and other matter can constitute ontological and cosmological orientations for particular humans and polities, and such elements can also be organized and manipulated for violent means. Such elements can be materialities and metaphors for violence itself. As Christina Sharpe writes, "Antiblackness is pervasive as climate,"[49] in concert with "the totality of the environments in which we struggle; the

machines in which we live; what I am calling the weather."[50] In the context of ice, I follow Emilie Cameron as she puts it: "I am not willing to abandon an analysis of how prevailing structures and practices shape . . . relations" and that we should be "interested in taking sides on the question of who and what matters in the ordering of the contemporary North."[51] I am interested in taking sides. Analyses of materiality necessitates a critical engagement with violence yet cannot be fully encompassed by violence alone.

Part of this insistence is to avoid narrative problematics that continue to accumulate in relation to Indigenous peoples and ice. By consequence of their long-standing relationships to ice, they are some of the first groups to experience the consequences of a rapidly changing climate. However, those relationships to the Arctic are extremely underrepresented in climate change research, scholarship, and media, especially about ice geographies. When present, they are most commonly narrated through crisis and devastation singularly. Many of those narrations instead cast a depeopled, melting icescape as an iconic representation of climate change. This melt wreaks havoc on an inferred, doomed white, settled planet, and all the while ice remains unmoored from its social-political origins and contexts. These generalizations of ice from nowhere melting into everywhere efface differential capitalist and colonial violences and Indigenous peoples' political, distinct, and long-standing relationships and organizing with ice geographies. Recent critical work on the Arctic offers a fuller representation of long-standing Indigenous histories and ongoing politics.[52] Other contributions arrive in the form of assessing traditional ecological knowledge (TEK), Indigenous mapping, or examining environmental literary narrations.[53]

There is an additional problem around a renewed attention to the multicultural liberal inclusion of Indigenous politics and polities. If Indigenous expertise and ongoing presence is not overlooked in the telling of ice-narratives then a different and equally thorny narration emerges: depoliticized traditional ecological knowledges, which are sought as salvation to a climate apocalypse.[54] The extraction of Indigenous knowledges undermines the autonomy of Indigenous polities and overlooks their potential entanglements with resource extraction, particularly in the Arctic. These land-related contestations also find home in the reductive and essentializing stereotypes about Native people(s) and a romanticized connection to the earth. In these formations, Native people(s) are expected to perform an ecological Indian stereotype that binds them to

an invented hyper-spiritualized preindustrial past. This figure can never be modern and participates in visibly mourning the changes to land wrought by capitalism and pollution. However, as Kyle Whyte has written, if our ancestors could see the state of the earth in this moment, they would most likely be less shocked at the alterations to the land and more surprised by institutions of patriarchy and the mistreatment of Native femmes.[55] He writes of Native ancestors:

> It is tempting to point out that they would have commented on the loss of plants, animals, insects and ecosystems and the loss of traditional practices in the precise ways that they were performed during their times. But I do not think that is actually what would stick out to our ancestors most. Instead, they would be quite surprised to see the disempowerment of women and the adoption of heteropatriarchy in Native communities, the lack of consent and trust within and across peoples and nations, and the absence and triviality of nonhuman agency in human affairs.[56]

The flattened land relations desired by the ecological Indian stereotype distracts from pressing forms of relations that keep especially those who identify as women safe, supported, and loved—which are also forms of land relations.

The stereotype of the ecological Indian complicates the distinct and specific political and legal ongoing relationships that Native people(s) maintain with their homelands. These multidimensional and long-storied sets of relationships that are distinct across peoples and space are misinterpreted by non-Native people as the stereotype itself. Within this rubric, the agency, complex navigations, and strategies that Native peoples have needed to and continue to deploy to support tribal and community members that do not align with the ecological Indian trope are then interpreted as anti-Indigenous behavior. Yet, as Andrew Curley and Majerle Lister write, "Indigenous nations are not only subsistence communities on the frontline of environmental change but they are also communities embedded in minerals and extraction at the frontline of energy transition."[57] To overlook those ongoing histories is to imagine Native peoples as anti-modern and anti-economy.

The myth of the ecological Indian is also attended by the expectation that all Native people will be "rural," even though many Native people in the United States and Canada live in urban areas. This expectation is also true in ice geographies—that Arctic Indigenous people will not be

urban—yet, taking Anchorage, Alaska, as an example, one of every thirteen residents living there is Native.[58] Living in urban centers does not preclude land relations; quite the opposite, as urban spaces are not anti-relational and are also Native lands.[59] Yet, there is an expectation that all Native peoples live or should live outside of cities or will eventually by choice find their way back to the communities from whence they supposedly came. The popular idea that a measurable form of social change comes as a result of a Native person "returning to their community" can also be a colonial land relation. This expectation allows for Native people to exist only in specific relationships to space that are fixed, rural, and not mobile; that there is always a discrete agreed-upon community to which to return; and that Native people should only be working at localized levels. This return also overlooks earlier regimes of enforcing Native peoples to stay within boundaries of reservations while simultaneously making any cultural activities there illegal, as well as federally sponsored projects of relocation in the contiguous United States during the 1950s, the explicit objective of which was to relocate Native peoples from reservations to urban centers.[60] The expectation also erases the state-sponsored projects of relocation of Native people in Alaska such as those from King Island to Nome,[61] as well as other politically induced relocations happening to Indigenous communities not only in the Arctic but across Indigenous Latin America.Many Native people, especially those participating in spaces of higher education, do wish to return to their homelands and their peoples—but the expectation by non-Native people of the "return of the Native" is an inappropriate one.

Indigenous knowledges must be understood as entwined and inextricable from discussions of sovereignty, self-determination, political governance, and intellectual property rights however they might take shape within distinct politics of place. Native knowledges are practiced, maintained, and conducted in the face of historical and ongoing colonialism that take form psychically and materially through erasure, appropriation, land dispossession, racialization, surveillance, environmental racism, and the prison industrial complex, among other regimes. In that sense, then, caring for and about Native knowledges is the same as caring for Native peoples. Within that ethic, Native peoples are not always living full time "in the community," nor are they always from federally recognized tribes; people(s) are often operating in diaspora and in urban spaces. As mentioned, Native people are often urban and therefore what

happens in city spaces regarding land and climate change is also about Native peoples and their knowledges. It is impossible to extract one kind of environmental data from a web or framework of Indigenous political livelihood. Indigenous sovereignty and self-governance, and therefore traditional ecological knowledges are about many, many things, including but not reducible to material land or ice. Rather, it is colonial extractive infrastructures that reduce Native peoples to land and their knowledges about land.

TEK, then, is often essentialized and forced into a container as though it could exist in an apolitical and ahistorical form severed from the relations it co-constitutes. There is a tendency to reduce Indigenous knowledges to something only botanical, ecological, or somehow about sustainability, conservation, or preservation. As Cana Uluak Itchuaqiyaq argues, "Indigenous knowledges are not secondary to western, 'scientific' ones. Indeed Inuit knowledges of our lands and waters are scientific, sovereign, and often sacred . . . these knowledges come from our communities observing, interacting, surviving together, and depending on the same lands and waters where our ancestors existed."[62] There is a drive to incorporate local Indigenous knowledges on the ground, separate from political relationships in which they are embroiled, to build a better set of representations for data, figures, and, inevitably, policy. This is an inadequate framing as Indigenous science and knowledge sets cannot be bracketed; they are ongoing relations and practices that are political, juridical, and spiritual and must be consistently maintained and reiterated.[63] It is not Indigenous peoples' responsibility to save what has been contemporarily cast as a dying planet. Native peoples, communities, and polities are boxed by colonial regimes that make it appear as though they should save a dying earth as mythologically, inherently land-based people—and not that they might have their own strategies as sovereign entities who govern as they best see fit.

One way that Arctic Indigenous knowledges have been usurped through add-and-stir tactics of inclusion is through scientific research projects that laud collaborative methodologies without meaningful engagement and representation. In 2020, Kawerak, Inc., a regional nonprofit corporation serving the Bering Straits Region organized under the auspices of ANCSA, wrote a letter addressed to the National Science Foundation's polar program Navigating the New Arctic (NNA). The letter indicted poor research practices and included statements such as:

> We cannot overstate the need for true collaboration among Indigenous Peoples . . . we have grave concerns about the impacts from the NNA process and funded projects to date. The NNA has funded projects that claim . . . to be collaborative, to do knowledge co-production, to include partnerships with Indigenous communities, and to address questions that will 'help' or 'assist' Arctic residents. Many of these projects (and many more which were not funded) do not and will not fulfill any of those claims.[64]

This important statement resonates with Cana Uluak Itchuaqiyaq's urgent call for equitable, meaningful collaboration with Indigenous peoples in Arctic science research. Itchuaqiyaq writes,

> I have been researched. My family has been researched. We have given access to ourselves, our experiences, our ancestral knowledges, and our homes to fulfill others' ambitions, all in the hope that these actions can help our community. We have trusted others to depict our lives, experiences, knowledges, and communities fairly and accurately. We have lent our social capital to outsiders and vouched for them so that they may gain access into the homes of others in our community. We have incurred risk. / Tell me: What risk have you incurred?[65]

These calls for responsible scientific engagement with Arctic Indigenous communities don't arrive from nowhere. In this moment of climate change, the most dominant form of ordering and narrating ice geographies is made through understanding ice as a scientific dataset. Ice as a material for objective laboratorial analysis is often severed from the political and social contexts from which it was removed toward the goal of telling planetary stories. Scientific data has long been extracted from the Arctic and continues in contemporary forms such as through drone imagery and satellite data that tracks sea ice melt and glacial retreat.[66] The technologies to surveil, track, speculate, and predict ice melt seem to proliferate with the minute.

OTHERWORLDLY ICE GEOGRAPHIES

Historically, ice geographies have been consistently described as "unearthly," "otherworldly," and "celestial" by imperial explorers.[67] Explorers wrote of ice geographies as spectral and supernatural spaces—

eerie, unfamiliar, and unlike anything they had experienced in their more temperate nation-states. Apart from aesthetic and affective renderings by those foreign to ice geographies, polar spaces have been materially entwined with the cosmos. Through the discovery of comet dust in Antarctica to the very element of water first coming to Earth in an icy form through comet landing, ice and outer space find themselves consistently linked. Ancient intellectuals and contemporary thinkers look to the stars and the poles to make sense of the globe's geography, of whiteness, and of philosophy and science.

Before nineteenth-century polar exploration, legends of mythic Hyperborea and Arktikos as outrageous geographies wherein roamed beasts, monsters, and strange human-like races were mainstays of Greek storytelling. Greeks narrated the mythological geography of Hyperborea as a secret Eden, a circle of fertile, temperate climate located in the center of a frozen wasteland. Nazi ideology later took up and deployed not just Hyperborea but also saw Antarctica as rich narrative ground for a white, severe continent. Hyperborea specifically was chosen by the Third Reich as a pristine, fertile, and untouched landscape surrounded by a blanket of whiteness and as the locale from which the purity of the Aryan race emerged.[68] The North Pole, in addition to being part and parcel of white-nationalist-masculinist desires of its first discovery, is bound to Europe's scientific revolution. When understood as a celestial pole or pole star, the North Pole can be read as one source for locating the origins of a Western scientific sense of time and orientation in and navigation through space. When one is not positioned in the high North and navigating by the North Star, all other celestial bodies seem to revolve around the North Pole's stationary spatial locatedness in the sky. Geographical situatedness is key, for as Michael Bravo writes, some Inuit living in the high North do not treat the North Star, or Nuutuittuq, in the same way; because of the North Star's high elevation, it is not a useful constellation for navigation.[69] Some Inuit use constellations or skymarks that are more conducive to their own practical navigations.

Today, ice geographies are utilized as landscapes of simulation for actual otherworldly expeditions and excursions. Ice is being hunted across the solar system to evidence the potential for human survival on other worlds and sought after by the wealthiest elite on the planet. In the summer of 2021, many citizens of Earth observed several rockets launch into space. From the United States, three billionaires all fired rockets into the atmosphere. In 2023, an ice-hunting rover was sent to the moon

to obtain a more accurate assessment of lunar ice amounts and "how much of it will be accessible to humanity."[70] In 2021, NASA cut a ten-cent check to kick-start moon mining technology, the first payment on a space resource contract to collect lunar dust, volatiles, and water-ice. The reporting article on NASA's lunar resource extraction support stated that the check "sets a legal precedent for companies to go out and collect resources from the lunar surface and make them basically useful for humanity."[71] We also see the logic of "usefulness for all humanity" unfold in the newest version of the space race as filtered through capitalist logics. As Bloomberg reports, "China, US Are Racing to Make Billions from Mining the Moon's Minerals."[72] And yet, those industrialized nations and individuals who are most reliant on fossil fuel extraction on planet Earth seek water-ice on the moon, and with every rocket launch they expel up to three hundred tons of carbon dioxide into the upper atmosphere where it can remain for years, quickening the pace of melting ice on the planet we all currently inhabit.[73] These initiatives destroy ice on Earth while seeking ice on earthly satellites. The figure of the hero never dies.

ICE GEOGRAPHIES AS SPATIAL, IMAGINARY, AND MATERIAL

Ice geographies might be understood most straightforwardly as mappable spaces: as territories of the North and South Pole, as the Arctic and Antarctica. In that sense, these are the spatial, regional areas that I take up through the chapters of the book. However, this characterization itself is contested and compromised. As Klaus Dodds and I write regarding the Arctic, Western desires have consistently worked to render icy locales of the North legible to an audience further south.[74] In this way, the cryosphere is often overwhelmingly dissected and demarcated not by Indigenous historical and ongoing claims to space but instead through nation-state borders and the documented presence of particular biota as they correlate to lines of latitude and/or cold temporalities. A circumpolar region of the Arctic is often defined by lines of latitude such as 66° North, otherwise known as the Arctic Circle, or the northern limit of the tree line. Others have adjusted the lines of demarcation used to define the Arctic depending on sectoral interests such as conservation, environmental monitoring, shipping, and fishing. There has been considerable investment in refining these regional categorizations, with efforts made

to distinguish between a high Arctic and a sub-Arctic, which again use biogeographical objects such as surface vegetation to tease out a transition zone between very cold and cold environments. There is no one Arctic, in other words.[75]

Antarctica, while taking a less central role in this monograph, as is unfortunately a trend across polar studies, is nonetheless an important site for study of histories and ongoing forms of coloniality and nationalized science.[76] As Jean de Pomereu and Daniella McCahey write, "Much of what happens in Antarctica environments, whether natural or human induced, echoes across the Earth through the effects of glacial melt, the formation of the ozone hole, variations in the thermohaline circulation and the loss of biodiversity."[77] In the contemporary moment, "the Antarctic is now as much a symbol of global anxiety (with associated rescue fantasies), as it is a site of ongoing scientific collaboration and knowledge exchange—snow, ice, and the cold are new geopolitical and scientific frontlines."[78] While Antarctica may be widely understood as the only un-peopled continent on planet Earth, which makes it distinct from the Arctic, the southern polar geography is not in any circumstance empty of Human relations or inequity.[79] A history of the Antarctic Treaty alone demonstrates the claims and desires for access made by various nation-states' scientific endeavors.[80] While Antarctica is overwhelmingly identified as a place for science, literary production emerges from the southern pole as well. Men like Samuel Taylor Coleridge, Edgar Allan Poe, and H. P. Lovecraft, as well as more contemporary writers, utilize Antarctica as a material and imaginary locale for storytelling, often using tropes of danger and lack of human life.

I also mean *imaginary* in the sense of the militarized, scientific, and literary imaginaries of ice geographies. Some might be compelled to separate out scientific information from literary histories in the production of an imaginary, as well the military force on which science so often depends, and vice versa. I see both as constituting narrative imaginings of and about ice. As Dodds and I have written, there has been no shortage of desire to document the Arctic's frozen earth and sea ice, ranging from nineteenth-century Russian surveying of permafrost in eastern Siberia to elaborate monitoring of drifting sea ice. While these exercises were informed by scientific laboring, both permafrost and sea ice attracted an array of other stakeholders, including engineers and industrialists. These scientific stakeholders were charged with planning Russian and

then Soviet agricultural and industrial development on the one hand. On the other hand, Soviet and American military planners were desperate to better understand the sea ice dynamics of the Arctic Ocean. Submarine operations during the Cold War depended in large part on having an up-to-date compendium of data on sea ice distribution and thickness.[81] In these ways, scientific knowledge production is about future speculation and imagining worlds and how those worlds might be created in any given spatial context. It just so happens that that imagined world-building is often funded by and allied with settler colonialism, racial capitalism, and property relations—but this does not mean that science is not about imagination and producing an imaginary.

In the more explicit sensibility of imaginary, a literary fascination with the Arctic and Antarctica has been abundant. Quite simply, as Hester Blum puts it, "Polar exploration produces writing."[82] A literary obsession with the Arctic is expansive and often centers an individual protagonist and not a community of characters. This obsession ranges from the pursuits of Arthur Conan Doyle's "Glamour of the Arctic" to the wandering monster in Mary Shelley's *Frankenstein*. From Melville's Moby Dick to Jack London's Buck, from Barry Lopez to John McPhee—the Arctic has long acted as setting and protagonist for (mostly male) writers, especially in the long nineteenth century. As Heidi Hansson writes, "The idea of nothingness, pristine nature and harsh natural conditions has been particularly conducive to adventure stories and thrillers, as a kind of fictional development of the narratives of discovery published by Arctic explorers."[83] Increasingly, Hansson argues, the Arctic has come to function as a transitional space between the familiar and the alien, as "a threshold that forces the protagonist to go through a process of estrangement where all signs of civilization are stripped away in preparation for the encounter with utopia."[84] In so many ways, both in racialization and rendering the sublime, ice geographies are coerced to work in particularly dangerous forms and formations.

Antarctica, too, features prominently as a location for the production of fantasy and science fiction literature and film.[85] Not only was textual production about Antarctica circulated widely to domestic reading publics as a kind of soft empire but printing presses were a popular item onboard ships to publicize information to an insular audience as they moved through Antarctic waters.[86] Scholarship has also been particularly keen to analyze the homosocial comradery of male seamen aboard Antarctic exploring ships.[87] As Hester Blum writes, "Expeditions

to Antarctica in the early twentieth century—the so-called heroic age of exploration—produced the most lavish of all polar publications."[88] Literary productions about Antarctica are less abundant than those of the Arctic but are nonetheless rich with strange human desires to deem it "unwritable" as a result of its extreme nature that pushes on the limits of adjectival vocabulary.[89] Elizabeth Leane remarks on conventional understandings of writing the continent: "This Antarctica is ground, not figure—it is nothingness, and nothingness cannot, by definition, be depicted. Any attempt to do so, to describe the continent as something, or even *like* something, is then interpreted as sullying of its purity."[90]

Ice geographies have been imagined and spatially rendered as large, sweeping spaces of North and South. In my conceptualization, I additionally understand ice geographies as small geographies. For example, ice has been fundamental to scientific knowledge production in an elemental sense, as it was understood by early Western thinkers through the lens of crystallography and as the basic building blocks of chemistry.[91] Emanuel Swedenborg, who in 1721 wrote *The Principles of Chemistry*, believed that crystals of ice can "reveal the inner laws of the universe," an idea reiterated by scientists across the eighteenth and nineteenth centuries.[92] German Idealist F. W. J. Schelling's text *On the World Soul* posited philosophical inferences such as: "Crystals are life itself, the transformation of shapeless energy into rigid structure. Crystals are life itself the transformation of shapeless energy into rigid structure. Crystals are early humans. We were once and can be again diamonds, and we carry icebergs and the snow tops of mountains inside of us."[93] This book understands the various formations and phases of ice as openings for creative reflections for which to think through race, indigeneity, power, and matter that are not subsumed by only violence or melt.

ICY PARTS

Organized into five chapters, this book is concerned with the ice geographies of the North American Arctic, and secondarily Antarctica, with a critical focus on colonialism, racialization, and Indigenous knowledge production. I use archival analysis and literary criticism to guess carefully with historical materials like treaties, speeches, cartoons, and climate tables, as well as modern source material like fine art, poetry, fiction, embodied knowledges, film, news articles, and sculpture. I also

utilize a range of writing voices to establish method, style, and craft. The book follows a temporal thread that weaves across historical and contemporary instances to show that while ice is commonly understood as most meaningful in the present as it endangers a settled world, ice has always been central and critical to understanding the planet narratively, scientifically, and materially.

Chapter 1, "Ice as Analytic," illustrates ice's generative offerings and contours as neither land nor ocean but as an inherently transitory element. I explore how ice complicates juridical claiming of space, acts as a node of thinking and literary device, and how it both is and is not a metaphor. This chapter places ice as an innovative theoretical analytic to bring together analyses of matter, material landscapes, and racial formations. Offering ice as analytic is also to complicate and trouble the imperial categories of the globe that work to keep radical traditions separate by latitude and longitude, hot and cold, and categories of race and indigeneity. I center literature, poetry, and theory, especially of the Indigenous Canadian and Alaskan Arctic, the Black Atlantic, the Caribbean, and Oceania to think critically about what ice asks that we think together and also what ice provides, contains, and exceeds.

Chapter 2, "Ice as Data," focuses on how climate and Arctic scientists extract and study ice cores. Ice cores are ice cylinders removed from glaciers and ice sheets and read by scientists to tell global environmental narratives that speculate on future climate worlds. Within ice core narrations and its applied science, ice is read toward a geological orientation of demise and decline utilizing a postindustrialized world as a golden spike—a marker of irrevocable change that dooms all humanity. I analyze a study that utilizes ice core data to overturn dominant narratives by demonstrating that imperial and colonial violence that inflicted death (the Great Dying of Indigenous Peoples) also changed the globe's climate. Yet, the experiences and lifeworlds of Indigenous peoples in the Arctic continue to go overlooked, even in critical instantiations of ice core science. I ask that we rethink the ice core as only a soothsayer of damnation and pause for breath on what other atmospheric markers that ice might contain.

In chapter 3, "Ice as Imaginary," I demonstrate how ice geographies of the Arctic were weaponized by Enlightenment philosophers through concepts of environmental determinism and the myth of the Bering Land Bridge. Within these spatialized narrations of ice and peoples, "extreme" environments of ice geographies supposedly rendered Indigenous peoples

inferior, defined in distinction to white men inhabiting what were called *temperate zones* of the globe. Pushing against these enduring histories of environmental determinism and Beringia as totalizing and universalizing, I analyze poetry by Joan Naviyuk Kane (Inupiaq).

In chapter 4, "Ice as Terrain," using archival research I explore race, indigeneity, and ice in the context of mid-nineteenth-century Alaska. During this time period, Alaska Native peoples were racialized as "of Asian descent" and therefore not Indigenous due to proximity to ice geographies. I trace out the narrative labor of ethnologists, lobbyists, and cartographers who worked to racialize Alaska Native peoples as non-Indigenous. This racialization was practiced through the creation and accumulation of scientific weather data like temperature and precipitation into climate tables. These tables and root vegetables were utilized as evidence of potential successful settlement of the territory of Alaska.

In the final chapter, "Ice among the Stars," I'm interested in how the North and South Poles have come to matter in relation to outer space. The Arctic and Antarctica are both imaginary and material spaces where dreams and projects of the celestial are enacted cosmologically and toward oppressive ends. I analyze various esoteric and contemporary uses of the Arctic and Antarctic in racist, fascist regimes, such as the enduring myths that utilize ice geographies as birthplace and survival locations for Third Reich ideology and how this relates to contemporary colonial desires to occupy outer space. I end this chapter with a close reading of a science fiction short story by Inupiaq author Nasugraq Rainey Hopson, wherein an Inupiaq protagonist accomplishes simultaneous land-back Arctic campaigns while also planning for space travel to a cold planet that is much like the Arctic.

The culmination of these chapters place ice at the center to study racialization, dispossession, and Indigenous knowledge production and theory-making. In analyzing ice as it has shaped racial and colonial formations, the book demonstrates that the study of power necessitates the study of matter. I offer that matter matters materially, imaginatively, and spatially. Moreover, ice and its various phases and movements, its generative emptiness and its violent racial and gendered histories, can never be subsumed by coloniality entirely. Ice has its own experiences about which we can only guess, and it is our responsibility to make those methods of guessing as careful and consensual as possible.

PROLOGUE

1. Kane, *Another Bright Departure*, 11.
2. Sherman, *Images of America*, 35.
3. Alley, "Steel Rails and Ice."
4. Carey, "The History of Ice."
5. Jue and Ruiz, "Time Is Melting."
6. Obama, "Remarks by the President at the GLACIER Conference."
7. Vimalassery et al., "Introduction."
8. Tuck and Yang, "R-Words," 227.
9. Tuck and Yang, "R-Words."
10. Whyte, "Against Crisis Epistemology."
11. Tuck and Yang, "R-Words," 227.
12. Million, "Felt Theory."
13. Morehouse and Cigliano, "Cultures and Concepts of Ice."
14. Carey et al., "Glaciers, Gender, and Science."
15. Cruikshank, *Do Glaciers Listen?*
16. Cruikshank et al., *Life Lived like a Story*; Krauss, *In Honor of Eyak*.
17. Bravo and Sörlin, *Narrating the Arctic*.
18. Gumbs, *Undrowned*.

INTRODUCTION

1. I am indebted to Sarah Hunt's larger work and especially in her grounded insistence to not paper over Indigenous juridical relations with new posthuman concepts. I am also indebted to Michelle Daigle's work on Indigenous relationalities.
2. Steinburg et al., *Contesting the Arctic*.
3. See Balog, *Ice*; Bloom and Glasberg, "Disappearing Ice and Missing Data."
4. Said, *Orientalism*.
5. Dodds and Smith, "Against Decline?"
6. Voosen, "The Arctic Is Warming Four Times Faster than the Rest of the World."
7. NASA Science Editorial Team, "With Thick Ice Gone, Arctic Sea Ice Changes More Slowly."
8. See Adler et al., "The Mittimatalik Siku Asijjipallianinga"; Cameron, *Far*

off Metal River; Carey, *In the Shadow of Melting Glaciers*; Fox et al., "Connecting Understandings of Weather and Climate"; Todd, "An Indigenous Feminist's Take on the Ontological Turn"; and Wilson et al., "When We're on the Ice, All We Have Is Our Inuit Qaujimajatuqangit."

9. Bloom, *Climate Change and the New Polar Aesthetics*; Blum, *The News at the Ends of the Earth*; Bravo and Sörlin, *Narrating the Arctic*; Dodds, *Ice*; Leane, *Antarctica in Fiction*; Wilson, *The Spiritual History of Ice*.

10. Many scholars have worked importantly against that overwhelming representation. For instance, see Bravo, *North Pole*; Davidson, *The Idea of North*; Grace, *Canada and the Idea of North*. Scholars have also importantly rewritten the Arctic as a lively ecological and social ecosystem. See Banerjee, *Arctic Voices*; Bloom, *Climate Change and the New Polar Aesthetics*; Bravo and Rees, "Cryo-Politics."

11. Banerjee, *Arctic Voices*; Dunaway, *Defending the Arctic Refuge*.

12. Grove, *Savage Ecology*; Voyles, *The Settler Sea*.

13. Murphy, "Alterlife and Decolonial Chemical Relations."

14. Murphy, "Alterlife and Decolonial Chemical Relations," 499.

15. Million, "Felt Theory."

16. Carey and Moulton, "Inequalities of Ice Loss."

17. Lee, "In Defence of the Wastelands."

18. Tuck, "Suspending Damage"; Tuck and Yang, "R-Words."

19. Hunt, "U'mista (The Return of Something Important)."

20. Liboiron, *Pollution Is Colonialism*; Tuck and McKenzie, *Place in Research*.

21. De Leeuw and Hunt, "Unsettling Decolonizing Geographies."

22. Simpson, "Land as Pedagogy."

23. Hartman, "Venus in Two Acts."

24. Gordon, *Ghostly Matters*; Tuck and Ree, "A Glossary of Haunting."

25. Simpson, "The Ruse of Consent and the Anatomy of 'Refusal'"; Simpson, *Mohawk Interruptus*; Tuck and Yang, "R-Words."

26. See Bloom, *Gender on Ice*; Carey et al., "Glaciers, Gender, and Science"; Craciun, *Writing Arctic Disaster*; Grace, *Canada and the Idea of North*; Robinson, *The Coldest Crucible*.

27. Bloom, *Gender on Ice*, 7.

28. Bloom, *Climate Change and the New Polar Aesthetics*.

29. Aravamudan, *Tropicopolitans*; Gomez, *The Tropics of Empire*; Livingstone, "Tropical Hermeneutics."

30. Smith, "Exceeding Beringia."

31. Bravo and Sörlin, *Narrating the Arctic*; Demuth, *Floating Coast*; Huhndorf, *Mapping the Americas*.

32. Bloom, *Gender on Ice*; Campbell, *In Darkest Alaska*; Khanna, *Dark Continents*.

33. Campbell, *In Darkest Alaska*.

34. Hobart, *Cooling the Tropics*.

35. Williams, "Keywords."

36. Livingstone, "Environmental Determinism"; Smith, "'Exceeding Beringia'"; Zilberstein, *A Temperate Empire*.

37. Zilberstein, *A Temperate Empire*, 6.

38. Anderson, *Race and the Crisis of Humanism*; Jackson, *Becoming Human*; McKittrick and Wynter, "Unparalleled Catastrophe for Our Species?"; Weheliye, *Habeas Viscus*; Wynter, "1492."

39. Howkins, "Appropriating Space."

40. van der Watt and Swart, "The Whiteness of Antarctica."

41. Wehi et al., "A Short Scan of Māori Journeys to Antarctica."

42. Roberts et al., *Antarctica and the Humanities*.

43. Graf and Buvit, "Human Dispersal from Siberia to Beringia"; Turnbull, "Trails and Tales."

44. I am using the phrase "Alaska Native people(s)" to signal that this includes both individual Alaska Native people as well as communities of Alaska Native peoples.

45. Pegues, *Space-Time Colonialism*, 156.

46. Huhndorf and Huhndorf, "Alaska Native Politics since the Alaska Native Claims Settlement Act."

47. McKittrick, *Dear Science*, 9.

48. Wright and Tofa, "Weather Geographies," 1133.

49. Sharpe, *In the Wake*, 104.

50. Sharpe, *In the Wake*, 106.

51. Cameron, *Far off Metal River*, 26.

52. See, for instance, Banerjee, *Arctic Voices*; Cameron, *Far off Metal River*; Cruikshank, *Do Glaciers Listen?*; Huntington et al., "Climate Change in Context"; Routledge, *Do You See Ice?*; Stuhl, *Unfreezing the Arctic*.

53. See Aporta et al., "Pan Inuit Trails Atlas"; Bennett et al., "Articulating the Arctic"; Kollin, *Nature's State*; Krupnik et al., *Siku*.

54. See examples of criticism of this depoliticization in Liboiron, *Pollution Is Colonialism*; Martinez et al., "Indigenous Fire Futures"; Reid, "'We the Resilient'"; Todd, "An Indigenous Feminist's Take on the Ontological Turn"; Watts, "Indigenous Place-Thought and Agency amongst Humans and Non-Humans"; Whyte, "What Do Indigenous Knowledges Do for Indigenous Peoples?"

55. Whyte, "Indigenous (Science) Fiction for the Anthropocene."

56. Whyte, "Indigenous (Science) Fiction for the Anthropocene," 230.

57. Curley and Lister, "Already Existing Dystopias," 230.

58. Dunham, "Anchorage Is Alaska's Biggest Native 'Village,' Census Shows."

59. Bang et al., "Muskrat Theories, Tobacco in the Streets, and Living Chicago as Indigenous Land"; Daigle, "Indigenous Methodologies of Care and Movement."

60. Furlan, *Indigenous Cities*; Rosenthal, *Reimagining Indian Country*.

61. Kingston and Marino, "Twice Removed."

62. Itchuaqiyaq, "When the Sound Is Frozen," 19.

63. See Hunt, "Looking for Lucy Homiskanis, Confronting Emily Carr"; Liboiron, *Pollution Is Colonialism*; Todd, "Fish, Kin and Hope."

64. "Knowledge Sovereignty and the Indigenization of Knowledge," Kawerak Inc.

65. Itchuaqiyaq, "When the Sound Is Frozen," 17.

66. Bravo and Sörlin, *Narrating the Arctic*.

67. See Barraclough et al., *Imagining the Supernatural North*; Blum, *The News at the Ends of the Earth*; Leane, *Antarctica in Fiction*; Potter, *Arctic Spectacles*; Pyne, *The Ice*; Spufford, *I May Be Some Time*.

68. Krapp, "Cold Culture"; Leslie, *Liquid Crystals*; Wilson, *The Spiritual History of Ice*.

69. Bravo, *North Pole*, 20.

70. Wall, "NASA Unveils Landing Site on Moon for Ice-Hunting VIPER Rover."

71. Gohd, "NASA Just Cut a 10-Cent Check to Kick-Start Moon Mining Tech."

72. Einhorn, "China, US Are Racing to Make Billions from Mining the Moon's Minerals."

73. Gammon, "How the Billionaire Space Race Could Be One Giant Leap for Pollution."

74. Dodds and Smith, "Against Decline?"

75. Dodds and Smith, "Against Decline?"

76. Leane, "Locating the Thing."

77. Pomereu and McCahey, *Antarctica*, 1.

78. Dodds, *The Antarctic*, 2.

79. O'Reilly, *The Technocratic Antarctic*.

80. Antonello, *The Greening of Antarctica*.

81. Roberts, "Scientists and Sea Ice under Surveillance in the Early Cold War."

82. Blum, *The News at the Ends of the Earth*, 1.

83. Hansson, "Arctopias," 70.

84. Hansson, "Arctopias," 72.

85. Leane, "Locating the Thing."

86. Blum, *The News at the Ends of the Earth*.

87. Dodds, "Settling and Unsettling Antarctica"; Strange, "Reconsidering the 'Tragic' Scott Expedition."

88. Blum, *The News at the Ends of the Earth*, 40.

89. Leane, *Antarctica in Fiction*.

90. Leane, *Antarctica in Fiction*, 1.

91. Leslie, *Liquid Crystals*.

92. Wilson, *The Spiritual History of Ice*.

93. Schelling, quoted in Leslie, *Liquid Crystals*, 36.

CHAPTER ONE. ICE AS ANALYTIC

1. Citations and references on this matter are abundant. For just a few examples, see Liboiron, *Pollution Is Colonialism*; Finbog, "In the Land of Yellow and Red: Land, People, and Kinship in the Sámi Siida"; Million, "We Are the Land, and the Land Is Us"; Silko, "Interior and Exterior Landscapes"; Simpson, "Land as Pedagogy"; Smith, *Decolonizing Methodologies*; Starblanket and Stark, "Towards a Relational Paradigm—Four Points for Consideration"; Todd, "An Indigenous Feminist's Take on the Ontological Turn"; Tuck and McKenzie, *Place in Research*.

2. Tuck and McKenzie, *Place in Research*, 11.