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Andrew Stuhl, *Unfreezing the Arctic: Science, Colonialism, and the Transformation of Inuit Lands* (Chicago: University of Chicago Press, 2016). ISBN: 9780226416649

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Introduction by Christopher F. Jones, Arizona State University

Polar studies represent one of the most dynamic topics of research within environmental history. It is with great pleasure, therefore, that I introduce this roundtable on **Andrew Stuhl's** compelling and gracefully written new book, *Unfreezing the Arctic*. As the comments of the reviewers and his response note, the Arctic North (not to mention the Antarctic South) can too easily be ignored by scholars of temperate zones. Simplistic images of retreating glaciers or underfed polar bears that circulate widely fail to grapple with why polar regions matter, how they change over time, and what we can learn from studying them. Hence this is an overdue roundtable, one that will hopefully spur broader conversations among environmental historians about the regions we prioritize.

The focus on “unfreezing” in Stuhl’s title is intended to push readers beyond thinking about the shrinking ice that has become the dominant narrative of the Arctic among outsiders. The problem, he notes, is that this view reeks of presentism. It is a view of the future of the Arctic that elides its past. In particular, it ignores the experiences, struggles, achievements, and adaptations of native residents of Arctic regions, a story he traces through more than a century of interactions with western colonizers. The Arctic was not frozen in time before anthropogenic climate change began, and when residents of industrialized nations concerned with a warming planet only read about shifting volumes of ice, they perpetuate a long and problematic pattern of marginalizing local populations. To study the Arctic without studying humans is a grave error.

Focused on the period from roughly the 1880s to the 1980s, Stuhl’s book has a particular focus on the influence of western scientists as agents of empire. As he notes, their quests for knowledge were entangled with efforts of their national governments to extend territorial control and conjoined with the interests of multinational companies eyeing the Arctic’s resources. Science and colonialism were frequent bedfellows, a haunting image that should give contemporary readers pause given the flood of interest in the region from today’s climate scientists. Solving global warming, he cautions, cannot simply be about adjusting atmospheric chemistry; it must also involve acknowledging and rectifying colonial legacies of environmental transformation that have roots in western scientific practice.

It is a sign of a vibrant and supportive subfield that when arranging this roundtable, I got quick and eager acceptances to participate from scholars whose own works could have just as easily been the subjects of their own roundtables. **Tina Adcock** opens the roundtable, noting just how much the field of northern studies has expanded in the last decade. She helps situate Stuhl’s work within this burgeoning literature while also asking about what regional scales of analysis are most appropriate for Arctic studies. **Sverker Sörlin's** comments continue the discussion of the field’s growth, noting how the impressive accomplishments of *Unfreezing the Arctic* reflect and enhance new trends while also asking whether Stuhl’s insistence

on bringing humans into Arctic history could be productively extended to include non-human agency as well. Next, **Stephen Bocking** raises critical questions of regional scale, how to define the Arctic within studies that study parts of the whole, and the ethics and pragmatics of working, as a historian, with local groups and questions of sustainable futures. Finally, **Andy Bruno** completes the commentaries, using four points of overlap and divergence between his and Stuhl's recent books to probe more generally how Arctic historians should approach topics including national borders, political economy, and science and colonialism. Stuhl's response engages these questions and more, offering a rich set of ideas for environmental historians to ponder.

Before turning to the first set of comments, I would like to pause here and thank all the roundtable participants for taking part. In addition, I would like to remind readers that as an open-access forum, *H-Environment Roundtable Reviews* is available to scholars and non-scholars alike, around the world, free of charge. Please circulate.

Comments by Tina Adcock, Simon Fraser University

In 2008, the Canadian historians Kenneth Coates and William Morrison surveyed the historiographical landscape of northern Canada and found it “largely barren, with only small and occasional signs of life and activity.” Each book-length study, they continued, “appears like an Inukshuk, standing out in sharp contrast to the surrounding snow covered expanses, a beacon to those seeking to navigate the area’s history but also a stark reminder of how little there is to see at present.”¹

A decade later, this intellectual landscape is significantly more populated. This is the case even if we narrow our parameters to scholars who, like Andrew Stuhl, have written book-length histories of human-environment relations in the North. Let us seat ourselves imaginatively at the cusp of the Beaufort Sea, where Stuhl’s narrative takes place, and look east along the Arctic shoreline of North America. We would first see Emilie Cameron’s work standing astride Kugluktuk and the Coppermine River. Farther afield, we would glimpse Karen Routledge’s work on American and Inuit whalers in Eastern Arctic waters, Peter Kulchyski and Frank Tester’s work on game management in Nunavut, and Caroline Desbiens’ and Hans Carlson’s studies of northern Quebec. Sweeping our gaze to the south in a clockwise direction, we would spy Liza Piper’s narrative of industrialization on northwestern Canada’s large lakes, John Sandlos’ study of conservation in the Northwest Territories, Paul Nadasdy’s work on human-animal relations in the southwestern Yukon, and Jonathan Peyton’s meditation on the “unbuilt environments” of northwestern British Columbia. Pivoting to the west, and allowing our gaze, like Stuhl’s, to transcend the borders of the nation-state, we would note Kathryn Morse’s work on the Klondike and Julie Cruikshank’s work on glaciers in Yukon and Alaska, as well as Ryan Tucker Jones’s work on the North Pacific Ocean and Bathsheba Demuth’s work on the Bering Strait. If we squint, we might just—*just*—be able to discern the hazy outlines of Pey-Yi Chu’s study of permafrost in eastern Siberia, and Andy Bruno’s environmental history of the Soviet North.² If we further sharpened our gaze to search for smaller

¹ Kenneth S. Coates and William R. Morrison, “The New North in Canadian History and Historiography,” *History Compass* 6, no. 2 (2008): 646-47.

² Emilie Cameron, *Far Off Metal River: Inuit Lands, Settler Stories, and the Making of the Contemporary Arctic* (Vancouver: UBC Press, 2015); Karen Routledge, *Do You See Ice? Inuit and Americans at Home and Away* (Chicago: University of Chicago Press, 2018); Peter Kulchyski and Frank Tester, *Kiumajut (Talking Back): Game Management and Inuit Rights, 1950-70* (Vancouver: UBC Press, 2007); Caroline Desbiens, *Power from the North: Territory, Identity, and the Culture of Hydroelectricity in Quebec* (Vancouver: UBC Press, 2013); Hans M. Carlson, *Home is the Hunter: The James Bay Cree and Their Land* (Vancouver: UBC Press, 2009); Liza Piper, *The Industrial Transformation of Subarctic Canada* (Vancouver: UBC Press, 2009); John Sandlos, *Hunters at the Margin: Native People and Wildlife Conservation in the Northwest Territories* (Vancouver: UBC Press, 2007); Paul Nadasdy, *Hunters and Bureaucrats: Power, Knowledge, and Aboriginal-State Relations in the Southwest Yukon* (Vancouver: UBC Press, 2003); Jonathan Peyton, *Unbuilt Environments: Tracing Postwar Development in Northwest British Columbia* (Vancouver: UBC Press, 2017); Kathryn Morse, *The Nature of Gold: An Environmental History of the Klondike Gold Rush* (Seattle: University of Washington Press, 2003); Julie Cruikshank, *Do Glaciers Listen? Local Knowledge, Colonial Encounters, and Social Imagination* (Vancouver: UBC Press, 2005); Ryan Tucker Jones, *Empire of Extinction: Russians and the North*

edifices—the cairns of journal articles or book chapters, as well as the inuksuit of dissertations or monographs—the ground would be thick with material. In contrast to the “barren” landscape that Coates and Morrison once observed, the history of the North (and its environments) is today a lively and thriving field of study, both within and beyond Canada’s borders.

Andrew Stuhl’s monograph *Unfreezing the Arctic* makes a signal contribution not only to the literature on northern environmental history, but to the fields of environmental history, the history of science, and northern circumpolar history more broadly. It examines scientific representation and endeavour and environmental transformation in the transboundary Beaufort Sea region of the North American Arctic between roughly 1840 and 1984. Science provided an important, if often indirect vector by which Canada and the United States each established colonial relationships with this region. Science also provided these states with the power to reshape the lives of Inuit and the contours of landscapes there. Stuhl demonstrates, however, that Inuit retained considerable practical autonomy throughout most of this period. They participated in transnational economies of exchange yoked to whaling and the fur trade, and integrated objects and resources brought to the region by visiting scientists into household and local economies. Meanwhile, their environmental expertise enabled Inuit to influence scientific interventions into and depictions of their homeland, especially in the era of decolonization.

Full disclosure: I reviewed the manuscript of *Unfreezing the Arctic* for the University of Chicago Press in 2015. In the interests of giving Andrew some fresh material to consider, here I take his monograph as a departure point from which to explore how scholars working in the fields of environmental history and northern history have handled methodological questions around *space* and *time*.

In setting his study in a border-crossing region, Stuhl bids fair to answer the call that Michael Bravo and Sverker Sörlin sounded some fifteen years ago: historians of the North, free yourselves from the national (and often nationalist) straitjackets of your historiographical forebears!³ Like other biomes the world over, the Arctic exceeds the capacity of political boundaries. Its biota blithely transgress borders, whether of their own accord—as with the Porcupine Caribou herd, which oscillates between Alaska and the Yukon—or by human design, as in the cross-border reindeer drive featured in the third chapter of Stuhl’s monograph. Historians, trained up in and

Pacific’s Strange Beasts of the Sea, 1741-1867 (Oxford: Oxford University Press, 2014); Bathsheba Demuth, *Beringian Dreams: People, Nature, and the Quest for Arctic Energy* (New York: W.W. Norton, forthcoming); Pey-Yi Chu, *The Life of Permafrost: A History of Frozen Earth in Russian and Soviet Science* (Toronto: University of Toronto Press, forthcoming); Andy Bruno, *The Nature of Soviet Power: An Arctic Environmental History* (Cambridge: Cambridge University Press, 2016). This list is meant to be evocative rather than definitive; I apologize to anyone whose book-length work I have overlooked.

³ Michael Bravo and Sverker Sörlin, “Narrative and Practice—an Introduction,” in *Narrating the Arctic: A Cultural History of Nordic Scientific Practices*, ed. Michael Bravo and Sverker Sörlin (Canton, MA: Science History Publications, 2002), 8-9.

hired according to geographical fields, are often less sanguine about straying across such lines. It is greatly to Stuhl's credit, then, that his book traverses what is now the Canadian-American border with such intellectual and interpretive facility.

As Joseph E. Taylor III delineated in his now-classic essay on boundary terminology, "transnational" environmental histories can take many forms.⁴ In *Unfreezing the Arctic*, Stuhl employs various means to construct a more-than-national narrative, according to the dynamics of his different case studies. His book's first chapter presents the late nineteenth-century western North American Arctic as a region criss-crossed by quotidian skeins of trade and travel that are knotted, in turn, into wider Inuit, Russian, American, and British networks. Its third chapter traces the tangible, cross-border movement of reindeer from Alaska to the Northwest Territories, predicated on a less tangible, but no less important transfer of intellectual models and economic templates from American scientists and businessmen to Canadian civil servants. Its fifth chapter not only compares the emergence of environmental impact assessments in Canada and the United States in the 1970s, and their effects upon different sets of pipeline- and Indigenous nation-building efforts along the Beaufort Sea. It also places these two case studies directly into dialogue, showing how events in Alaska affected the coalescence of affairs in the Northwest Territories, and vice versa. Whether using networked, transboundary, or comparative approaches, *Unfreezing the Arctic* integrates imperial and national histories with narrative and analytical fluidity. When reviewing Stuhl's manuscript, I wrote that "his book will provide an exemplary model for junior and senior scholars intent upon studying the commingled political, economic, and social histories of transboundary regions anywhere in the world." I hold to that view: would-be scholars of the transnational can learn much from Stuhl.

Stuhl has inevitably had to make choices about how best to cover so much territory. Like the fieldworkers of the Canadian Arctic Expedition featured in the book's second chapter, he alternates between extensive and intensive methods of study. I most enjoyed, and found most convincing the chapters that foregrounded depth over breadth. For instance, Stuhl's analysis of northern reindeer projects is beautifully granular. Through close attention to the material and intellectual contours of individual careers (Lawrence Palmer), plants (*Cladonia*), concepts (carrying capacity, rotational grazing), disciplines (applied ecology), and relationships between American and Canadian scientists (Palmer and A.E. Porsild) and administrators (O.S. Finnie, W.W. Cory, and Edward Nelson), Stuhl builds a careful, compelling story of how and why an Alaskan reindeer industry was transposed to Canadian territory and used to forward that state's economic and social designs.

By contrast, the book's first two chapters ranged more widely across time and space. They *told* more frequently than they *showed*, and, to my surprise, I felt the same kind of intellectual disorientation that I sometimes experience when reading

⁴ Joseph E. Taylor, III, "Boundary Terminology," *Environmental History* 13, no. 3 (2008): 454-81.

environmental histories set in times and places about which I know little. In foregrounding human-environment relations, such narratives often have to condense or omit the political, economic, and sociocultural histories that thicken context, and that help the reader to better assess the strength of discrete arguments throughout. In such circumstances, one often has to take the author's word on trust. So I sometimes felt in the early pages of Stuhl's narrative, despite knowing a reasonable amount about the turn-of-the-century North American Arctic. Perhaps, however, this is what Stuhl meant when he wrote that "the Arctic I portray may seem strange to northern historians" (5). We regional "experts" are still most familiar with Arctic histories wound round nations and tethered to southern individuals and institutions. By illuminating new lateral connections between high-latitude spaces, and by foregrounding Inuit history and testimony throughout, Stuhl's unfamiliar narrative may actually better reflect the experiences and perspectives of northern residents. If so, that is worth some discomfort on my part.

Like other contemporary historians of the northern circumpolar world, Stuhl examines the Arctic through a global as well as transnational lens. His book fulfills Finn Arne Jørgensen's recent call to depict the North as "networked," or connected to southern spaces through human, material, and intellectual flows channelled along natural and anthropogenic conduits.⁵ Many people living at the temperate ends of such conduits, at least, have overlooked these linkages and their consequences until the world's recent warming. Many *still* find it difficult to appreciate that the asymmetrical effects of that warming arise from longer, cross-latitudinal patterns of interaction and exploitation. Stuhl recognizes, as others have before him, that this failure of imagination is a problem of *time* as well as *space*. The elegant question with which he opens his book—*is the Arctic out of time?* (2)—neatly captures southerners' seeming inability to grant the region either a past or a future. When they regard the Arctic at all, they often see a place long "frozen in time," an icy fastness that is now thawing quickly. Absent sufficient political will and coordinated action, they lament, ice and snow will almost certainly absent themselves from the Arctic, leaving yet another anthropogenically-ruined landscape in their wake. Southern visions of the Arctic often begin with ahistoricity and end in catastrophe. Stuhl argues that historicizing the North constitutes the first step toward bringing about a more equitable and hopeful future.

"Is there a history of the North?" Dolly Jørgensen and Sverker Sörlin asked in 2013. "Since ancient times, the answer to this question has been no. History was the narrative of human action, and where human action seemed to cease in cold and ice there could be no history."⁶ If the South is the realm of history, the North has long been regarded by southerners as the realm of myth. "In the mythic North, history is

⁵ Finn Arne Jørgensen, "The Networked North: Thinking about the Past, Present, and Future of Environmental Histories of the North," in *Northscapes: History, Technology, and the Making of Northern Environments*, ed. Dolly Jørgensen and Sverker Sörlin (Vancouver: UBC Press, 2013), 268-79.

⁶ Dolly Jørgensen and Sverker Sörlin, "Making the Action Visible: Making Environments in Northern Landscapes," in *Northscapes*, 1.

still beginning, still unfolding,” notes Amanda Graham in her critique of such thinking. “There is no reason to investigate its past, for its past is its present. As a mythic, permanent frontier, then, the actual region may be easily ignored.”⁷ Yet to deny the North the right to a past is to deny what the anthropologist Johannes Fabian terms its “coevalness”: its right to exist in the same continuum of time as the South, and to experience the passage of time as southerners do. The denial of coevalness is a political act—or, as Fabian would have it, a *chronopolitical* act.⁸ In the North, as in other intemperate regions of the world, this erasure of history simultaneously conceals and reveals the long half-lives of Western colonial and imperial projects, and testifies to their intellectual as well as material legacies.

This is why Stuhl rightly criticizes the twenty-first-century proliferation of “New North” narratives among natural and social scientists, activists, and journalists.⁹ He argues that such narratives present the environmental changes now underway at the top of the world as unprecedented. In doing so, they mask the long boom-and-bust history of colonial resource exploitation in the region, whether undertaken by Russian, American, Canadian, or other national actors and states. They obscure the historical and continuing contributions of southerners, especially North Americans and Europeans, to anthropogenic global warming in the Arctic. Finally, in eliding the specific historical conditions that have brought northerners *and* southerners to this point, narratives that foreground novelty make it difficult to use the past to help build “ethical and sustainable futures” (158).

Stuhl’s attentiveness to temporality is not unusual among historians of the North. It does, however, strike a relatively new note among environmental historians, one that harmonizes with other recent research. In the November 2017 issue of *Environmental Humanities*, Alessandro Antonello and Mark Carey perform a similarly time-sensitive analysis of ice cores. Demonstrating how these objects are being used to construct particular narratives about global environmental change in the past, present, and future, Antonello and Carey call for “greater attention to temporalities in environmental history.”¹⁰ As if in reply, Kate Wersan’s sophisticated analysis of early modern timekeeping in trans-Atlantic horticultural literature and practice has just been deemed the best article published in *Environmental History* last year, as signified by its receipt of the 2017 Leopold-Hidy Prize.¹¹ Might our field

⁷ Amanda Graham, “Reflections on contemporary northern Canadian history,” *Essays on Canadian Writing* 59 (Fall 1996): 193.

⁸ See Johannes Fabian, *Time and the Other: How Anthropology Makes Its Object* (New York: Columbia University Press, 1983). Although Fabian situates the denial of coevalness in the anthropological present, the concept can be usefully extended to encompass contemporary perceptions of the past.

⁹ For a fuller discussion and analysis of “New North” narratives than is provided in *Unfreezing the Arctic*, see Andrew Stuhl, “The politics of the ‘New North’: putting history and geography at stake in Arctic futures,” *The Polar Journal* 3, no. 1 (2013): 94-119.

¹⁰ Alessandro Antonello and Mark Carey, “Ice Cores and the Temporalities of the Global Environment,” *Environmental Humanities* 9, no. 2 (2017): 181.

¹¹ Kate Wersan, “The Early Melon and the Mechanical Gardener: Toward an Environmental History of Timekeeping in the Long Eighteenth Century,” *Environmental History* 22, no. 2 (2017): 282-310.

be on the cusp of a temporal turn? If so, we should acknowledge Stuhl's assistance in bringing us to this point.

To return to the question of time and the Arctic, historians don't need to be told that everything, the North included, has a past. Indeed, in December 2015, the American Historical Association's executive director James Grossman launched the Twitter hashtag #everythinghasahistory to foreground the relevance of professional historical research to contemporary society, and to promote historians' public-facing efforts to situate current affairs in a longer context.¹² In like vein, Stuhl encourages historians to "engage more fully in current affairs, as public intellectuals with valuable and relevant expertise" (12). Well, *nihil novum sub sole*, you might think, or at least not in environmental historians' corner of the discipline. I re-read *Unfreezing the Arctic* earlier this semester alongside two Master's students, however, as part of a directed readings course on environmental history and the history of science. Stuhl's call to arms really struck the graduate students. That, in turn, struck me, since neither were newcomers to the field of environmental history.

Reflecting on the 2018 meeting of the ASEH, Sean Kheraj noted that "presentism isn't a dirty word any more": that many environmental historians at that conference felt comfortable openly acknowledging the contemporary events and concerns that animated their studies of the past.¹³ Again, I think *Unfreezing the Arctic* displays the field's emerging ease with this longstanding millstone-round-the-neck, or perhaps its sense of having finally grown into its presentist skin. The book's introduction, and especially its epilogue together comprise a detailed, thoughtful guide to integrating the Arctic's past into present-day conversations. Stuhl gives more precise guidance to Arctic specialists than he does to environmental historians-at-large, however. I wonder what more specific suggestions he might offer to this latter group, perhaps as part of his response to this forum.

Meanwhile, I will close with *my* best advice, which is to seek out the voices of Inuit and other northern Indigenous people, and listen to and learn from their perspectives on their historical and contemporary homelands. Follow @tagaq, @Alethea_Aggiuq, and @madinuk on Twitter. Watch films like *Qimmit*, *Guardians of Eternity*, and *Angry Inuk* (and then read Karen Routledge's review of this last in *Environmental History*).¹⁴ Read journalism written in the North about the North, on the websites of CBC North, *Nunatsiaq News*, and the *Anchorage Daily News*. This is how you unfreeze the Arctic, if you live in the South; this is how you come to know it as "a place existing *in time*, and *because of time*" (151). Colonial patterns of action have helped bring about the Arctic's physical thaw in the twenty-first century.

¹² James Grossman, "Everything Has a History," *Perspectives on History* 53, no. 9 (December 2015), <https://www.historians.org/publications-and-directories/perspectives-on-history/december-2015/everything-has-a-history>.

¹³ Sean Kheraj, "Offline Conferencing: My ASEH 2018," *The Otter~La Loutre* (blog), 27 March 2018, <http://niche-canada.org/2018/03/27/offline-conferencing-my-aseh-2018/>.

¹⁴ Karen Routledge, review of *Angry Inuk* directed by Alethea Arnaquq-Baril, *Environmental History* 23, no. 2 (2018): 386-89.

Stuhl's book reveals that an intellectual thawing of southern hearts and minds is a necessary part of its decolonization.

Comments by Sverker Sörlin, KTH Royal Institute of Technology

Not so long ago we could rightly say that there wasn't much work done on the Arctic in the humanities and the social sciences. The history of the region was little studied; only quite late was it even considered a region in its own right, centering around a major, common ocean.¹⁵ Much focus was on Western explorers; available work was often chronicles rather than analytical or thick descriptions. Certain fields did better than others, especially those that found the Arctic 'a field' for primary data collection: anthropology, religion, archaeology, and regional specialties such as Inuit studies, or Eskimology.¹⁶ This was tiny, however, compared to what the sciences accomplished, boosted by national and geopolitical interest and the Cold War, including the International Geophysical Year 1957/58.¹⁷

This is no longer the case. In the last few decades there has been a surge of scholarly curiosity from all possible directions. The Arctic has turned from a politically secluded, even secret space to an issue of global scale linked to climate and environmental change. Likewise, there is now an exponentially growing library of new scholarly work, and indeed also journalistic, artistic and literary approaches to what has been called "The New North" (the title of a piece in *Nature* 2011) or *The New Arctic* (the title of a book from 2015). Hitherto not so active parts of the humanities and social sciences have come forth; it is no longer possible to complain much about the volume of the output. Rather, the time is right to take stock and ask deeper questions: what narratives of the Arctic are coming out of this research? What do they represent? How do they relate to contemporary science and geopolitics? In particular, how can historians find their position?

These are motivational questions for the scholarly endeavor that Andrew Stuhl stakes out in *Unfreezing the Arctic*. The title has a double, if not triple meaning. At first glance it seems to be about the usual thawing story, underscored by Juri Pozzi's cover photo of a melting piece of ice. The reader will also realize that thawing is a main topic for the geo- and petroleum scientists that appear in the book (esp. in ch. 4 on military and commercial developments in "permafrost territory"). But essentially, the title is about narrative and historiography. It reflects Stuhl's deep skepticism about the direction taken in the literature growing around the perceived newness of the north and the hype it smells of.

¹⁵ E. C. H. Keskitalo, *Negotiating the Arctic. The Construction of an International Region* (New York & London: Routledge, 2004). Sverker Sörlin, "The Arctic Ocean", in *Oceanic Histories*, eds. David Armitage, Alison O. Bashford & Sujit Sivasundaram (Cambridge: Cambridge University Press, 2017), 269-295.

¹⁶ *Early Inuit Studies: Themes and Transitions, 1850s-1980s*, ed. Igor Krupnik (Washington, DC: Smithsonian Institution Scholarly Press, 2016).

¹⁷ Ronald E. Doel et al., "Strategic Arctic Science: National Interests in Building Natural Knowledge – interwar era through the Cold War", *Journal of Historical Geography* 44(2014), 60-80.

Stuhl's argument is that the Arctic still today hasn't been released from its stereotype as a distant, different and desolate place, framed largely in language and data from the natural sciences. "Unfreezing" in his view means to melt down the frosty veil that is after all only a surface phenomenon, strangely amplified by the ongoing melting of glaciers, tundra, and sea ice. The trope of the melting Arctic just maintains the focus on a misconstrued space. Because, Stuhl insists, the Arctic is not exceptional; it is just like any place and deserves to be studied as such. This does not mean that he cannot find quite a lot of work to cite approvingly, especially those that probe the hype, ask new questions, find new sources, search for useful theory, learn, and write up properly, which is the standard he has set for himself, too.

One of Stuhl's central ideas is that much of previous historiography—on political treaties or (mainly British) explorers and naval officers in the search for the Northwest Passage—has very little explanatory value in relation to later developments in the Western Arctic of North America on which he hones in, a small part of the circumpolar north, yet an area the size of Europe. Instead he centers on the material realities: whaling, fur trading, reindeer herding, oil drilling, preparations for Arctic warfare, and the building of infrastructures for all these activities. This is also an implicit chronology that covers the 'long twentieth century' of the Western Arctic, from the whaling boom in the late 1800s through to the scientific assessments of the Arctic council in the second decade of the 21st century.

At every stage of the story there is scientific fieldwork that Stuhl investigates, but the science never walks alone. A distinctive feature of Stuhl's narrative is his emphasis that the commercial and exploiting activities left lasting marks in the region, through permanent presence of ever growing numbers of people who found reasons to stay on and form communities. They set up whaling and trading stations, and they linked the region to the world economy. In this way Point Barrow and other places along the Beaufort Sea coast grew into towns or villages, with "whalers from all over the world and Inuit from all over Alaska" (p. 30). This relied on the forming of international trade routes and other links to domestic and international centers. As Richard Grove demonstrated in his environmental history of the tropical world, *Green Imperialism* (1995), the expansion of Western colonialism relied heavily on centers in Europe: academies, military, government offices. Similar alliances can be seen here, a couple of centuries later in a very different geography. Drawing on work by Debra Lindsay and others Stuhl points to the links with the Smithsonian, where specimens and collections were sent that relied heavily on work in the field that operated at the intersection of encounter, trade and science.¹⁸

Stuhl is observant of the shifts in collecting as universities and other institutions grew in the south from the late 19th century. The naturalists he follows are not those

¹⁸ Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860* (Cambridge & New York: Cambridge University Press, 1995). Debra Lindsay, *Science in the Subarctic: Trappers, Traders and the Smithsonian Institution* (Washington, DC & London: Smithsonian Institution Press, 1993).

winning Nobel Prizes, nor the fame of the explorers. Rather, he identifies them as career seeking young scientists serving as natural extensions of their universities as trade networks and local whaling infrastructures offered new local infrastructures for the collecting work. Both Inuit and whalers had important knowledge to share on sea ice, shorelines, and the habits of geese, fox, and fish. Some would search for a supposed Polar Continent, in vain. Regardless, there was always some purpose. Stuhl talks about “designs on the Arctic,” suggesting frames of mind rather than just crude interests. The designs would be economic, come as hopes of resources and riches, but also as ideas of possible cultural encounters, literally “new” peoples and cultures, for example Stefansson’s “Blond Eskimos,” also named “Copper Inuit.” In turn these figurations can be read as outcomes of evolutionist ideas at the time, so that the Arctic that was gradually unveiled was assumed to rise as a confirmation of a particular, often evolutionist *Weltanschauung* held by elites of the south and touted in the media and also in scientific institutions.

To this can be added nationalist geopolitics. The young Canadian nation felt bullied by Britain and its powerful neighbor the United States and augmented her ambitions in the north as a way to assert itself to the world. Congenially Canada also started to take charge of scientific specimens from expeditions as government property, following in a long tradition of “embodying empire” through “ceremonies of possession,” centers of calculation, and also making the trade routes of collections as part of the geopolitics.¹⁹ Again, the Arctic was not exceptional; rather it followed a pattern from other world regions.

At the same time, scientists and explorers tended to divide into distinct epistemic communities with different standards. Government agencies raised demands on their staff, and introduced “regular schemes” to enhance the quality of their fieldwork while popular exploration and polar journalism were increasingly separated from the domain of serious truth claims. Stuhl applies work by historians of science on the economics of fieldwork,²⁰ comparing northern scientists’ exchange of their collections and narratives into academic or government positions with whalers turning baleen into profits at the San Francisco market. It is, throughout, *the materiality of research practice* that makes Stuhl tick, rather than the ideas of the scholars that come out as not terribly ground-breaking, and many of them short-

¹⁹ Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Cambridge, MA: Harvard University Press, 1987); Stephen Greenblatt, *Marvelous Possessions: The Wonder of the New World* (Chicago, IL & London: The University of Chicago Press, 1991); Sverker Sörlin, “National and International Aspects of Cross-Boundary Science: Scientific Travel in the 18th Century”, in *Denationalizing Science: The Contexts of International Scientific Practice*, *Sociology of the Sciences Yearbook* 16, eds. Elisabeth Crawford, Terry Shinn & Sverker Sörlin (Dordrecht, Boston & London: Kluwer, 1993), 43-72; Patricia Seed, *Ceremonies of Possession in Europe's Conquest of the New World, 1492-1640* (Cambridge: Cambridge University Press, 1995); Suzanne Zeller, *Inventing Canada: Early Victorian Science and the Idea of a Transcontinental Nation* (Montreal: McGill-Queen's University Press, 2009).

²⁰ A theme that has been the subject of much research also after the appearance of Stuhl's volume; see e.g., for a slightly earlier period, *Global Scientific Practice in an Age of Revolutions, 1750-1850*, eds. Patrick Manning & Daniel Rood, eds. (Pittsburgh, PA: University of Pittsburgh Press, 2016).

lived; again not much different from research anywhere. The materiality conditions the research, and so it remains all through to the environmental impact assessments, starting in earnest with the famous Mackenzie River Valley Pipeline Inquiry led by Judge Thomas Berger in the early 1970s. To contextualize science is a virtue everyone knows, but one of the strengths of this book is that here it is really practiced.

Still, Stuhl doesn't come across as anachronistic, or presentist, or even overly dependent on recent theory. Theory is rather implied, mostly both discretely and elegantly. It is, on the balance, a refreshing way to approach well-trodden literatures. All in all, Stuhl retells the cavalcade of northern expeditions and government programs that his research has shored up with an eye for detail and differences, across time and between field styles. In doing that and by scanning a large number of research situations he provides a ground for comparisons. He also makes a lot of their demography. Expeditions were never only possible to carry out with westerners. Inuit were either members of them or collaborated with them. Everyone learned from everyone else. Inuit inherited some of the leftovers: some were important, like schooner vessels that made Inuit more mobile and resourceful in the first few decades of the 20th century. Again, the significance of the science is often more material than conceptual.

Two Danes with Greenlandic experience and fluency in Inuit language, Alf Erling and Robert Porsild, took charge of developing the reindeer industry, despite no experience with reindeer. They collaborated with government grazing ecologist Lawrence Palmer. Reindeer and Sami were imported from Scandinavia. Research on vegetation ecology, testing of lichens, and site selection were integrated by Alf Erling Porsild, the brother who remained, with the demands to develop the region. Obstacles were tremendous, most lands around the Mackenzie and in the Great Bear Lake basin were too low to protect against the annoying and even deadly mosquitoes that killed off reindeer in large numbers. They also made sure that Inuit were surveyed and disciplined by white "foremen" that reported back to Ottawa and were responsible for the productivity of the fledgling commercial experiment in change of land use. Ultimately, Porsild's domestication project rested on an understanding, common in Canadian anthropology at the time that Inuit livelihoods had been destroyed by commercial fur trade and whaling and that herding represented something more original, and therefore true and viable, which in fact it was not. The ensuing collapse of this attempt of internal colonization of the north by reindeer herding Inuit was inevitable, assisted by the global depression, and the sheer unwillingness, corroborated by oral histories in the 1990s, among Inuit to forego their free and trapping ways of life that they felt were circumscribed by the state led domestication project. Ultimately it was that lack of Inuit engagement, and the de facto non-transition into a more industrialized landscape use, that made the project unfeasible. Stuhl notes that this resilience of the indigenous population turned the entire region into a "liminal zone" for government bureaucrats whose normal principles of management didn't work. He cites, approvingly, James C. Scott;

the local Inuit surely didn't see like a state and by 1956 the last artificial herd was gone, as were certainly also the Porsilds and the Sami.

I have underscored the integrative dimensions of this story, and I think it is both well told and convincing precisely because Stuhl doesn't allow himself to be steered by any loyalties to particular disciplinary boundaries or preferred theories. He is constantly open to what may have explanatory value, which in this case means a combination of economic, environmental and science history mixed with anthropology, political science, and the sprinkling of natural history needed to understand what is going on with the animals and the land. This makes it enjoyable reading with very few dead zones and a sense of public history ambition. But perhaps more importantly, it holds a methodological message tacitly embedded, namely that history is in and of itself an integrative enterprise. This thing we call history is, inevitably, a mix of multiple features and factors. Stuhl bears this out in his own way of moving swiftly and seamlessly across multiple sources of evidence. It just seems natural and effortless when you read the result, but if you consider for a moment the mass of detail and how it found its way into the fairly short five chapter volume you become aware that it is precisely the opposite: a neatly packaged tour de force, which is evident also from the very long list of archives.

This implicit methodology is all the more important to observe in order to understand the more explicit message that runs through the volume and that Stuhl elaborates especially in the Epilogue, entitled "Unfrozen in Time." It is basically an argument for history, in a time when ahistorical "new North" narratives are littering journalism and policy literature. This is a tricky game to enter, partly because it is hard to avoid the fact the certain elements *are* actually novel and also quite frightening: rapid climate change, loss of sea ice, melting glaciers and tundra, methane emissions, geopolitical tension, and multiple stressors on landscapes, ecologies, and Arctic populations. Stuhl's reason to brave his plea, is that history, richly told and properly researched, is needed more than ever precisely because the new simplifications rest on a prevailing simplification of the past that we must resist. It is not, as current hype stories would have it, a frozen, marginal, distant world that is suddenly becoming alive and globally relevant with anthropogenic climate change and the IPCC. But to see this, we must first learn how alive it has been in the past. Stuhl's own narrative is the opposite. It reveals a history of the Western Arctic with multiple actors and factors, it crosses ecological and administrative boundaries, and it reaches out to markets and competencies (Sami, scientists, markets) that are global. In that sense history represents a "knowledge," that should be counted on a par with other strands of knowledge about the Arctic – on climate, ecology, geology, oceans, ice. History is not just an interesting backdrop, fun to read in spare time, it is an absolutely essential way of knowing in order to be able to navigate complex change over the long term and with a sense of what is good and right and possible.

Stuhl's chief villain is therefore (of course) not the new facts we get about hyper change and climate 'amplification' in the Arctic, but how they are interpreted. They tend too often to be naturalized and the latter parts of the book demonstrate how

that has happened, often despite the best intentions. The Arctic Council contributed through its Arctic Climate Impact Assessment Report in 2004 to the breakthrough of the modern understanding of Arctic vulnerability, but since then, Stuhl argues, it has focused too narrowly on the science of climate change, forgetting that the ACIA report pointed to multiple forces bringing more vulnerability. His special hate object is the polar bear, which distracts climate change from the people of the north and from the culpability of southern societies, especially the rich that produce northern vulnerability from a safe distance.

“Knowledge” is thus betrayed. It is being used in a reductionist fashion. Big institutions fund and lend credence to a science that largely deals with the recording of symptoms. The deeper connections that could help citizens and politicians to forge strategies for action are left aside. Not by Stuhl, however, who wants expressly to offer knowledge that could be used to shape another kind of understanding which talks about the real connections behind change in the Arctic and how they could be reformed, because they are clearly destructive. That is his core argument for “unfreezing.” We need a realistic, integrative history of the Arctic in order to avoid being blinded and trapped by simplifications that lead to (neo)colonial approaches, privileging narrow species conservation, forgetting about comprehensive development of the region, and blatantly ignoring that the roots of the demise are ultimately southern. That also explains his care to show how science worked in the colonial past, because that care is what signifies good, that is useful, history. By insisting on the long continuity of his investigation, he can demonstrate that the science of today has its colonial elements, too. An unfrozen Arctic is his vision, an Arctic where history is told so richly and well and is so well known that it is no longer possible to be naïve of the role of science. What history we have matters. “Our historical interpretations lead down different roads, toward different relationships among people and planet. But they always lead us” (151).

Stuhl’s is a rare case of arguing the usefulness of an improved, indeed reformed Arctic history, and the reader may have already sensed that I by and large sympathize with it. I also find his book well written and with a truly trail blazing approach to deal with the sprawling and solidifying sub-disciplines of history – namely to not pay too much attention to them but go for the facts and the sources that work and are relevant (what we used to call –history).

Clearly, these are early days. Arctic historiography in Stuhl’s professional, ‘integrative’ sense is in an emerging phase. His is regional, still big enough in scale and written in awareness of the literatures across the planet. Even so, much has happened only in the last few years that could have been included. There is a mass of new work coming out of the study of Arctic futures and temporalities, including elaborate critiques, and historicizing of the northern hype literatures.²¹ There is a growing body of historical work on Arctic societies, peoples, environment, climate,

²¹ *Competing Arctic Futures: Historical and Contemporary Perspectives*, ed. Nina Wormbs (London & New York: Palgrave Macmillan, 2018).

science, resources, business, geopolitics. Some of it uses theory more explicitly and actively, although rarely more subtly, than Stuhl does. Hopefully, perhaps even likely, Stuhl's important book is not a lone wolf's cry, but rather an early and particularly synthetic case of a de-exceptionalizing Arctic historiography that is now spreading as it is professionalizing. It is also a book about method and ethics and how they relate; an intimate history, based on *being there*, and listening. An informant tells him: "Don't bring back a hollow story." Stuhl takes it to heart. You should bring something back that is of use to the community.

If Stuhl is on the right track here, and I think he is, how could we *explain* the northern turn of interest of which he is part? While I agree with his public history position, I think we have to separate the methodological *response*, what Stuhl calls "a transnational environmental history of science" (4), from the underlying *causes* for the northern turn. They may be even wider and deeper, and even more thrilling. What really makes it possible to conceive of a current northern turn in writing the history of economies, environment, science, and technologies *is a historiography that will take us further* in our ambitions of *scaling*, and *connecting* different kinds of histories with different geographies.

May there even be more potential to explore in this regard? Stuhl's notions of agency and power are, albeit commendable, after all quite conventional. From his narrative we clearly realize that there is a *human agency* of our time and day that also appears on other levels, superseding but not reducing the ordinary agencies that Stuhl talks about. But would it be possible to *extend* the concept of agency in order to capture the logic of change in a sparsely populated vast region like the Arctic? What about nonhuman species? What about geo-physical factors? And, perhaps most pertinently, what about our combined agencies as a global, human, anthropogenic collective, however divided? Could we talk of *extra-ordinary agencies* on multiple scales in order to further enrich our understanding and make our history even more integrative, especially with the natural sciences? Stuhl might have considered a word such as Anthropocene and its global teleconnections to write the Arctic more forcefully into the global; that could still be done.²² Could a concept like scale be useful? After all, Stuhl holds up a region which despite its vast proportions is essentially woven into a set of dynamic, and very extensive relations: upwards and outwards to the atmosphere and oceans, to world markets, and regulating institutions; inward and downward to communities, cultures, companies, species, and climatic and ecosystem repercussion on the ground.²³ In sum: could his

²² Eric Paglia, "Not a Proper Crisis," *The Anthropocene Review*, 2(2015):3, 247–261. *Arctic Environmental Modernities: From the Age of Polar Exploration to the Era of the Anthropocene*, eds. Lill-Ann Körber, Scott MacKenzie & Anna Westerståhl Stenport (London: Palgrave Macmillan, 2017).

²³ There is already some work in this direction to draw on, see e.g. Sebouh David Aslanian, Joyce E. Chaplin, Kristin Mann & Ann McGrath, "Conversation: How Size Matters: The Question of Scale in History," *American Historical Review* 118, no. 5 (December 2013): 1431–1472, or, specifically on climate and scale, Deborah Coen, *Climate in Motion: Science, Empire, and the Problem of Scale* (Chicago, IL & London: University of Chicago Press, 2018); or, specifically on the Arctic, Sverker Sörlin, "Scaling the Planetary Humanities: Environmental Globalization and the Arctic," in *The*

important groundwork be taken further with more active use of theoretical concepts? These are questions open to future scholarship.

Stuhl says that he “intend[s] these pages as a call to arms” and suggests a public intellectual mission for historians of science and the environment. Indeed, he sees our role as “helping our colleagues in the natural and social sciences confront the colonial legacies of their disciplines” (12). As I have argued here, he has set a sterling example of how a new integrative narrative can be formed and how we can, and should use our skills for it. We need more work, and it is ongoing, to be able to write the narratives that can propel shifts of understanding. But perhaps we also need a more articulate and explicit debate on how we can come across with our narratives to get that influence? Either way, reading Stuhl’s book is a good way to start, whatever part of the world that happens to be your expertise.

Comments by Stephen Bocking, Trent University

Unfreezing the Arctic speaks to a paradox in public understanding: for many the future of the Arctic is more familiar than its past. Predictions of an ice-free Arctic have circulated widely, but its history is still often viewed as frozen in time. Andrew Stuhl challenges this view, instead portraying a region in which change is not a novelty and science has always had political consequences. Bridging the histories of colonialism, resource management, military activity, and Indigenous self-determination, Stuhl focuses on northern Alaska and the edge of northwest Canada, including the Beaufort Sea and Mackenzie Delta.

Stuhl begins in the late 1800s, when Inuit, whalers and fur traders linked this region to the rest of the world. After 1900 scientific expeditions (including the Canadian Arctic Expedition) sought a supposed "Polar Continent" and the equally mythical "Blond Eskimo," while asserting Canada's presence in the region. Between the world wars, the Canadian government invited Danish biologist Alf Erling Porsild to experiment with Alaskan reindeer and western range science to form a herding industry – part of a larger effort to domesticate Inuit and landscape. The Second World War and the Cold War forced a collision between military and industrial operations and this environment, encouraging formation of the science of permafrost. Beginning in the late 1960s, corporations and governments have pursued oil and gas developments in both Alaska and Canada, provoking concerns about environmental and social impacts. A decade later, Thomas Berger's Mackenzie Valley Pipeline Inquiry provided an occasion in which Indigenous people, aided by scientist-activists, asserted their role in decisions regarding the region's future. Science became democratized, and an instrument of self-determination.

Stuhl adds much to our understanding of scientists and knowledge in Arctic history. He presents the region as not simply a playground for people from elsewhere, but a place constituted both imaginatively and materially through networks of people, ideas, and things. Scientists occupied a central position: asserting authority over territory, guiding the "taming" of the Arctic, working out how to operate on permafrost, raising alarms about industry trampling on tundra, advancing democracy by working with communities. Not just knowledge but practice defined these roles. Inuit formed diverse relations with scientists: providing gear and guidance, but resisting efforts to transform them into reindeer herders; expressing frustration when scientists ignored them; applying science to their own self-determination. Stuhl's account thus aligns with a pervasive theme in northern history: the importance of knowledge in guiding and justifying the relations between scientists, northerners, and the land.

Stuhl ends his narrative on an upbeat note: the 1984 Inuvialuit Final Agreement, which "signaled" (p.111) the end of colonial rule, by enabling local people to assert control over scientific activity, including environmental impact assessments, thereby gaining authority over the future of the Canadian western Arctic. But this

interpretation raises an interesting question, because it clashes with other, more pessimistic views. Critical observers, including activists, academics, and many northerners, have tended to view science not as an instrument of Arctic emancipation, but as a chief means by which industry and government have imposed their vision of development. As Carly Dokis (in *Where the Rivers Meet*, 2015) and other scholars have noted, regulatory proceedings continue to privilege industrial priorities, with Indigenous perspectives acknowledged through ceremony but then largely ignored when the real decisions are made.

How can we reconcile this tension between Stuhl's account of a post-colonial moment, and others' perceptions of a still-thriving colonialism? I think at least part of the answer lies in Stuhl's focus on local developments in environmental science: these, he argues, provided the basis for regional self-determination. But a wider view suggests a different conclusion. The episode in collaborative inquiry that captured Stuhl's attention, in which sympathetic scientists joined with Inuvialuit to rework science, was only part of the research taking place at this time. Industry also undertook an enormous effort focused on the feasibility of pipelines and other infrastructure, and on related regulatory requirements. Much of this research was done by consulting firms: a novel scientific institution engineered to support industrial and corporate logics. Research shifted from land to water, as offshore oil and gas attracted attention. Government and industry collaborated in planning research, with industry often calling the shots, often in secret (making the Mackenzie Valley Pipeline Inquiry more an outlier than a model of impact assessment practice). The larger political economy of North American oil and gas was also important: industry and government formed a partnership in which the key decisions were made not in Inuvik, but in Ottawa and Calgary (Canada's capitals of politics and petroleum), and in Houston (reflecting the oil industry's continental structure). But Stuhl seems reluctant to drill into this partnership, relying instead on vague terms such as "southern power brokers" (p.111), thereby obscuring its consequences.

In his epilogue, Stuhl shifts from historian to commentator, to consider climate change and the role of the scholar in northern affairs. Here emerges the political significance of framing Arctic history in terms of "unfreezing": it opens possibilities for the region beyond that of "pristine" victim – with the polar bear as unfortunate icon. Invoking his own experience, he calls on scholars to work with communities. This is a valuable point, which few northern scholars would contest – in fact it echoes their remarkable shift over the last three decades towards community-based inquiry. But what I missed here was the distinctive voice of the historian. I was surprised by Stuhl's decision to end his account in 1984, because it was only after that date that three issues central to his concerns really developed: northern self-determination (through land claims and co-management institutions), studies of global environmental change in relation to the Arctic (including the Arctic Climate Impact Assessment), and the negotiation of new relationships between communities and researchers. Recent decades have also seen the formation of ethical principles for researchers in the north – a complicated business, given the historical status of

science as the sharp edge of southern intervention, the political and gendered dimensions of community-environment relations, and contention even over the purposes of research. I would have liked to have seen what Stuhl would have made of this history. Have events over the last 30 years supported or contradicted his sense of how Arctic science and politics should develop?

Most writing about the Arctic today is still from the standpoint of the outsider. Whatever the writer's northern experience and sympathy, they are usually trained in and employed by institutions elsewhere, writing for readers who may have never lived in the north, and addressing outsiders' ideas about what counts as history. Reconciling this stance with Indigenous perspectives, such as those presented in John Bennett's and Susan Rowley's *Uqalurait: An Oral History of Nunavut* (2004) remains a challenge. Part of the value of Stuhl's work is that it raises several questions that relate to this feature of Arctic historical writing. Here are three that came to mind as I read *Unfreezing the Arctic*.

1. Where are borders in Arctic history?

Outsiders tend to perceive the Arctic as either contested territory or a region of extreme environments that render borders irrelevant. The place considered in *Unfreezing the Arctic* speaks to these contrasting views. For much of this history, Indigenous people, whalers and traders, and industrialists ignored the Alaska-Canada border. Natural features – permafrost, petroleum, the Porcupine caribou herd – elicited flows of knowledge, investment, and collaboration across this boundary. Yet the border has also been important. Stuhl considers some of its implications, but I think he could have gone further in exploring its relevance to Arctic environmental history and the history of science. As he notes, science moved easily across the border with reindeer herds, but was also an instrument for asserting Canadian sovereignty. Other episodes form a more complicated picture. For example, all but one of the scientists of the 1951 Canadian Arctic Permafrost Expedition were American – perhaps illustrating how the Cold War gave American scientists carte blanche to work in Canada, so long as they acknowledged Canadian sensitivities. In another episode two decades later, the Canadian government tried to persuade American interests to shift their proposed trans-Alaska oil pipeline to the Mackenzie Valley, promising less obstruction from environmentalists and an easier regulatory regime. That episode illustrated how a boundary might be not just ignored or enforced, but become itself an historical agent, shaping the options available to actors – a point also made by Lissa Wadewitz in *The Nature of Borders* (2012) (which was about the Pacific Northwest – another border region). So it is worth asking: who, among the states, corporations, Indigenous groups and other actors active in this region, determined how and when the border would matter?

Borders are also resources for historians: they enable comparisons that demonstrate the effects of political or other differences in adjacent territories. Several such differences were at work in this place, such as the greater weight of wilderness politics in Alaska than in northern Canada, and the larger role for

administrative discretion in Canadian environmental regulation; both factors helped produce different histories of environmental politics. However, Stuhl downplays these differences, and thus the potential for comparative analysis. This seemed like a missed opportunity, because part of what makes this place distinctive within the Arctic is the local character of transnational history: it has encompassed within a small space a continuing dialogue between different ways of defining identities and environmental relations. This distinctive character also sharpens the question of what this place can tell us about the wider history of the Arctic.

2. A history of a place, or of the Arctic?

I really appreciated Stuhl's framing of familiar themes in Arctic history – exploration, wildlife management, Cold War science, Indigenous self-determination – in terms of a specific place. (In this respect Stuhl's account is akin to Lyle Dick's history of Ellesmere Island, *Muskox Land* [2001]). His epilogue, however, shifts focus, by considering contemporary issues – climate change, media representations, the responsibilities of scholars – in terms of a generalized "Arctic" region. Doing so elicits a tension often seen in discussions of the Arctic: between its diversity and complexity, and outsiders' tendency to view it as a uniform space. Can one derive general conclusions about the Arctic from study of one place? Perhaps, but it's risky: the contrasts between, say, the Mackenzie Valley and Ellesmere Island encompass different natures, cultures, and histories of contact, resulting in what are today divergent relations to globalization and modernity.

Stuhl hints at why the history of this place may have broader relevance: in particular, people from there had influence across the Arctic. But he doesn't engage in the tension inherent in leaping from the local to the continental. Instead, local events are often taken as indicating broader Arctic trends. For example, the reindeer experiment is said to show a continuing Canadian commitment to the Arctic during the Depression – but in fact it was a local exception to a broader history of neglect. Conversely, some issues are explored in ways that obscure local circumstances. For example, the politics of polar bears play out on a variety of scales: encounters between communities and hungry bears, nineteen discrete populations scattered across the circumpolar region (some are doing okay, others are not), and federal-territorial negotiations over hunting quotas. This makes for a more complex and situated story than does a focus on polar bears as icons of a once-pristine, now threatened Arctic. In short, in his effort to form broader lessons about Arctic history and politics, I wonder if Stuhl passes too quickly over local particularities of environmental and human change. This can be an issue when writing any history, but especially for places, such as the Arctic, where the history has usually been written by outsiders. Defining other, more situated ways of telling a region's stories is the essence of postcolonial history.

3. How should historians work with communities in the Arctic?

Stuhl does valuable work in emphasizing the social responsibilities of scholars. He makes two key points: that they should take seriously the implications of their work, by challenging misconceptions, confronting the colonial legacies of their discipline, and seizing opportunities to act as interpreter and public scholar; and that they should work with communities, listening and living with people, framing research in response to their interests and concerns. His commitment to these principles is grounded in not just his understanding of Arctic history, but in personal experience and passion.

But I would have liked to have seen him push this further. One way would be to consider the historical relations between scholars and the north, including their role in guiding and providing "objective" justification for colonialism. For example, Emilie Cameron (in *Far Off Metal River* [2015]) has explored the history of Qablunaat (non-Inuit) researchers defining their gaze as neutral, helpful, and necessary – a history that underlines the obligation of scholars today to critically examine their own position, especially since this epistemic privileging of perspectives from elsewhere still lingers in the north.

Aspects of the recent evolution of researchers' relations with communities are also relevant. One is the history of perceptions of Indigenous knowledge. For example, Julie Cruikshank (*Do Glaciers Listen?* [2005]) has considered the social worlds that shape oral traditions, the place of these stories in the relations between humans and non-humans, and the uses of these narratives in making sense of history. Other scholars, in fields ranging from anthropology to wildlife science, have sought to reconcile Indigenous knowledge and their own disciplinary traditions. It would have been interesting to see what Stuhl makes of these efforts. The Arctic has also now become the site of remarkable innovations in community-based research: across the region scholars are working with local people to interrogate the social roles of science and construct new, respectful relations. It was not clear to me that Stuhl's view of the social responsibility of scholars acknowledged this recent history, or the constraints that institutions and disciplines impose on the intentions and choices of researchers – even those motivated by a "call to arms" (p.12).

Finally, Stuhl's call for historians to engage with communities left me uncertain of just what "communities" he has in mind. Several seemed in play: scholarly communities (to revise their view of the north), northern communities (to adopt their questions as one's scholarly agenda), or western society (to educate those susceptible to representations of polar bears as icons of climate change). Each implies a different strategy of engagement. So more clarity would be welcome – especially when describing just what historians can bring to the table. Here's one suggestion: historians offer a longer view: not just into the past, but beyond the horizon, encompassing the influence of actors otherwise unknown to communities. It's worth remembering that some of the most consequential decisions in northern history have been made by those who never, or rarely, visited the north.

That *Unfreezing the Arctic* elicits so many questions demonstrates Stuhl's essential contribution to how we think about Arctic history – suggesting not just a new research agenda, but the need to interrogate just what historians are up to when they head up north.

Comments by Andy Bruno, Northern Illinois University

U*nfreezing the Arctic* offers a fresh, brilliantly-conceived, gracefully-written, and impeccably-researched account of a transnational zone of the Western Arctic. History, for Andrew Stuhl, is both the problem and the solution. Too frequently policymakers and the public have perceived this part of the planet as lacking a complex past in which human livelihoods and northern environments have been entwined. Instead, they treat the Arctic as something of a *terra incognita* on which to project hopes for development and fears of ecological catastrophe. Stuhl counters this interpretation by showing that there is nothing *new* about the “New North.” Science and colonialism have long shaped the Western Arctic through exploration, development, defense, and debates about environmental protection and indigenous sovereignty. Appreciating this textured history is not only important for a thorough understanding of the region but is necessary for our future “struggle to live rightly on Earth” (158-159).

This is an excellent book and should be widely read. For me, it is also a somewhat odd book to comment on since there are many striking parallels between it and my own monograph. In *The Nature of Soviet Power: An Arctic Environmental History*, I address the economic transformation of the Kola Peninsula on the opposite side of the Arctic. Both books cover roughly the same chronology and came out in 2016. Both feature reindeer, military interests, development projects, state agents, and scientists. Both adopt a big tent approach to environmental history, weaving physical environments, environmental politics, and ideas about nature into overarching narratives. I explicitly endorse Stuhl’s arguments about the “New North” and claim that they apply just as well to the Kola Peninsula. Each of us spent a good deal of time in the regions we write about, reveal an affinity for alliteration in our prose, and even acknowledge our spouses with unabashed sappiness. In a recent review of several new books, Bathsheba Demuth cites both of us as scholars who have moved away from an emphasis on exploration and toward using the Arctic to investigate larger questions about the modern world.²⁴

As satisfying as it is to revel in our camaraderie, I want to use my opportunity in this roundtable to instead foreground several areas of distinction between our two works. Forgive the potential self-indulgence, but I believe putting our scholarship in direct conversation with each other could help us better define the emerging field of Arctic environmental history. For, despite all that the Kola Peninsula and the Western Arctic had in common, their different histories pose difficulties for conceiving of past human experiences in the Arctic in a coherent way.

Humanists have done good work lately to reimagine the geographies we cover, and we are undergoing something of a boon in transnational histories of the Arctic. But can stories be told that truly reflect the complex history of all of the Arctic? Most, I

²⁴ Bathsheba Demuth, “Men, Ice, and Failure: New Histories of Arctic Exploration,” *Reviews in American History* 45, no. 4 (December 2017): 543.

suspect, would acknowledge that multiple Arctics exist and that all histories are partial. However, the very promise of an Arctic history relies on re-centering our view of place toward a non-national unifier. Otherwise, we would do just as well to compare our regions with other places outside of the north. While doing so might be fruitful, no one would claim it to be an Arctic history.

As a means of provoking conversation about this thorny issue, I'm going to devote the remainder of my comments to elaborating distinctions between our works beyond their treatment of varied parts of the Arctic. All of them are more differences of degree than kind, but still represent analytic departures that are significant for trying to write Arctic environmental history.

The National and Transnational

Perhaps the biggest thing that divides *Unfreezing the Arctic* and *The Nature of Soviet Power* is the primacy of the Arctic in the narratives. In subduing the word "Arctic" to my subtitle, I signal that indeed my main concern is re-writing Soviet history from an environmental angle. Contributing to Arctic history comes second. For Stuhl, this matter is clearly reversed, and his transnational exploration of the Western Arctic effectively serves this purpose. We learn about Canada and the United States but gain a much fuller vision of the environment and people of this place by seeing them as connected to an Arctic that has not always been cut into national boundaries.

I suspect that our varied emphasis on the Arctic comes primarily from our historiographical backgrounds. Whereas US and Canadian environmental history has long been well-developed, the environmental history of Russia is really just coming into its own. The first spark of interest in how Soviet industrialization might look if we accounted for interactions with nature came to me before I was even aware that the field of environmental history existed. I gravitated toward the Kola Peninsula as a case study of a region that underwent a striking transformation during the twentieth century. Population there burgeoned from under ten thousand to over a million as it became one of the most industrialized, militarized, and polluted parts of the Arctic. The region, thus, served my sustained goal as a scholar of showing how the environment matters for our overall perspective on the Soviet past. Such a goal is clearly less necessary in US and Canadian history, meaning, perhaps, that thinking first of the Arctic there offers more scholarly benefit.

Yet did the trade-off of privileging the Russian story make my work somehow less of an Arctic one? How do we best balance competing arenas of historiographical focus? The transnational Arctic certainly deserves attention, but does it inevitably come at the expense of national histories?

Science and the Economy

Our books also diverge in the priority afforded to science. In Stuhl's *Western Arctic*, it was the primary means of outsider engagement, while in the Soviet northwest it

was more one of many tools serving state interests. Researchers came to the Canadian-Alaskan borderlands before governments and corporations and thus paved the way for modern colonialism. They shaped relations with local populations and the environment throughout the twentieth century and provide a clear arena for attaining knowledge about the place's history. I bristle a bit, however, when Stuhl writes: "For northern history to serve as a frame of reference for our changing planet, it *must* be conceived in transnational and scientific perspectives" (my emphasis, 5). State agents of the Soviet Union led the charge in transforming the Kola Peninsula. Some were scientists, sure, but many of the most important were primarily economic actors, such as an under-educated banker named Vasilii Kondrikov who responded to being informed that he was to head a new apatite-processing enterprise with the baffled question, "what is apatite?" My entire approach to charting a tumultuous history of transformation was to follow industries (railroads, apatite, reindeer, nickel, and energy) instead of knowledge producers. It would be a mistake, I think, to view the changes to human relations with the rest of nature on the Kola Peninsula primarily from the stance of science.

Now, the difference here emerges largely from the historical experiences of these two regions. But that's precisely the point. The extensive industrialization of the Kola Peninsula is also very much part of Arctic history, even though framework of the "transnational environmental history of science" can only account for some of it (4). My bet is that histories of the mines in Svalbard and Norilsk would also benefit from starting with *economic* relations to the environment.

Do we have to have it one way or the other? Do modern environmental experiences in the Arctic demand being approached under rubric of science or the economy? Or perhaps an emphasis on geopolitics or the military provide more complete inroads? Arctic historians come down on many different sides of this question. What options are there for an Arctic environmental history if we eschew prioritizing any of these means of engagement with the north?

Socialism and Colonialism

Imperialism mattered deeply for the histories of the Western and Russian Arctic. Disregard for the sovereignty of peoples unite the Russian, Canadian, and US experience. So too do many of the ways that these states incorporated Arctic peripheries and subjected them to metropolitan authority. *Unfreezing the Arctic* demonstrates how colonialism went hand-in-hand with the science being produced to understand the place, but also reads the success of Inuit indigenous activism from the 1960s to 1980s as allowing the Western Arctic to enter a post-colonial period. The history of colonialism on the Kola Peninsula differs for many reasons, not least that the post-socialist experience of native northerners there does not really fit in the post-colonial paradigm and that Russian engagement with the territory extends so far back (Novgorodians claimed it since the Middle Ages, even before the province of Muscovy rose as the kernel of the contemporary Russian state). In my

account colonialism significantly shaped the region until the late 1920s when the USSR undertook a campaign to build socialism in one country.

Indeed, this other -ism, though often colonial in its Soviet manifestations, seemed more important for understanding the hyper-development of the Kola Peninsula. I argue that because it shared a growth imperative, Soviet socialism resembled the environmental relations of capitalism in many of the most important ways. Yet I also insist that we need to take state-socialism seriously as an alternative impetus for development.

The opposing roles that the Sami played in our books can help illustrate the varied weight of colonialism and socialism. In the Western Arctic, Sami from Scandinavia came at the behest of Alf Erling Porsild and Lawrence Palmer to help teach the Inuit reindeer herding. This scheme to uplift Inuit communities by importing an occupation with no history in the region was tinged with racism and the Sami herders in some ways functioned as agents of empire. The Sami on the Kola Peninsula were closer to the Inuit in that they did not share a deep history of pastoralism with their Sami neighbors in Scandinavia. For its part, the Soviet state declared a new model of reindeer husbandry practiced by Komi and Nenets migrants to be an ideal form of “socialist” reindeer herding. State authorities reorganized Sami livelihoods in order to centralize pastoralism and eventually confine it to two isolated state farms (*sovkhozy*). In this story the Komi helped bring socialism to the Sami instead of the Sami helping bring empire to the Inuit.

The distinction here leads me to wonder about the weight we should give to socialism, colonialism, and capitalism in twentieth-century Arctic histories. Comparative studies of the socialist and capitalist Arctic should be insightful on this issue. But will we ever be able to explain the variations by insisting on the primacy of any one of these forces? Is modernity a more promising category? Can colonialism adequately encompass its capitalist and socialist varieties?

The Power of Knowledge and the Power of Things

Our accounts of different parts of the modern Arctic unite in understanding power as related to the ideas and knowledge produced about the world and in affording potency to the physical environment. We both engage with James Scott’s ideas about legibility and show how the ecologies of place mattered for those who lived and intervened in the north. Yet there is a marked distinction in emphasis in Stuhl’s analysis and mine. Unlike some of the preceding categories, this difference results less from the varied experiences of the Western Arctic and the Kola Peninsula and more from our intellectual commitments as scholars. Stuhl is more interested in interrogating knowledge production as a crucial and historically-rooted force that has shaped the Arctic and I am more concerned with applying neo-materialist theories about how elements of the natural world were actors in seemingly human stories. Minerals from the ground—apatite, nepheline, copper, nickel, cobalt, and

others—influenced my account of Kola industry as much as the thinking of prospect geologists.

These approaches lead to somewhat different understandings of power dynamics in the past, despite our ambitions to provide robust and inclusive accounts of them. To a certain degree they resemble a broader divide that has long existed among environmental historians more drawn to the cultural and those more concerned with the material. It is not my intention to advocate for one side here, but simply to note the distinction in case Stuhl wants to reply to this point. How might the Western Arctic look differently if he placed more stress on whales, reindeer, ice, and permafrost as actors in the story?

In my view appreciating the power of the material world over humans is as essential for moving toward a just future as absorbing the vitality of its “unfrozen” history. Arctic histories, I agree, can serve as a “call to arms” by reframing “environmental crisis in human terms” (12). But they also can do so by countering the hubris that insists that culture and technology have somehow allowed people to escape the influence of nature over them.

Response by Andrew Stuhl, Bucknell University

Writing History as if the Future Depends on It

It is an honor to participate in this roundtable review of *Unfreezing the Arctic*. Thanks to Chris Jones for showcasing my book and inviting a discussion about it and our shared field, environmental history. I also appreciate Chris assembling a group of reviewers whose scholarship I've long admired and whose own writing, friendship, and mentorship has shaped my career. Tina Adcock, Stephen Bocking, Andy Bruno, and Sverker Sörlin—thank you for your kind, insightful, and probing responses. A careful reader will find in the reviews—particularly those from Adcock and Sörlin—a useful synthesis of recent scholarship in circumpolar history.

In my reading of the reviews, I identify three cross-cutting themes: 1) analyzing environmental history at different scales (local, national, transnational, networks etc.); 2) conceiving of historical actors and historical agency as more-than-human; and 3) advancing environmental history as relevant to present-day social concerns. I am glad these themes emerged for reviewers; I hoped my readers would grapple with them. Below, I take up these themes in turn, with the aim of inviting into the conversation scholars who do not identify as Arctic historians, but who do identify as environmental historians. I also sprinkle in answers to some of the direct questions from individual reviewers, though a comprehensive response to all questions and critiques would require a longer essay than anyone would want to read.

Scales of Analysis

Each of the reviewers discussed the scales of analysis I used in *Unfreezing the Arctic*. Bruno brought this up as a question of transnational or national approaches to studying the region. Bocking asked whether the book is a history of a place or a history of the Arctic as a whole. He also asked about the national border between the United States and Canada, which, he rightly suggests, I did not spend much time writing about. All environmental historians face the inherent tradeoffs in privileging a scale of analysis or approach to history. Such matters have been the subject of rich reflection in our field for some time.²⁵ I found Adcock and Sörlin's comments about the utility of various scales of analysis in a study of a transboundary region to resonate with how I approached the project. That is, depending on the historical phenomena under scrutiny, a historian can toggle among and across scales to explain those phenomena.

I found a 'networked' approach to fit the ways scientists engaged and understood the far north. That is to say, this is a history of a place *and* the Arctic, in so much as

²⁵ Richard White, "The Nationalization of Nature," *The Journal of American History*, vol. 86, no. 3 (Dec. 1999), 976-986.; Ian Tyrrell, "Reflections on the transnational turn in United States history: theory and practice," *Journal of Global History*, vol. 4, no. 3 (Nov. 2009), 453-474.

histories of other Arctic locations can be explored this way. Stephen Bocking deserves a bit of special praise here, as it was an email from him containing a few book recommendations—when I was living in the Canadian Arctic but not yet enrolled in a Ph.D. program—that helped me craft my approach to Arctic history. As he speculates, one of my inspirations was Lyle Dick's *Muskox Land*. Of course, *Unfreezing the Arctic* is not a history of the entire Arctic and I did not want it to be. It is also by no means a comprehensive history of the western North American Arctic. I don't mean for this to come across as dancing around Bruno and Bocking's critiques. Rather, like Adcock and Sörlin, I see great explanatory power in moving beyond received definitions of the Arctic based on modern, fixed political boundaries and toward the constellations of people and things that governed life on the ground at specific historical moments. In looking at the political, economic, and ecological networks in which scientists were enrolled, I felt I could better apprehend certain historical continuities and discontinuities that mattered to me, while defending against confirmation bias and avoiding cherry-picking evidence. Such choices also allowed me to head off objections that the power dynamics I detailed were *only* an American phenomenon or a Canadian one, or something inherent to a particular field of science, natural resource, or historical moment. In the case of environmental history more broadly, it would seem a multi-scalar approach might find wider application among scholars curious about eco-regions, communities of knowledge production, and the movement of resources, people, and ideas over space and time.

Yet, I also acknowledge what Bruno and Bocking are getting at. This approach, like a national or transnational approach, has its tradeoffs. Moving across spatial scales won't work for every historian and every historical question, especially if, as Bruno notes, one of our goals is to engage nationalist historiographies. Also, when a scholar chooses not to consistently apply a particular scale of analysis, they will undoubtedly leave many historical episodes unexamined and open their interpretations to unique challenges. I'm thankful Bocking has identified many such historical episodes worth considering. In terms of alternative interpretations of cases I present in the western North American Arctic, especially those in the land claims and post-land claims era, Bocking's discussion is spot on. The tension between the limited successes found in the Inuvialuit Settlement Region and the continued consolidation of power over resources, knowledge production, and decision-making elsewhere in the North American Arctic is one I tried to highlight at the end of Chapter 5. Admittedly, I could have done a better job presenting examples from other Arctic regions and from different facets of the political economy of oil and gas to contextualize experiences in the western Arctic. Bocking also wondered what I made of efforts by scholars—including anthropologists and wildlife biologists—to reconcile Indigenous knowledge with their own disciplines. Indeed, I have been working on such research topics since *Unfreezing the Arctic* went to print.²⁶

²⁶ Andrew Stuhl, "Science and Indigenous Knowledge in Land Claims Settlements: Negotiating the Inuvialuit Final Agreement, 1977-1978," in Stephen Bocking and Daniel Heidt, eds., *Cold Science*:

Historical Actors and Historical Agency as More-than-Human

Still, how does an Arctic or environmental historian select scales, or find them in the empirical evidence? Considering this question allows me to engage related comments from reviewers about actors and agency. Bruno and Sörlin pushed me, and readers, to consider what Arctic history might look like if agency were understood as more-than-human. Bruno asked if the differences in emphasis in economic agents in his study of the Kola Peninsula and field scientists in my book reveals essential differences in historical experiences of these two places. These are compelling ideas, reactions, and questions.

In *Unfreezing the Arctic*, my approach to actors and agency was borne from existing historiographies of Arctic North America, on one hand, and, on the other, literatures on science, ecology, and empire. I was surprised so much historical scholarship on Arctic North America was confined to national borders. I was curious about the interconnected histories of the western Arctic, especially after living in the region and seeing so many ecological, cultural, economic, and political relations cross the international border. I was also adamant that I would not write another history about explorers. When I first entered this project, the received histories of this region had largely featured the usual suspects—explorers, fur traders, missionaries, and police. Thanks to work from northern scholars like Bocking (as featured in a special edition of *Environmental History*) and his book recommendations, I learned from environmental historians who began to study northern Canada with an eye to scientists and forms of agency that recognized non-human forces.²⁷

At the same time, I was enamored by concepts and approaches found in history of science and empire. From actor-network theory, I borrowed the concept of a ‘network of circulation,’ which, for this audience, likely needs very little explanation. Essentially, this concept accords the capacity for historical change to both human and non-human actors and arranges them in a series of nodes with various interrelationships; relations can move through and around the nodes. I was also taken by ethnographer Anna Tsing’s concept of “contingent lineages.” Tsing coined this term to contextualize globalization, or to take what is commonly understood as a homogenous and homogenizing process and reveal its messy, unexpected entanglements. It refers to the ways human communities draw meaning from processes working at different scales in order to mediate their immediate surroundings in the face of globalizing forces. In one of her examples, Tsing shows how village elders in the Indonesian Meratus Mountains resisted foreign timber corporations by building partnerships with multi-national environmental NGOs and college-aged backpackers. These alliances were made possible not only because of

Environmental Knowledge in the North American Arctic During the Cold War, (Routledge Press, forthcoming in Spring 2019).

²⁷ Stephen Bocking, “Science and Spaces in the Northern Environment,” *Environmental History*, vol. 12, no. 4, Special Issue on Canada (Oct. 2007), 867-894.

the frontiers of capitalism that made Indonesian rainforests attractive to Japanese trading companies, but also because of the national anti-politics and consumer cultures of nature lovers. Moreover, the “native wisdom” that interlocked with environmental protection was also a product of trans-local conjunctions. So-called local knowledge imbricated social status within the community, relations between that community and national political forces, and networks of trade that had historically privileged certain kinds of knowledge over others. With “contingent lineages,” Tsing is able to place globalization in the Indonesian experience without succumbing to deterritorialization or hyper localism.²⁸ Like “contingent lineages,” I’m drawn to Sörlin’s phrase “extra-ordinary agencies” and Bruno’s suggestive comments about future directions in Arctic history, where such agencies form the heart of the analysis.

Yet, in narrating historical change as I did, I was not only guided by analytical frameworks. I was also trying to hold fast to methodological and ethical commitments. That is, my decisions to focus on scientists as the primary actors flowed directly from my desire to address environmental justice issues in the western Arctic. These included, first and foremost, disproportionate climate hazards faced by Arctic residents when compared to those living in more metropolitan areas of North America and their relative contributions to greenhouse gas emissions. They also included related procedural injustices of marginalizing Indigenous voices from decision-making on environmental regulation and economic development, as well as the ways popular imaginaries of the far north largely excluded Indigenous representations. In turn, my commitments to these justice issues were primarily based on experiences I had while living in the Arctic, where Indigenous and northern residents encouraged me to study the Arctic’s colonial history in order to understand what was going on there today. And so, I detour to an origin story for the project – an endearing tradition of the Author’s Response – in order to make connections among the research methods, ethical commitments, writing styles, and the audiences we hope to engage as environmental historians.

Advancing Environmental History as Relevant to Present-Day Social Concerns

In working on what came to be *Unfreezing the Arctic*, I lived, volunteered, and studied in Inuvik, Northwest Territories, Canada for two, ten-month stints. During the first of these, in fall 2007, I had the chance to hunt caribou with a group of middle schoolers, a few local natural resource officers, and an elder as part of a cultural and educational trip for the students. On the drive down the Dempster Highway to our campsite, I sat next to Jimmy Kalinek, an Inuvialuit man about my age who was born and raised in Inuvik. It was a conversation I first had with Jimmy—and later, repeated with many other community leaders—that guided me through the conception, research, framing, and writing of *Unfreezing the Arctic*.

28 Anna Tsing, *Friction: An Ethnography of Global Connection*, (Princeton: Princeton University Press, 2005), x-xii, and 123-233.

From the passenger seat of a pick-up truck, I peppered Jimmy with questions about climate change. Have you noticed changes in migration patterns of caribou or geese? Have you noticed shortened seasons of the local ice road? And so on. Jimmy was patient with me. After responding to my questions, he said something that startled me. He said this wasn't the first time environments had transformed rapidly. It wasn't the first time governments and corporations had descended on his town to express interest in natural resources. And it wasn't the first time scientists had come north to tell him how to manage Inuit lands. If you want to study Arctic climate change, Jimmy was telling me, you have to nest it in the intertwined histories of science, development, and colonialism. In other conversations that year in Inuvik, several other Inuvialuit community leaders echoed Jimmy, including those working in the Inuvik Community Corporation, the Inuvialuit Cultural Resource Center, the Town of Inuvik office, and those I met through my position as a volunteer in the elementary school, at feasts and jamborees. These interactions influenced me to enroll in a Ph.D. program specifically in the History of Science (at the University of Wisconsin-Madison), which, in turn encouraged me to work at the intersection of environmental history and the history of science.²⁹

Looking back on my time in Inuvik, I can say that, more than anything, a commitment to being 'in the field,' and building my research topic based on what concerns I heard from local residents, conditioned my choices as a researcher and writer. Forging relationships with Arctic residents (whether Indigenous or non-Indigenous), trying to view Arctic history from their perspectives, and apprehending a deeper, more textured sense of the landscape: these experiences were in play at each phase of research and writing. They helped me find historical cases to examine. They facilitated locating primary sources—some rarely used in Arctic history and only available in cultural resource centers in the north. Environmental historians, keen as they are to venture beyond the archives, likely know these advantages of community-based research. In the case of Arctic history, where travel and fieldwork is considerably more expensive, such approaches are less common. Yet, most of all, living in the place I wrote about encouraged me to think about the entire project as something more than a dissertation or a book about environmental history for environmental historians. I felt compelled to advance the interests of people like Jimmy Kalinek, while being careful not to claim to speak for them. This desire only strengthened the more I read about all the ways previous researchers had been implicated in colonialism.

It is gratifying to read each of the reviewers summarize *Unfreezing the Arctic* as a unique attempt, both methodologically and narratively, to engage contemporary

²⁹ I need to make one correction to Sörlin's review. He mentioned that an informant or collaborator in my research told me not to "bring back a hollow story." This quote actually refers to someone in Alaska interviewed by Will Voinot-Baron, a doctoral student in the Department of Anthropology at the University of Wisconsin-Madison. Voinot-Baron brought up this quote and interview when he spoke with me about *Unfreezing the Arctic* for the blog *Edge Effects*. Will Voinot-Baron, "Is the Arctic Out of Time? A Conversation with Andrew Stuhl," *Edge Effects*, 1 December 2016, available at <http://edgeeffects.net/arctic-out-of-time/>.

Arctic affairs. It was my greatest hope to research and write a book that was a careful, rigorous scholarly treatment of Arctic history accessible to a wide audience, especially those living outside the far north and with some amount of influence within it. I think all environmental historians want to use history to advance public understanding and build a more sustainable, ethical world. It is exciting to see the field turn more squarely toward the present, while keeping a healthy, cautious attitude toward presentism and other threats to our credibility as public scholars. I am flattered by Sverker Sörlin's praise of *Unfreezing the Arctic* as a potential model for future scholarship on this score, given his stellar and pioneering contributions to Arctic, Polar, and circumpolar history.

At this point, I need to make some caveats. First, there is probably no tone I can take here that doesn't smack of self-importance. I claim no moral high ground. Second, I revised the dissertation into a book as a tenure-track professor in an Environmental Studies department. I likely enjoyed more freedom to frame this study in non-traditional ways than if my tenure prospects were defined by the standards of a history department. Third, I'm not willing to say that *Unfreezing the Arctic* fully represents the concerns of the town of Inuvik or a model of *community-based* historical scholarship. As I emphasized in the Introduction, there are many limits and failures of my approach. Adcock and Bocking asked for recommendations on how historians ought to engage Arctic residents. I appreciate the question, though I think it best to defer to the many useful guidelines for researchers created by Indigenous organizations for particular territories. Even though many of these are geared more for natural and social scientists than historians, the point here is that these protocols, and their authors, should be our guides in places where Indigenous people are rightful land owners. I also recognize carrying out field research the way I did is not possible for everyone. I was a graduate student in my 20's, unmarried and without children, and funding agencies viewed "Arctic" and "climate change" issues quite favorably. There are other ways to listen to Indigenous peoples, though – particularly in the ways Adcock mentions at the end of her review and through Indigenous political organizations and allied advocacy groups based in southern cities and political centers. As a more general rule, I think historians can begin, as Emilie Cameron has said in her book *Far Off Metal River*, by learning to listen to Indigenous peoples. I don't think that such a principle would violate Bocking's point that some of "the most consequential decisions in northern history have been made by those who never, or rarely, visited the north." On the contrary, and as Arn Keeling remarked at the 2013 ASEH conference in Toronto, Arctic history is only poorly known outside the Arctic.

Finally, and perhaps most importantly, this origin story for *Unfreezing the Arctic* reeks of a cliché: a white man traveling to the far north to learn something that is already well understood by everyone who lives there. Such origin stories are themselves part of the long history of exploration and colonialism. When non-Indigenous, academic historians talk about why and how we became interested in the Arctic, we must immediately confront this history, situate ourselves within it, understand our privileges as a product of it, and avoid repeating it. And so, I

deliberately did not include this origin story in *Unfreezing the Arctic*, because I did not want to attempt to earn readers' trust by trading in the tropes of Indigenous erasure, a dangerous or barren Arctic, and sensational individualism.

Why include the origin story here, then? Because the moral of the origin story in this context is not to convince the reader that I am an Arctic expert worth listening to. Rather, it is to appeal to Arctic and environmental historians to consider their positions of privilege as relevant and necessary—*particularly when* selecting research topics, drawing conclusions based on our interpretations of historical evidence, and choosing the stories and lessons to emphasize. That my work in *Unfreezing the Arctic* foregrounds science at the expense of Indigenous knowledge, or that I draw causal relationships that have more to do with human action than coupled human-ecological systems aligns with this appeal. Kim Tallbear, a Canada Research Chair in Indigenous Peoples, Technoscience and Environment at the University of Alberta, terms such an approach “studying across” (drawing from anthropologist Laura Nader’s term “studying up.”) Tallbear used this term in reference to her study, as an Indigenous scholar, of scientists who research Indigenous genetics. “Across” and “up” apprehend a direction for scholarly inquiry that returns the colonial gaze to colonial forces, rather than keeping it fixed on marginalized populations. I think the term could be applied to non-Indigenous environmental historians studying the systems of power at stake in environmental change and environmental injustice, past and present.³⁰

While our subdiscipline was founded in part as an activist line of inquiry, “studying across” may look different, in print and in practice, than environmental history as we know it. Several readers of my work (though none of these reviewers) wanted me to foreground Indigenous knowledge more, especially given the interviews and ethnography I had completed in Inuvik. I think this advice came from the intention to de-position western science as infallible or hermetically sealed from society and give due credit to non-western knowledge systems. Though I saw value in this charge, I felt uneasy with it too, given what it implied as claiming authority on Indigenous experiences. I felt more comfortable relying on histories and accounts written by Indigenous authors, particularly in service of countering interpretations of environmental and social change made by non-Indigenous actors at some moment in the past. Studying across also compels me to conceive of promoting the book project differently. I have tried to use the platform created by *Unfreezing the Arctic* to redistribute advantages that come to me – like author royalties or media attention, for instance.³¹ I am glad to see colleagues in environmental history adopt

³⁰ Kim Tallbear, “Standing With and Speaking as Faith: A Feminist-Indigenous Approach to Inquiry,” *Journal of Research Practice*, vol. 10, no. 2, Article N17. Retrieved from: <http://jrp.icaap.org/index.php/jrp/article/view/405/371>

³¹ All author royalties for *Unfreezing the Arctic* support the on-going, transformative work of two organizations: Alaska Youth for Environmental Action (Anchorage, AK) and the On the Land Program at East Three Secondary School (Inuvik, NT). In cases where I have been asked to comment in the press on my book, I also ask those reporters to give space to Inuvialuit and Inupiat voices.

this practice.³² I have also [sought out audiences with key decision-makers on Arctic matters](#), including Arctic scientists and those within the US and Canadian governments with interest in Arctic affairs. Whether I have been successful with this, I'm not sure.

As many environmental historians know, these types of public engagement carry risks as well. Especially as Bocking points out in his reaction to the Epilogue, trying to pitch a work as both a contribution to the scholarly literature and a reason for social change will often mean thinning out discussions of historiography or historical contribution, which can be disappointing for some. Moreover, given the concerted attacks on the scientific consensus around anthropogenic climate change in the United States by means of disinformation and doubt campaigns, emphasizing historical contingency and the social relations of science could, in the wrong hands, be spun to suggest little need for climate action (and, [indeed, my work has been spun that way](#)).

Warts and all, I am most pleased that these are the kinds of conversations I can have with my colleagues about *Unfreezing the Arctic*. The Arctic is a special place, but it is certainly not unique in its status as a post-colonial location witnessing rapid ecological change, increased scientific attention, and renewed corporate and governmental investment. Now, more than ever, we need to write history as if the future depends on it. Because it does.

³² See Nancy Langston, "The Author," *Sustaining Lake Superior*, <http://www.sustaininglakesuperior.com/>, (accessed (11 January 2019)). The University of Chicago Press, "Do You See Ice?" The University of Chicago Press, <https://www.press.uchicago.edu/ucp/books/book/chicago/D/bo28827844.html>, (accessed 11 January 2019).

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Sverker Sörlin is professor of environmental history at KTH Royal Institute of Technology, Stockholm. He has a long standing interest in Arctic history and politics and was the President of the Swedish Committee for the International Polar Year 2007-2009. He is the editor of *Science, Geopolitics and Culture in the Polar Region – Norden beyond Borders* (Ashgate, 2013), the co-editor with Michael T. Bravo of *Narrating the Arctic: A Cultural History of Nordic Scientific Practices* (Science History Publications, 2002), and with Dolly Jorgensen of *Northscapes: History, Technology, and the Making of Northern Environments* (UBC Press, 2013).

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